



## ECT signs MoU for Waste Innovation Hub Development at Bacchus Marsh

### Key points:

- Binding MoU signed with Calleja Group for the joint development of a “Waste Innovation Hub” at JBD Industrial Park, the site of ECT’s Viridian Hydrogen project
- Sets framework for operational inputs in support of ECT’s Viridian Hydrogen project
- Positions ECT into future circular economy by:
  - Co-operating with an experienced waste solutions provider
  - Utilising waste streams as feedstock for clean hydrogen and ag char

**24 November 2022:** Environmental Clean Technologies Limited (ASX: ECT) (“ECT” or “Company”) is pleased to announce the signing of a binding Memorandum of Understanding (“MoU”) with Maddingley Brown Coal Pty Ltd, JBD Industrial Park Pty Ltd, Calleja Transport Pty Ltd and Calleja Nominees Pty Ltd, collectively the **Calleja Group**, owners of JBD Industrial Park (“JBD”), in support of the development of a waste innovation hub in Bacchus Marsh, Victoria.



### Establishing the operational backbone for ECT’s Viridian Hydrogen project at Bacchus Marsh

This MoU marks a collaborative framework with the site's owner to ensure both ECT and Calleja Group optimise their mutual interests for future commercial operations.

Once ECT completes the operational testing of Phase 1 of the COLDry demonstration plant, scheduled for December 2022, the Company will pursue the commercial demonstration of its Viridian Hydrogen process over 2023 (Phase 2), ultimately transitioning the plant into a sustainable commercial operation.

The MoU will allow effective and coordinated solutions that support commercial operations, targeting key inputs, including electricity access, waste heat harvesting and feedstock supplies.

These three inputs represent >80% of the operational costs for the Viridian Hydrogen process, and control and management of these are essential to delivering an economically feasible operation.

ECT Managing Director Glenn Fozard commented:

*“The Viridian Hydrogen process at JBD Industrial Park, Bacchus Marsh, aims to establish ECT as one of the earliest producers of clean hydrogen, amongst other valuable products. This will ultimately complement a fully integrated waste management and resource recovery solution at the site, a field in which the Calleja Group are generational experts.*

*“As part of this waste innovation hub at JBD Industrial Park, our plant will process hard-to-manage waste (like biosolids and plastic contaminated compost) and convert these into valuable energy and agricultural products, with a net zero emission footprint.”*

### **Alignment with a future circular economy**

The World Resources Institute has identified five barriers to delivering the circular economy<sup>1</sup>:

- 1) Consumer behaviour and expectations
- 2) Government regulation
- 3) Waste infrastructure
- 4) Recycling technology
- 5) Business models

Various stakeholders are pursuing initiatives to overcome these barriers.

At a regulatory level, banning plastic bags or other single-use plastic products can positively impact certain waste streams. However, even in developed economies such as Australia, the lack of waste businesses capable of delivering practical, economically sustainable solutions to many waste streams has resulted in their stockpiling or landfilling, highlighting the broad systemic failure of well-intended government policies to develop a circular economy.

Through this MoU, ECT and the Calleja Group will explore opportunities to develop innovative recycling and resource recovery technologies and solutions for difficult-to-process waste streams to circulate resources and materials at their highest value in an economically sustainable manner.

### **Background**

In addition to owning JBD, the Calleja Group operates a waste management and resource recovery business, which includes material handling, transport, recycling, landfilling and mining operations, including owning and operating the Maddingley Brown Coal mine, 2km from JBD.

ECT is a tenant of the Calleja Group at JBD and, as previously announced, is progressing with its COLDry commercial demonstration project (Bacchus Marsh Project) aimed at demonstrating a set of unique solutions, including:

- Clean hydrogen for energy and industrial chemicals from lignite and biomass
- Agricultural char for soil health and food security
- Battery active carbon to support the diversification of critical minerals

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<sup>1</sup> Link: <https://www.wri.org/insights/barriers-circular-economy-5-reasons-world-wastes-so-much-stuff-and-why-its-not-just>

ECT Managing Director Glenn Fozard commented:

