



Shareholder Update

Return to normal operations and commencement of Coldry upgrades project

18 June 2020: Environmental Clean Technologies Limited (ASX: ECT) (ECT or Company) is pleased to provide the following update regarding the Company's operations.

Key points:

- Return to normal operations
- Overview of COVID-19 impact
- Commencement of the Coldry upgrade project:
 - Two-phase approach to better manage technical and financial risks
 - Phase 1 Coldry plant scale up targeted for completion by April 2021
 - Phase 2 Char plant construction and commissioning to follow
- Government support & grants
- Issue of shares as announced 18 May 2020

Return to normal operations

The Company is pleased to advise the return to normal operations and recommencement of the Coldry upgrade project, effective immediately.

On 26 March 2020, ECT announced, due to the COVID-19 restrictions and State Government of Victoria's state of emergency, a wind-down of operations and the activation of the business continuity plan (BCP). The BCP was aimed at preserving as much cash as possible and allowing time to better understand the effect on ECT of the risks and head-winds associated with the COVID-19 pandemic.

Whilst the state of emergency has been extended through to 21 June 2020, restrictions have been gradually eased and will continue to ease unless infections spike.

Chairman, Glenn Fozard commented, "The Company has been acting prudently over this 13-week period, firstly to ensure that the health and safety of staff is prioritised, and secondly to preserve cash for the commencement of the all-important Coldry upgrade project. COVID-19 has driven business to understand the requirements of the 'new normal', both socially and economically.

"Our staff, shareholders and stakeholders have been very patient, and we now look forward to the launch of the Coldry upgrade project with regular updates of its progress along the way."

COVID-19 impact

Following the successful close of the non-renounceable entitlement issue on 10 February 2020, the Company, along with the rest of the world, was hit with a 'black swan' event in the form of the COVID-19 pandemic, resulting in significant disruption.

Mr Fozard commented, "The past few months have been incredibly challenging. Winding our business activities down by approximately 50% during the lockdown achieved the targeted cash savings but also placed a lot of pressure on our staff and stakeholders. We thank everyone for their patience, especially our

shareholders. We are pleased to report that our team managed to stay healthy and are ready to deliver our key priority for the remainder of the year, being the commencement of the Coldry upgrade project in support of our strategy to generate future positive earnings.”

The BCP period has necessitated additional analysis of the risks and challenges presented by the pandemic, leading to the refinement of the project execution plan and budget for the Coldry upgrade project.

Despite avoiding significant operational costs due to the implementation of the BCP, this period has not been without cost and impact on our project and operations, including:

1. Staff and contractors significantly reduced in both hours and headcount
2. Leases at both South Yarra and Bacchus Marsh renegotiated (with the new Bacchus Marsh lease yet to be signed), to better reflect COVID-19 impact and support the long-term nature of our commitment to the Coldry upgrade at Bacchus Marsh
3. ~\$360,000 in costs were incurred between February and June that were not directly attributable to the Coldry upgrade but were related to continued statutory compliance and fixed costs
4. ~\$250,000 in capex cost increases due to factors such as delays in overseas procurement, foreign exchange volatility and use of Australian based equipment suppliers and fabrication experts, to name a few
5. A stretch of the build phase timeline estimated to add ~\$600,000 to the original budget.

Overall, the budget for the full implementation of the upgrade project has increased by ~\$1.2m and it is anticipated that this will be financed by a number of non-dilutive solutions including, project and equipment finance, government grants, R&D tax initiatives and reduced or deferred capital expenditure.

The Company has spent considerable time developing potential ways to finance this increased capital requirement using a mix of funding solutions which do not require the raising of further funds through the issuance of shares.

The Company is satisfied with the budget measures in place and financing options available and will continue to provide regular updates should material changes or significant developments occur.

Commencement of the Coldry upgrades project

Background – Achieving Positive Cashflow

Chairman, Glenn Fozard commented, “Late last year, we embarked on an exciting strategy to become cashflow positive under a 3-tiered approach involving organic growth, acquisitions and corporate restructure.

“Tier 1 of the strategy focused on the upgrade of our Coldry High-Volume Test Facility (HVTF) located west of Melbourne, supporting the expansion of solid fuel sales and our entry to the char market.

