

## 2020 AGM

### Chairman's Address and Company Presentation

Welcome Fellow Shareholders,

Since our last AGM over 13 months ago, we have experienced many new challenges, largely precipitated by the COVID19 pandemic. That being said, many critical decisions were made across the year, which reinforced a resilient and robust culture, underpinning the business model and supporting the company's long term viability.

Last year, we made a commitment to our shareholders to focus our efforts on the commercial demonstration of our Coldry technology, integrated into a rotary kiln system, to produce char and syngas (the Coldry Project).

The Coldry Project is targeting two key objectives:

- 1) To demonstrate Coldry at a scale that would de-risk the subsequent scale-up and engineering of the process and equipment for large-scale deployment, and;
- 2) Validate the financial feasibility of the process at a relatively small-scale of 25,000 tonnes per annum capacity.

The achievement of these objectives will tick several essential boxes:

- 1) Technical:
  - a. Small scale commercial demonstration paves the way for our proposed large-scale commercial demonstration facility in Victoria's Latrobe Valley ahead of broader global deployment
  - b. Process design optimisation, such as shrinking the footprint of the previous Coldry pilot plant design by half while increasing the production rate by more than threefold, refining operation parameters and improving efficiency
  - c. Demonstrate that Yallourn brown coal can be converted into valuable products with an emissions footprint equal to or less than natural gas emissions, providing a solution for Victoria's largest natural energy resource, that otherwise appears destined to be stranded when coal-fired power stations reach their end of life in the next decade or so
- 2) Commercial:
  - a. Generate earnings for the company from a relatively small 25,000 tonne per annum plant, underpinning working cashflow and supporting the advancement of our technology suite
  - b. Showcase our design and engineering capability via a working Coldry facility, instilling confidence in potential customers
  - c. Significant de-risking of the technology along the commercialisation pathway, mitigating risk to shareholders
- 3) Environmental
  - a. Reinforce Coldry's position as the only net-zero emissions lignite drying solution in the market
  - b. Deliver a drying process with no wastewater treatment requirements

4) Economic:

- a. Demonstrate that Coldry can be integrated with a downstream value-added process, enabling Victoria's vast, world-class lignite resource to pivot from high-emission electricity generation to low or zero-emission high-value manufacturing and energy products, including hydrogen, fertiliser, diesel, iron and steel production
- b. Support a range of government policy objectives by developing innovative, modern manufacturing solutions to generate jobs in regional locations.

At our last AGM, we were hopeful of starting the project early in 2020 and completing within 12 months. However, the emergence of the COVID-19 pandemic forced the company to wind back operations to "pilot light" activity through to July 2020. Aside from the apparent cost-saving benefit, this enabled the team to step back, assess and respond to the new challenges presented by and broad-reaching uncertainty that COVID-19 presented.

For example, in deciding to re-start the project, your board decided to split the project into two key deliverables:

- 1) Coldry process
- 2) Char process.

We deemed this approach to staging to be a more prudent approach given the increased risks of project delivery, due primarily to COVID-19, and it being more prudent financially.

The thesis being that if the overall project costs us ~\$6 million and stage 1, the Coldry process, costs us \$4 million to deliver and commission and this stage is a critical pathway to stage 2 (the char process), then why risk the expenditure of stage 2 until stage 1 has been proven?

In taking this approach, we improve our project delivery risk but extend the overall project delivery timeline by around six months. The alternative would be to build the char process in parallel with the Coldry process (and thus save ourselves the six months in delivery timeframe). Still, if we fail to deliver the Coldry process, we have unnecessarily spent \$2 million building the char process. In these high-risk times, where director accountability for expenditure is paramount, the board felt a more risk-averse approach to project delivery should take precedent.

Regarding a status and progress report on the project itself, I'll leave that for Ashley to outline in his upcoming presentation.

