ENVIRONMENTAL CLEAN TECHNOLOGIES LIMITED

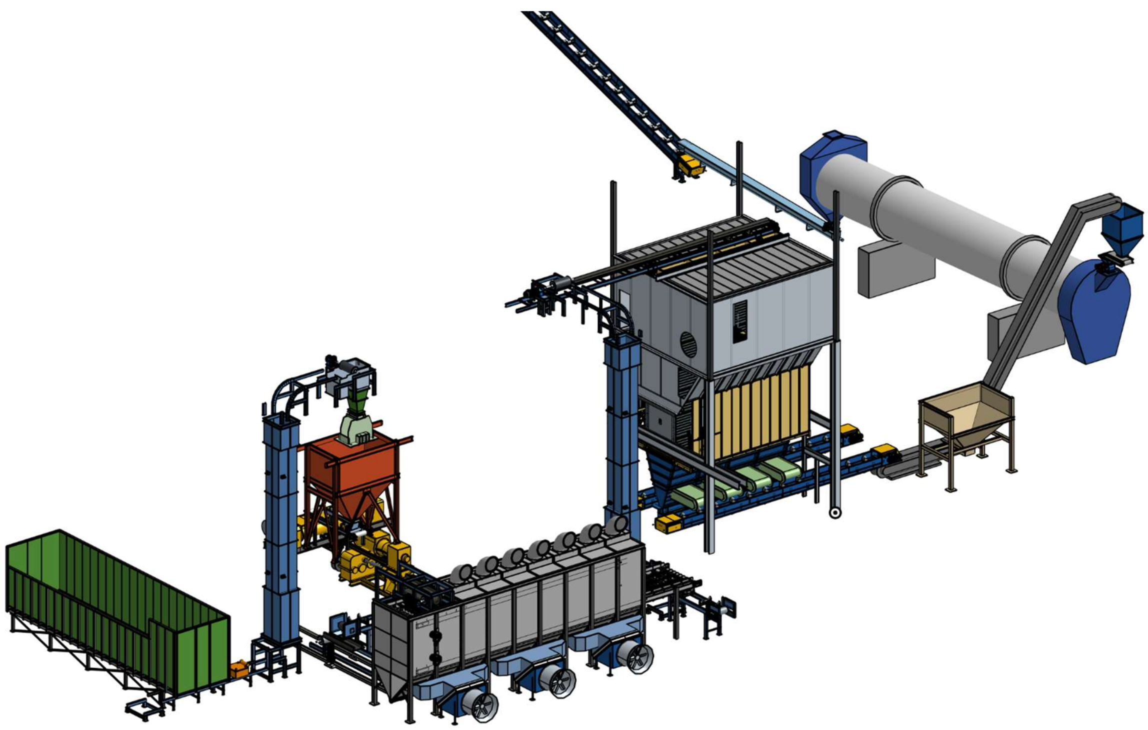
Project Update: Commissioning program underway

28 March 2022: Environmental Clean Technologies Limited (ASX: ECT) ("**ECT**" or "**Company**") is pleased to announce a significant step forward in the commissioning program for the Phase 1 commercial demonstration of COLDry at its Bacchus Marsh site.

Key points:

- Dry commissioning started mid-March with no material issues
- Wet commissioning to begin before the end of March
- Opportunity for significant drying system optimisation identified
- Targeting fast-tracking of Phase 2
- IP protections during commissioning to gain increased focus
- Continued program for attracting new partners and investors
- Director incentive options & engagement terms set for Mr Blackburn

Over the recent weeks, the Company has made substantial progress in the dry commissioning program for the scaled-up COLDry demonstration plant, specifically the primary processing train and conditioning system.



Above: Diagram 1 showing the current COLDry demonstration plant layout.

To date, no material concerns have presented, positioning the project team to commence 'wet commissioning'.

The R&D team has been working in parallel to evaluate samples taken from commissioning and support further downstream optimisation as the plant comes online.

With the introduction of lignite during wet commissioning, the project team is able to fully test all components, as an integrated plant, ultimately moving to steady-state operations.

