



Contract signed for \$1.3 million supply contract in Victoria

Thursday 9 August 2018: Environmental Clean Technologies Limited (ASX: ECT) (ECT or Company) is pleased to announce the signing of a binding contract for the sale of Coldry solid fuel in the Victorian market via the provision of a turnkey solution for steam services.

Key points:

- 5-year supply contract for Coldry solid fuel to support delivery of process steam via an existing solid fuel boiler system.
- Provision of operating and maintenance service package in partnership with Australia's leading 'process steam' system operator, Mecrus.
- Prime example of one of ECT's core pillars of its long-term revenue model.

Following on from previous announcements outlining the Company's upgrades to its Coldry High Volume Test Facility (HVTF) northwest of Melbourne and subsequent trials of Coldry solid fuel with several potential customers (6 February 2018 & 29 June 2018), the Company has today signed a contract with a large food manufacturer in Gippsland, southeast Victoria.

Key Terms

Value:	\$1.3 million
Term:	5 years
Fuel:	Coldry solid fuel
Services:	Operate & maintain boiler system to deliver operational steam requirements

The contract summarises the agreement between the parties to deliver steam required by the customer's operations and will be followed by a three-month construction and services commissioning phase which aims to establish the baseline steam demand, assess the efficiency gains from planned upgrades and maintain and monitor subsequent steady state of operations. If ECT is unable to deliver the expected steam demand during the trial period then GBP can cancel the contract, although the company does not foresee this to be an expected outcome.

ECT Chairman Mr Glenn Fozard commented, "This is another positive step for ECT in the local market and is the culmination of business development and engineering activity over several months.

"The driver behind the client's adoption of Coldry lies in our close engagement and development of a packaged, turnkey solution to deliver steam. We've taken the time to understand and quantify the current operational profile of their boiler system, against which we were able to test and benchmark our Coldry solid fuel test product.

"The cost-effectiveness of Coldry solid fuel coupled with our turnkey approach to the provision of equipment, operations and maintenance, fuel and finance, where needed, presents a compelling business case.

"Lead-in analysis indicates we may be able to deliver potential savings of 15% per annum for our client.

“This packaged, turnkey approach is also designed to help mitigate further energy price shocks by locking in a stable monthly fee over five years.”

ECT COO Jim Blackburn commented, “Regarding the Company’s broader local market business development strategy, we’re currently working with several other potential customers on a similar basis and look forward to establishing further sales in due course.

“We understand shareholders would like to know who the potential customers are, how much Coldry they may buy and at what price. Would-be competitors would also like to know similar details. As such, it is not in shareholders’ best interests to disclose potential customers before executing sales contracts. Further, it is not in the Company’s best interests to disclose per-tonne pricing, as that may prejudice other sales negotiations.”

“This local market business model, entailing the provision of packaged solutions has a two-fold benefit. From the customer’s point of view, it solves one of their significant operational ‘pain points’ via a holistic service offering. From our point of view, vertical integration allows us to maximise operational efficiency and control costs.”

Business Case for the Coldry Solid Fuel Turnkey Solution

Fully integrated boiler and steam package offers the following key features and benefits:

Feature	Benefit to customer
Multi-feedstock fuel systems	Diversified fuel supply options: With the high efficiency of Coldry solid fuel, systems are also able to blend a broader range of fuels including biofuels (such as pyrethrum briquettes and woodchip) and other similar solid fuels, where feasible and available, diversifying supply options
Bespoke fuel handling systems	Lower maintenance cost and more efficient fuel handling
Guaranteed steam supply	Allows customers to focus resources on their core business
5-year price freeze of production of steam	Cost control: Steam production costs typically 10%-15% cheaper than individual or single-stream service models of fuel supply, boiler operations and maintenance
Boiler equipment, systems and programming designed for the highest available efficiency	Lower capital, operating and maintenance costs
Single monthly price for the service, including any capital upgrades and installations	Cost control

Coldry is the ideal solid fuel

- Coldry is a lower cost, lower emission, brown coal-based solid fuel with high energy and volatile rating.
- Coldry performs well as a high performance standalone solid fuel or in a blend to improve the efficiency of other biomass fuels such as woodchip, pyrethrum, sawdust and crop stubble.

- Coldry can also be infused with anti-fouling agents to counteract some of the boiler performance issues experienced when using certain biomass feedstock (like pyrethrum, crop stubble and bagasse).
- Coldry can be tailored specifically to suit the application, from highly dense briquettes to our higher-porosity ‘baseline’ pellet. The objective is to expend as little energy as required to produce the right product for the application. This benefit is passed on to the customer in the form of improved fuel combustion and increased boiler efficiency.
- Coldry is sourced from local, abundant brown coal supplies and features a consistent specification. Supply agreements in place with Energy Australia (Yallourn) and Maddingley Brown Coal (Bacchus Marsh) ensure long-term access to supply.

The Coldry High Volume Test Facility (HVTF)

The Coldry processing facility in Bacchus Marsh has been in place since 2007 and has undergone significant upgrades over the past two years with a focus on increased scale testing of its R&D operations. As a consequence of this activity, the facility currently has ~10,000 tonnes per annum of available test product capacity which it is seeking to sell into long-term contracts. With further capital upgrades, the plant will be able to extend capacity by a further 25,000 tonnes per annum.