What I will say, finally, on the project is that due to the COVID-19 risks the business also decided to direct a lot of fabrication and procurement to Australian vendors and service providers to mitigate the risks of delays occurring overseas. This decision has also served us well, as we have encountered some delays and delivery issues from Indian and Chinese vendors over the last six months. Thankfully, these issues and delays have not materially affected the project's critical pathway, notwithstanding challenging our project team for solutions.

Some of these issues included:

- Poorly packed and shifting equipment during transit causing minor damage
- Customs delays due to mould and other contaminants
- Trapped moisture causing corrosion to equipment during transit
- Lack of freight availability in & out of major South Asian ports
- Indian vendors suffering from skilled personnel availability (due to COVID-19)

With the site now almost fully prepared and most of the equipment ordered, we're positioned for the installation, and early commissioning as the kit arrives progressively over coming weeks.

We understand that shareholders are keenly focused on three key proof points:

- 1) Can we build it?
- 2) If we can build it, will it work?
- 3) If it works, can we sell the product?

On the first point, we are well advanced, and the experience with the pilot plant and the expertise of our team positions us well to deliver the plant as designed.

On the second point, we have a rigorous commissioning program to identify any part of the process that is performing outside of target parameters and are confident in our ability to implement any required changes as part of the R&D program.

Lastly, we are continuing to develop agreements and contracts with key suppliers, off-takers, service providers and contractors, which, when finalised, will be announced to the market.

Shareholders can expect regular project updates via the ASX over coming months, providing a running narrative of the project.

We should also note that at the last AGM, we advised our shareholders that our commitment to India would be maintained where practical and where there was clear evidence of commitment from our partners. Unfortunately, the emergence of the COVID-19 pandemic has ground all overseas development to a standstill. We are cautiously optimistic about the continued opportunity in the Indian subcontinent. However, until we see some relative normality return to travel between Australia and India, the risks and costs are too great to actively pursue this in the short term.

### **12-month strategy**

Looking forward to the next 12 months, we will maintain the strategy of proving up Coldry through the delivery of our project at Bacchus Marsh and continually seek ways to improve our overall earnings generated from the plant. Earnings improvements may also emerge from equipment or process add-ons to the Coldry-Char platform via technology partnerships, equipment upgrades or production collaboration with downstream manufacturers.

### **Technology and IP**

We will also be maintaining the development of our suite of technology via our participation in the FEnEx CRC and through our Innovation Connections grant announced mid last year.

The FEnEx CRC aims to deliver industry-led research, education and training to help sustain Australia's position as a leading LNG exporter, and enable it to become the leading global hydrogen exporter.

We will be participating under program 2, Hydrogen Export and Value Chains, which will focus on addressing the following research challenges:

- Processing and delivery methods for cost-effective large-scale hydrogen export
- Target export markets, including key applications and requirements
- Supply chain architecture, design and operations
- Export-class systems and technologies for hydrogen production, storage and delivery

There are two ways we will seek to support the thermochemical hydrogen production route, specifically for lignite resources:

- 1) COHgen, which stands for 'Catalytic Organic Hydrogen generation', is our novel, low temperature, low emissions hydrogen production technology under development that may provide a lower-cost alternative route to produce hydrogen from brown coal
- 2) Coldry, our gateway enabler for lignite-to-hydrogen production, providing the frontend drying solution to COHgen and supporting project developers electing to use conventional hydrogen production technologies (gasification & steam reforming), coupled with carbon capture and storage (CCS)

The FEnEx program will assist us in validating the scale-up of COHgen in collaboration with industry leaders (energy producers) and end-users (energy consumers) and identifying the range of performance indicators and benchmarks for the production of hydrogen from brown coal.

Separately, the Innovations Connection grant aims to profile the performance of our HydroMOR process across a range of feedstocks, in partnership with the CSIRO, including assessing the potential for the use of biochar.

There will also be continued development of our IP with further work completed over the year to protect our HydroMOR and COHgen technologies, and we are hopeful of further novelty emerging from our Coldry project relating to key, bespoke parts of the process which may allow us to develop further patents around Coldry.