“Put simply, the upgrade project is comprised of capacity improvements to the Coldry plant and the addition of new plant and equipment to produce high-value char. These activities focus on monetising our existing assets to deliver up to \$2.5 million a year of operating cashflow from target revenues of approximately \$6 million.

“In support of the upgrade program we issued a non-renounceable entitlement offer to raise a minimum of \$1.41 million under a transaction-specific prospectus. The shortfall period for the offer closed on 10 May 2020 (see announcement 18 May 2020) which was fully subscribed.”

The upgrade project aims to increase capacity to 25,000 tonnes per annum of Coldry, with the following sales and revenue targets:

Market	Descriptions	Volume (tonnes per annum)	Revenue Target (\$)
Steam & boiler systems	Support existing marketing and operations	~5,000	1,000,000
Char Products	Vertical integration with char process	~10,000 char	4,000,000 to 5,000,000
Syngas	Delivered from the char process	~10,000 (equivalent)	TBC (Internal cost offset)
Total		~25,000	~5,000,000+

The successful delivery of the upgrades and subsequent realisation of potential sales is estimated to deliver net positive cashflow from operations that may be used to advance the Company’s suite of technologies along the commercialisation pathway.

Two Phase Risk Mitigation Approach

Risk management is a key project execution component, intended to mitigate the technical and financial uncertainties that may arise. Moreover, risk management takes on increased importance when scaling up a first-of-a-kind technology such as Coldry, especially given the impact of COVID-19 on the Company and the broader market.

Glenn Fozard outlined the risk-mitigation strategy, “Investors familiar with innovation will recognise a concept common to technology development under ‘lean’ and ‘agile’ business models; a step-wise cycle of testing and solving. This approach focuses the way our project is conceptualised, constructed and delivered, embedding the opportunity to succeed earlier, saving time and money.

“In this spirit, we understand the potential for key technical risks inherent to developing first of a kind and bespoke plant and equipment. This approach enables us to methodically identify and work to eliminate those process scale-up challenges on the way through. It makes sense to proceed with the investment in the char plant once we’ve achieved successful Coldry scale-up, and in doing so, add greater focus to each phase’s critical success factors, ensuring a greater chance of success overall.”

Chief Engineer, Ashley Moore added, “In line with well-established industrial scale-up principles we are taking an agile, step-wise, focused approach to managing the technical risk associated with scaling up Coldry to deliver what will be a small-scale commercial demonstration of the technology.”

The project management team will divide the execution of the upgrade project into two phases:

Phase 1 – Coldry process scale up:

- 1) Design, construction, installation and individual commissioning of each key stage of the process, including primary processing train, conditioning system and drying system
- 2) Integration of the plant and equipment across each key stage of the process to establish continuous, steady state operations

Phase 2 – Char plant installation and integration:

- 1) Design, procurement, installation and individual commissioning of the char kiln
- 2) Integration of the char kiln with the Coldry process to establish continuous, steady state operations and waste energy utilisation for drying

By phasing the project in this manner, expenditure is limited to the amount needed to reduce the risk of each phase, before proceeding to the next phase with technical and financial confidence.

Whilst the adoption of a heightened risk-mitigation approach is appropriate and sensible for delivering the project in light of the broader socio-economic challenges, it will lead to a modest stretch in the original estimated timeline for the build phase, which comes at a cost of around \$600,000 to the overall budget.

To explain this decision further, the project team, led by Ashley Moore and supported by independent engineers Procom, identified that the greatest technical risks of Coldry scale up are twofold:

- 1) Brown Coal Densification (BCD) – This relates to the physical scale up and geometrical shape changes to:
 - a. Primary processing train: the mixing, milling and extrusion systems, and their ability to achieve the required particle size and shear history within the brown coal paste, thus initiating densification.
 - b. Drying rate: the final product specification is strongly influenced by the conditioning stage which relies heavily on the programmed systems of the conditioning system to drive the desired level of densification and moisture removal, prior to progressing to the packed bed dryer (PBD). Key variables within the conditioning system relate to the new design adopted for the upgrade, including throughput rates, residence time, temperature, air flow rates and moisture and humidity profiles (pellets, air).
- 2) Continuous bulk drying within the PBD – This relies on successful initiation of BCD and effective conditioning, and seeks to deliver two important operating improvements via the upgrade project;
 - a. The successful improvement of the air circuit, allowing additional air volumes into the system via decreased pressure losses associated with improved design features as well as minimising air bypass routes within the system, and;
 - b. improved distribution of the air flow within the pellet bed leading to several performance outcomes, including most importantly increased moisture pickup which would drive increased throughput capacity, efficiency of heat usage and product wastage. Other benefits include reduced dust generation and less dust emissions.