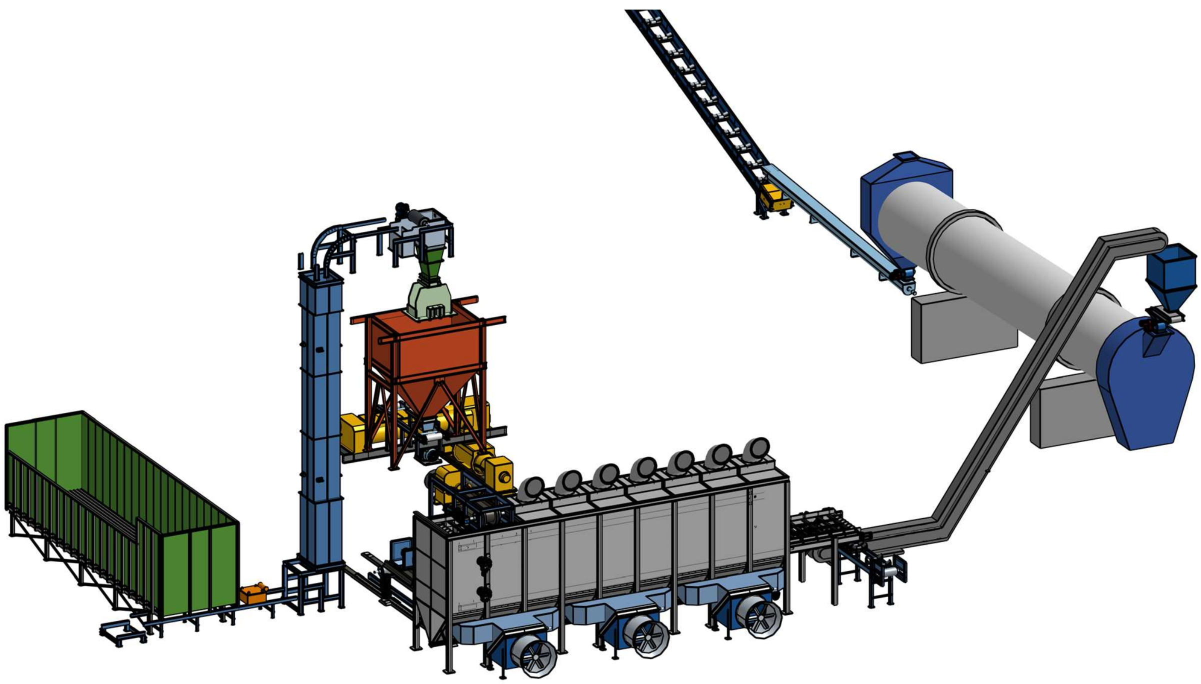
Uncovering New Opportunities for Drying System Optimisation

During dry commissioning, a potential process efficiency gain was identified in the conditioning system. This opportunity centres on the potential of the new, five-pass conditioning system and direct supply to the planned downstream "phase 2" pyrolysis kiln. This would produce significant CAPEX and OPEX savings across Phase 1 and Phase 2 of the current demonstration project and for the planned Latrobe Valley project.

The engineering team has modelled the conditioning system's likely performance and the current estimations indicate a significant efficiency improvement and potential for greater moisture reduction prior to transfer to the Packed Bed Dryer (PBD).

The materiality of this improvement warrants increased commissioning focus and development activity, and may represent a significant capital and operational cost-saving opportunity for downstream applications, including:

- Reduced size or increased throughput of the PDB
- Direct feed from the conditioning system into the Phase 2 pyrolysis stage (thus potentially bypassing the PBD stage (see Diagram 2 below)
- Reduced energy consumption of the overall system leading to improved operational costs
- Accelerated implementation of Phase 2 (see recent Corporate Presentation) ahead of finalising the COLDry-PBD stage
- Reduced CAPEX for the proposed Latrobe Valley project.



Above: Diagram 2 showing the direct feed concept of conditioned COLDry pellets to the pyrolysis kiln.