*“The Calleja Group is a long-term supporter of ECT and our technologies.*

*“As we’ve progressed with the development of our COLDry and Viridian Hydrogen demonstration, we’ve found a range of synergies and a common strategic alignment around the emerging need to develop innovative solutions to challenging recycling problems in the circular economy.*

*“We look forward to exploring a range of options and, where appropriate, jointly developing those initiatives with the Calleja Group and other potential partners at the site.”*

Calleja Group Managing Director Don Calleja commented:

*“This MoU continues a 17-year partnership between ECT and the Calleja Group. Calleja Group is pleased to see plans for a commercial operation using the COLDry technology that will complement our group’s plans for developing the site into a Waste Innovation Hub.”*

## **Material Terms**

The binding agreement sets the framework for working together with the Calleja Group to develop JBD into a waste innovation hub, including (where deemed appropriate):

- Materials sorting
- Processing and recycling
- Transfer
- Disposal
- Energy generation
- Production of value-add products, including:
  - Hydrogen and hydrogen derivatives
  - Agricultural products (fertiliser, soil health, etc.)
  - Advanced carbon products

The MoU also aims to investigate and pursue feasible options for the joint development of:

- Disposal of hard-to-process waste biomass
- Establishing an electricity micro-grid
- Establishing a sustainable and future commercial use of Maddingley brown coal
- End-of-life tyre processing
- Hydrogen vehicle and EV fuelling station

There is no time limit to the agreement, and either party may terminate the agreement with 30 days' notice.

Each party has agreed to meet their own costs of this agreement.

The Company will provide updates on opportunities as they pass the evaluation stage and progress to the development stage.

**END**

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

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#### **About ECT**

ECT has been developing net-zero emission and hydrogen technologies for over 15 years.

Our solutions aim to transition today's use of resources to tomorrow's zero-emission future, delivering immediate financial and environmental benefits.

We are focused on advancing a portfolio of technologies that have significant market potential globally.

ECT's business plan is currently focusing on two major projects:

- 1) Zero-Net Emission COLDry Commercial Demonstration at Bacchus Marsh, Victoria, Australia
- 2) Zero-Net Emission Hydrogen Refinery Project at the Latrobe Valley, Victoria, Australia

#### **About our Technology Suite**

##### **COLDry**

COLDry is the gateway enabler of higher-value applications for waste biomass and lignite.

These streams are a rich source of valuable hydrocarbons. However, they suffer from high moisture content that must be reduced to enable higher-value upgrading and conversion to solid fuels, liquid or gaseous hydrocarbons.

Drying is easy. However, drying efficiently, cost-effectively, and with a low emission footprint has been the challenge. COLDry meets this challenge through a combination of 'substrate densification' and waste heat utilisation, delivering the world's first low temperature, low pressure, low cost, zero CO<sub>2</sub> emissions drying process.

##### **HydroMOR**

The HydroMOR process has the potential to revolutionise primary iron making.

HydroMOR is a simple, low-cost, low-emission, hydrogen-driven technology that enables 'low value' feedstocks to produce primary iron. HydroMOR is the transition solution to a "green steel" future.

##### **COHgen**

The COHgen process has the potential to deliver a lower cost, lower emission method for hydrogen production from lignite and other waste biomass streams.

COHgen is currently advancing through fundamental laboratory development intended to form the basis for a patent application ahead of scale-up and commercialisation.

COHgen aims to decouple hydrogen production from CCS, accelerating the race towards <\$2kg production costs with little to no emissions.

##### **CDP-WTE**

The catalytic depolymerisation-based waste-to-energy process converts low-value resources into higher-value diesel and other valuable by-products.

CDP-WTE can be deployed as a standalone solution or integrated with the COLDry process to deliver higher-value, lower-emission energy solutions to lignite resource owners.

**Forward-Looking Statements**

Statements contained in this release, particularly those regarding possible or assumed future performance, revenue, costs, dividends, production levels or rates, prices or potential growth of ECT, are or may be forward-looking statements. Such statements relate to future events and expectations and, as such, involve known and unknown risks and uncertainties. Therefore, actual results and developments may differ materially from those expressed or implied by these forward-looking statements depending on various factors.