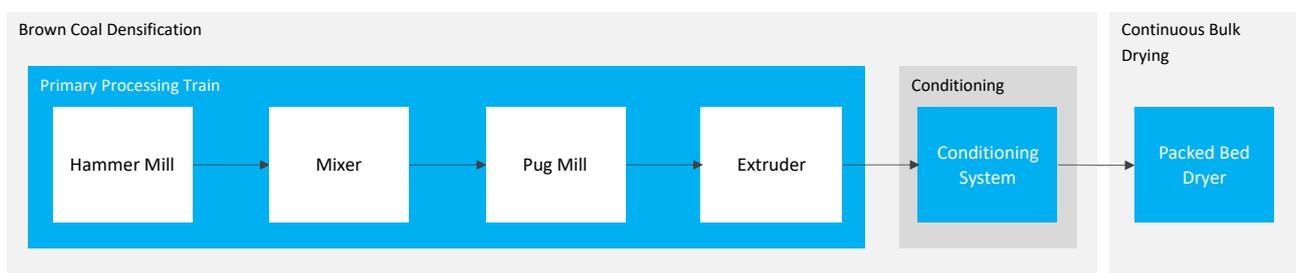


Diagram: Blue = processes and equipment heavy in intellectual property (IP) that may potentially be subject to further patents or other measures of IP protection.

As a result, it was considered prudent to focus on reducing this risk in the project ahead of implementing other parts of the project which involve less scale-up risk, such as conveyors, heat systems and char systems.

Government grants & support

1. R&D Tax Incentive

The upgrade project will constitute an eligible research and development (R&D) activity under the Company's R&D plan registered annually with AusIndustry.

As such, this will allow the Company to claim 43.5% of the cost of the project under the R&D Tax Incentive program, contributing ~ \$2.4M toward the cost of upgrading the plant.

The project will be executed via a systematic approach aligned with the prior positive advance finding issued by AusIndustry for the Coldry project.

Compliance with the criteria for eligible R&D activity also has the benefit of mitigating key technical risk areas ahead of developing the plant further towards large-scale commercial demonstration. The R&D Tax incentive rebate also applies to eligible activities related to the research and development of the Company's other technologies; HydroMOR, COHgen and CDP-WTE.

2. Federal Government COVID-19 stimulus measures

The instant asset write off measures that now extend through to December 2020 provide an opportunity for the Company to accelerate the write off many capital items and bring forward the R&D tax incentive on depreciation more than would have otherwise been the case.

3. Innovation Connections: HydroMOR grant

Separate from the Coldry upgrade project, the Company has attracted support for the ongoing research and development of its HydroMOR technology.

ECT, in partnership with CSIRO, is pleased to announce that it has been awarded a \$50,000 grant from the Commonwealth Government Department of Industry, Science, Energy and Resources toward a \$100,000 project aimed at profiling the performance of the Company's HydroMOR technology across a range of feedstocks.

HydroMOR, which stands for 'hydrogen metal oxide reduction', is the Company's lignite-based, hydrogen-driven, low-emission primary iron making process which enables the utilisation of alternative low grade and waste resources, improving the economic and environmental outcomes of primary iron production.

HydroMOR utilises the Coldry process as its front-end drying and material agglomeration stage.

Contracts have been executed and the activities are expected to start in early July and will be led by ECT's Research Manager, Mr Vivek Ravisankar..

4. Future Energy Exports – Cooperative Research Centre (FEnEx CRC): COHgen Hydrogen Production

Separate from the Coldry upgrade project, ECT is pleased to announce that it has partnered with the FEnEx CRC, under the Hydrogen Export and Value Chain program, to progress its research in the field of hydrogen production from brown coal, using ECT's COHgen process.

The cooperative research centre program, established and administered by the Australian Government Department of Industry, Science, Energy and Resources, supports Australian industries' by helping industry partner with the research sector to solve industry-identified issues.