Group Engineer, Ashley Moore commented:

> *"The engineering, research and project management teams have developed a deep understanding of low temperature drying, substrate plasticisation and densification, and the COLDry demonstration project represents the culmination of that knowledge and experience in action. Phase 1 of the Project has seen significant advancements to the milling, mixing, extruding and, most notably, the conditioning of the pellets, which targets performance improvements of 3-10x better than the previous pilot-scale design."*

Managing Director, Glenn Fozard commented:

> *"The target here is to define the efficiency gains so that we can further refine the capital estimates for our Latrobe Valley project. When you consider that the PBD represents ~30% of the footprint of the COLDry plant and up to 40% of the capital expenditure, it's critical to consider how we can reduce the need for this step in the process. The commercial benefits would be substantial if we can direct-feed COLDry processed pellets from the conditioning system into a pyrolysis unit. Confirming and quantifying this opportunity will be the focus of our efforts over the coming weeks."*

IP Security of ECT's Technology

As the Company moves closer to full commercialisation and design improvements are identified during demonstration and scale-up, ECT will continue to evaluate opportunities for improved protections of its technology suite. By example, and through the current commissioning program, ECT has identified potential for the new conditioning system to hold novelty of design, enough to warrant consideration for starting the patent process.

Additionally, given publishing "prior art" may void claims of novelty ahead of filing a patent application, the Company has chosen not to include photos of the COLDry plant.

Attracting New Partners

The Company is keenly aware that as we progress through each stage of our commercialisation program, at Bacchus Marsh and towards the Latrobe Valley project in Yallourn, ECT is attracting increased attention from potential commercial partners.

As a result of the development of Phase 1, including the potential efficiency improvements of the drying system, leading to a shorter timeframe to Phase 2 and potential CAPEX savings for the Latrobe Valley project, the Company has continued to prepare for and engage with key prospective industry groups and refine the approach to funding and development of Stage 2 at Bacchus Marsh.

Given the limitations of publicising our novel technologies before patent protection, the Company has been organising selective tours through the site for stakeholders such as government, institutional investors and partners, to verify the progress. The Company will continue to organise these tours for qualified parties and progress formal partnerships in accordance with the strategy outlined in the Corporate Presentation released to the ASX on 9th March 2022.

Chairman, Jason Marinko, commented:

> *"I am pleased to see the project progress to a key milestone this quarter, as planned. This is despite confronting significant industry-wide labour shortages, supply chain delays and COVID related impacts to workforce. The board of ECT is proud of the team's commitment to this achievement and how the demonstrable progress is leading to greater engagement and opportunities with commercial partners."*

Incentive Option Plan and Director Engagement Terms

The Company is also pleased to advise that it has finalised an incentive option plan for Non-Executive Director, Mr James Blackburn. Mr Blackburn was first appointed a director of ECT in September 2019 and has previously held the roles of Chief Operating Officer and Executive Director. Mr Blackburn plays a key operational oversight role for the Board and has worked actively with the executive team to plan the next phase of operations at ECT's Bacchus Marsh facility and the development of the H2Hub project in Yallourn.

As part of their remuneration package and subject to shareholder approval, the Company intends to offer Mr Blackburn 40 million options, with an exercise price of $0.050. These options will be subject to the following vesting conditions, which are designed to align the interests of the Directors with shareholders:

- 10,000,000 Options which vest 12 months from date of grant and expire 3 years from date of grant
- 10,000,000 Options which vest no earlier than 12 months from date of grant if the 20-day VWAP is $0.060 or higher at any time prior to expiry, 3 years from date of grant
- 10,000,000 Options which vest no earlier than 12 months from date of grant if the 20-day VWAP is $0.080 or higher at any time prior to expiry, 3 years from date of grant
- 10,000,000 Options which vest no earlier than 12 months from date of grant and if the 20-day VWAP is $0.100 or higher at any time up to expiry, 3 years from date of grant.

The options will be granted under an employee option plan adopted by the Board. The Company will seek shareholder approval for the issue of options to Mr Blackburn at the next shareholders meeting. Where shareholder approval is sought but not obtained, Mr Backburn will be compensated with cash equal to $50,000.

This announcement has been approved for release to the ASX by the Company's Board of Directors.

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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, which 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 emissions 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_2 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 a variety of factors.
