ASX Announcement

15 June 2026

ECT Completes REM Pilot System, Targeting Commercial Demonstration

Highlights:

- ECT has completed construction of its pilot Rapid Electrothermal Mineralisation (REM) system, delivering 18 times the power output of the lab-scale prototype and enabling in-situ testing for the destruction of PFAS from contaminated soil and granular activated carbon (GAC) ahead of commercial deployment.
- The pilot system operates at 170 kHz and 2,200 V, up from 70 kHz and 500 V in the lab-scale prototype, delivering faster, more energy-efficient remediation, supporting scalable in-situ deployment.
- The redesigned system operates without conductive additives such as biochar, enabling additive-free, high-temperature REM in-situ, a capability ECT believes has not previously been demonstrated by any other PFAS remediation process.
- The pilot system is approximately 50% smaller in volume and 75% lighter than the laboratory configuration, making the technology genuinely deployable across contaminated sites.
- Laboratory testing of the pilot system is underway and demonstrating optimal performance.
- Subject to successful validation, ECT is targeting first in-field pilot demonstration across both soil and GAC in H2 2026.

Environmental Clean Technologies Limited (ASX: **ECT**) (**ECT** or **the Company**) is pleased to announce the completion of its pilot Rapid Electrothermal Mineralisation (REM) system, a significant milestone in the Company's progression toward commercial in-situ PFAS remediation.

ECT has completed the construction of a pilot Rapid Electrothermal Mineralisation (REM) system, representing a significant upgrade from the laboratory prototype. The pilot system incorporates redesigned power electronics and upgraded industry-grade components that deliver 22kW of power output, which is approximately 18 times that of the lab prototype, enabling faster, more energy-efficient in-situ destruction of PFAS. The system is also 75% lighter than the legacy lab prototype and no longer requires conductive additives such as biochar to carry current through contaminated soil.

The pilot system addresses key barriers to large-scale in-situ deployment and positions ECT to scale toward commercial remediation. The Company is targeting first in-field demonstration in H2 2026.

Commenting on the update, ECT Chief Technology Officer, Justin Sharp, said, *"Completion of our own pilot system marks the transition from a laboratory-validated concept to a system we can actually deploy in the field. This is the system we've been working towards for many years at Rice University. The step-change in power output is what unlocks in-situ soil remediation at a commercial scale, overcoming a longstanding challenge in pushing sufficient current through soil without conductive additives or fixed infrastructure, and making the technology far more commercially viable.*

"Just as importantly, we've cut system volume by around 50% and weight by 75%, making deployment across contaminated sites much more practical to mount onto existing, commercially available construction and farming equipment. With our pilot system now complete, our focus turns to validation and field demonstration which is targeted for the second half of this year."

Background

REM is ECT's process for destroying PFAS within granular activated carbon (GAC) and contaminated soil, and removing heavy metals from the environment. It is a subset of Flash Joule Heating (FJH), developed by Rice University. As detailed in previous announcements, graphite or metal electrodes are inserted into PFAS contaminated soil, and a high-voltage, high-power current is applied between them, generating temperatures above approximately 1,000°C with the objective to break the strong carbon–fluorine bonds in PFAS and convert them into inert, non-toxic fluoride salts.

In controlled laboratory testing, the process has achieved demineralization efficiencies exceeding 96% and removal of perfluorooctanoic acid (PFOA) of up to 99.98%.

Early REM configurations relied on conductive additives such as biochar to carry current through the soil. While effective in the laboratory, additives add cost and complexity and limit suitability for large-scale in-situ use. To remove this barrier, the Company has been developing a high-voltage, high-frequency REM system that operates without additives while maintaining effectiveness, with safety testing and hardware validation now in their final stages. The purpose of the current validation phase is to replicate laboratory tested demineralization efficiencies at scale and in-situ.

Scalable High-Frequency, High-Power Pilot System

The primary achievement of the pilot system is the design and fabrication of a purpose-built power board and upgraded components capable of delivering high-frequency and high-power output simultaneously, a combination that the legacy system could not achieve.

The new industry-grade components operate at 170 kHz and 2,200 V, compared with the legacy, lab-scale system, which was limited to 70 kHz and 500 V. Higher voltage increases current output and therefore delivered power, shortening remediation time, while the higher frequency allows current to flow through soil without conductive additives. Together, these result in greater additive-free, higher-temperature soil conductivity and treatment efficiency in-situ, a capability not previously demonstrated by any other PFAS remediation process.

Translating technology from the lab to the field is a critical commercialisation hurdle, as laboratory demonstrations typically depend on large, fixed infrastructure. The pilot system and its component upgrades overcome this hurdle. By replacing the substantial ancillary equipment which the lab-scale setup required,

the pilot system is approximately 50% smaller in volume and 75% lighter than the laboratory configuration, making the technology genuinely deployable across contaminated sites.

In parallel with the power electronics overhaul, the pilot system also incorporates aerospace-grade electrode materials, selected to withstand the high temperatures and mechanical stresses of in-situ deployment, where electrodes are inserted directly into subsurface soil.

Commercialisation and Next Steps

Consistent with its strategy of developing and licensing intellectual property, ECT intends to commercialise REM primarily through licensing, complemented by an integration route in which modular REM units are mounted onto standard agricultural and construction equipment already operated by industry partners, thereby reducing site-specific capital requirements and supporting deployment across diverse contamination scenarios.

In parallel, the Company is advancing a complementary pathway for destroying PFAS captured on GAC, broadening the addressable market into water remediation using the same core hardware. Laboratory validation of the GAC pathway has now been completed, including a peer-reviewed, published study of commercial GAC samples sourced from the US Army Corps of Engineers. ECT is now progressing both soil and GAC pathways in the pilot system and is in the process of procuring PFAS-laden commercial samples to confirm that results observed in the prototype are replicated, and achieved at greater efficiency, providing the validation required ahead of commercial deployment.

ECT is following a staged commercialisation pathway. Foundation work is complete and the Company is currently in the validation phase, progressing permitting for on-site soil remediation alongside the GAC pathway. Subject to successful validation, ECT is targeting its first in-field pilot demonstration in H2 2026, after which it intends to convert that demonstration into commercial licensing arrangements and OEM partnerships.

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

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