Expert Partnerships

ECT has partnered with Mecrus, Australia’s leading provider of steam package solutions for boiler applications and is also engaged with boiler manufacturers (including John Thompson boilers). These strategic partnerships allow us to offer compelling steam and boiler packages. ECT non-executive director Barry Richards is the Managing Director of Mecrus.

Background

Given the level of interest received to date, the Company is confident a sustainable local market exists for a solid fuel to supply energy-intensive industries impacted by rising energy costs.

In parallel to the activity at the HVTF, the Company continues to develop its feasibility study for the establishment of a large-scale Coldry demonstration plant in Victoria’s Latrobe Valley.

Importantly, the proposed large-scale Coldry demonstration plant will leverage existing resources and infrastructure, with site selection at Yallourn power station announced on 15 November 2017.

It is envisaged that the Victorian demonstration plant will be designed to an output capacity of ~170,000 tonnes per annum and will feature a zero CO₂ footprint, having no direct emissions.

In support of ongoing R&D for the India project and future projects like the Victorian demonstration plant, the HVTF is targeting an output capacity of up to 35,000 tonnes per annum.

The HVTF is solely an R&D facility and continuous production up to 35,000 tonnes per annum will continue to add to the testing of key features of both Coldry and Matmor in areas such as:

1. Pellet integrity
2. Blended additives
3. Drying temperatures and residence times
4. Airflow through the packed bed dryer
5. Process improvements and equipment re-design

All product sold will be done so under the “Feedstock Rules” of the R&D tax incentive legislation.

Solid Fuel Market

The Victorian industrial energy market is defined by the price and availability of appropriate energy sources. Until 2014, brown coal briquettes dominated the local market, followed by gas and biomass. The closure of the Morwell brown coal briquette plant in 2014 saw many businesses switch to gas and biomass. The price of gas has since doubled or tripled for many businesses. Availability of biomass is variable, reducing the reliability of supply. Biomass typically has a lower energy density, and its ash contains elements that foul boiler systems, resulting in lower efficiency and increased downtime for maintenance.

Coldry solid fuel is an ideal fuel for businesses requiring large volumes of process heat.

Further, Coldry doesn't conflict with the Victorian government's renewable energy target, as neither wind nor solar are suitable for generating reliable, affordable process heat to such industries.

In this respect, the Company is competing directly with the availability and price of natural gas and biomass alternatives, which given the current supply-demand profile, looks like remaining high and possibly escalating, well into the future.

Beyond supplying energy-intensive industries such as agriculture, the Company sees potential to grow its Coldry capacity in Victoria over time to support any number of potentially high-value applications, including:

- High-efficiency, low-emission (HELE) power generation to deliver reliable, affordable electricity
- Hydrogen production
- Upgraded coal products such as activated carbon, PCI (pulverised coal injection) coal, and hydrocarbon liquids and gases.

These high-value applications can generate jobs and improve productivity while bringing down the emissions intensity of Victoria's world-class brown coal resource.

The Company will continue to provide further updates on the above activities as they progress.

Building Solid Foundations for ECT's long-term revenue model

This contract gives shareholders an understanding of one of the core pillars of the Company's long-term revenue model.

Following many months of engagement by the Company with a range of potential customers, it is apparent that the market for utility-scale steam and hot water is in desperate need of a solution that can deliver capital upgrades and fuel solutions that are reliable and economical. At present, no other companies are offering fully integrated steam and boiler solutions to Victorian and Tasmanian customers.

Over the coming months, the Company aims to establish further contracts of this type while developing key relationships to improve the quality and pace of outcomes, including:

1. Plant & equipment: Boiler manufacturers able to design boiler packages bespoke to Coldry as the primary fuel source
2. Finance: partners able to support a zero-capital outlay solution for new boiler system upgrades
3. Operations & maintenance: Staff with the essential skills to support boiler construction, operations and maintenance

ECT Chairman Glenn Fozard commented, "Local businesses reliant on steam generation have been suffering terribly from skyrocketing gas prices and a shortage of reliable alternative fuels, resulting in an energy affordability and reliability crisis. This uncertainty is impacting the viability of many businesses. It also means ageing infrastructure is not being replaced as companies are reluctant to outlay capital on new

equipment without viable fuel alternatives. ECT solves the problem of price volatility, fuel reliability and capital outlay and allows these companies to focus on their core business while we take care of their utility energy needs”.

As advised in previous announcements, ECT will be providing greater detail on its revenue model in the coming weeks.

For further information, contact:

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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 MATMOR

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

MATMOR is a simple, low cost, low emission production technology, utilising the patented MATMOR retort, which enables the use of cheaper feedstocks to produce primary iron.

About the India R&D Project

The India project is aimed at advancing the Company’s Coldry and Matmor technologies to demonstration and pilot scale, respectively, on the path to commercial deployment.

ECT has partnered with NLC India Limited and NMDC Limited to jointly fund and execute the project.

NLC India Limited is India’s national lignite authority, largest lignite miner and largest lignite-based electricity generator.

NMDC Limited is India’s national iron ore authority.

Areas covered in this announcement:

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