### **Business Development**

On the business development front, several interesting opportunities have been presented to us, which we are assessing and developing at a high level. These opportunities are not the focus of our resource allocation and will only be pursued further as we build success with our primary goals and objectives at our Bacchus Marsh project. The resultant plant will provide a compelling marketing platform, demonstrating both our technology and business capability. As such, it may help accelerate these emerging business opportunities in the areas of hydrogen production, advanced manufacturing, waste recycling, soil remediation, and large scale plant development, to name a few.

### **Human Resources**

The last 12 months saw a number of key changes to personnel. Jim Blackburn resigned as COO in December 2019 but continued his involvement as a non-executive director. Neil O'Keefe joined us as a non-executive director to replace David Smith, who finishes up with us today. We thank David Smith for his six years of service and wish him well for his future endeavours. Jim Blackburn provides us with valuable continuity legacy knowledge on the board. Neil brings with him an impressive corporate & political background with much-needed skills in government relations.

### **Corporate**

In February, we completed our capital raising, fully subscribed. Critically, your board decided to proceed with the capital raising over the Christmas holiday period, due to increasing concerns of a virus spreading through China.

Typically, after a significant capital raising and the associated dilutive effect of the shares due to the issuance of new shares, the trading conditions on the ASX stagnate until the over-hang of shares has passed. Your board is considering the option of a share consolidation but will only proceed once the over-hang passes and significant developments have been evidenced in the project. Ultimately, any share consolidation will need to be approved by shareholders.

Finally, but not least of all, we would like to thank you, our shareholders, our stakeholders and our staff and dedicated contractors. A special mention goes to the Calleja Group, the site owners, for their support on the Bacchus Marsh project, and our shareholders who supported the capital raising to make the project a reality.

We look forward to delivering the Coldry project at Bacchus Marsh this year, and we are excited about the prospects of how this will set us up as a more financially sustainable business with the ability to pursue the prospective blue sky opportunities to follow.

**For further information, contact:**

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**About ECT**

ECT is in the business of commercialising leading-edge energy and resource technologies 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 CO<sub>2</sub> 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 that enables '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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ENVIRONMENTAL CLEAN  
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# Coldry Upgrade Project Update

ECT AGM, 15 Jan 2021

# Project Objectives

- **Technical** – small-scale commercial demonstration of the Coldry process with a high value downstream application; char.
- **Commercial** – generate positive cashflow
- **Marketing** – a platform for promotion of our Coldry process as the gateway enabler of higher value lignite applications, including hydrogen production and low emissions iron and steel making

# Methodology

- The overall project has been divided into a series of logical steps, aimed at de-risking the scale up, and allowing progressive installation, testing & evaluation, then proceeding with the further project elements
  - Coldry core components
  - Integrated Coldry operations
  - Coldry + Char
  - Integrated Coldry + char + energy harvesting
- Engineering has been accomplished on the basis of combining external prefabricated equipment, applying customisations and then layering across systems integration



# Timeline

- Project re-started end June 2020 following COVID wave 1:
  - Preparations to that time consisted largely of engineering design works
- Vendor development and assessment works in CY20 Q3 saw major packages let to various vendors:
  - Conveyor systems
  - Specialist belting
  - Conditioning system design & fabrication
  - Specialist machinery
- CY20 Q4 focused on incorporation of sourced componentry design & fabrication, and integration within the overall site design, as well as commencement of site preparation
  - ACM removal
  - Building strip out
  - Utilities - shelter & storage area, workshop and laboratory

## Timeline (cont)

- First containers of equipment arrived CY20 Q4, continuing into CY21 Q1
- Structure & support systems fabrication and erection is now underway:
  - “Meccano” approach, with off-site fabrication and drop-in & bolt down occurring ahead of installation of equipment
  - First to occur in next week will be the mixer, mill & extrusion systems
- Electrical & control systems:
  - Re-use of limited amounts of prior equipment
  - Majority will be built off-site and installed in a new motor control center, followed by field cabling



This  
becomes  
That



# Coldry Plant