COHgen, which stands for 'catalytic organic hydrogen generation', is a novel, low temperature, low emissions hydrogen generation technology that may provide a low-cost alternative route to produce hydrogen from brown coal.

COHgen utilises the Coldry process as the front-end drying process and material agglomeration stage.

ECT aims to develop a cost-effective, scalable hydrogen production technology in line with targeted future export options. ECT's Research Manager, Mr Vivek Ravisankar commented, "This program will help ECT to validate the opportunity to scale up the process in collaboration with industry leaders (energy producers) and end users (energy consumers) and to identify the range of performance indicators and benchmarks for the production of hydrogen from brown coal."

ECT's Chief Engineer, Mr Ashley Moore added, "We are pleased to have partnered with CRC with funding to help develop our hydrogen research program. The CRC program is well structured to facilitate industry collaboration to achieve the goals of Australia's National Hydrogen Strategy, bringing together world class scientific and industrial participants."

ECT gratefully acknowledge the department and CRC organisers and will be working closely with partners to develop Australia's hydrogen Industry.

Further updates will be provided as activities advance.

5. Other grant schemes

ECT is currently in discussions with local, state and federal governments seeking grants for direct contribution to the project. Further updates will be provided as and when these lines of enquiry progress.

Rights Issue – Shortfall closed, fully subscribed

ECT is pleased to provide the following details in relation to the shortfall shares and options that were the subject of an announcement on 18 May 2020.

The Company entered an arrangement with Mr Iain McEwin to act as a service provider in relation to the Company's Coldry upgrade project. As part of this arrangement the Company's subsidiary, ECT Finance Limited (ECTF), has provided a loan to Mr McEwin who in turn made an application for all remaining shares in the Company's non-renounceable rights issue (NRRI). The features of the loan portion of this transaction are similar to the Equity Lending Facility the Company has previously used.

Details of the transaction are as follows:

- Mr McEwin will act as Project Co-ordinator in relation to the Company's Bacchus Marsh project whereby he will engage with various contractors and equipment providers to facilitate payment for all or part of their services and/or equipment by transferring equity in the Company from the equity that is securing the loan rather than making payment in cash.
- ECTF Limited provided a limited recourse interest bearing 12-month loan for \$750,000 to Mr McEwin
- The above loan is secured by the issue of 750,000,000 shares and 300,000,000 options (being the attaching options as part of the NRRI)
- The shares and options are locked and cannot be traded, and the shares held as security will not confer voting rights
- Mr McEwin was provided with 43,520,659 shares and 17,408,263 options for his on-going services along with a \$5,000 fee to cover legal expenses in relation to this transaction
- Mr McEwin will also be paid a 5% fee for every invoice settled using these shares or for each repayment of the loan made prior to expiry of the contract.
- Mr McEwin will be paid a performance fee at the completion of the arrangement subject to a number of variable outcomes including:
 1. repayment of the loan in full;
 2. utilisation of the shares for the purpose of financing the project, and;

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3. the timeframe in which 1) & 2) are completed. A performance fee will only be paid upon repayment of the loan in full.

Authorised for release by the board of ECT.

For further information contact Glenn Fozard, Chairman - info@ectltd.com.au.

About ECT

ECT is in the business of commercialising leading-edge energy and resource technologies, which are capable of delivering financial and environmental benefits.

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

ECT's business plan is to pragmatically commercialise these technologies and secure sustainable, profitable income streams through licensing and other commercial mechanisms.

About Coldry

When applied to lignite and some sub-bituminous coals, the Coldry beneficiation process produces a black coal equivalent (BCE) in the form of pellets. Coldry pellets have equal or superior energy value to many black coals and produce lower CO₂ emissions than raw lignite.

About HydroMOR

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

HydroMOR is a simple, low cost, low emission, hydrogen-driven technology which enables the use of 'low value' feedstocks to produce primary iron.

About COHgen

The COHgen process has the potential to deliver a lower cost, lower emission method for hydrogen production from brown coal.

COHgen is currently advancing through fundamental laboratory development to inform its patent application ahead of scale up and commercialisation.

About 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.

Areas covered in this announcement:

ECT (ASX:ECT)	ECT Finance	ECT India	Aust. Projects	R&D	HVTF	Business Develop.	Sales
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