



## Shareholder Update

**Friday 23 June 2017:** Environmental Clean Technologies Limited (ASX: ESI) (ECT or Company) is pleased to provide the following update on its activities, including details of our capital management and commercialisation programs over the coming weeks.

### Outline:

- Equity Lending Facility (ELF)
- Establishment of ECT Finance Ltd
- Victorian solid fuel sales
- High Volume Test Facility (HVTF) upgrades
- India Project Update

### Equity Lending Facility (ELF)

Following the release of the Prospectus for the Bonus Issue of ESIOC options (19 June 2017), the Company has received several enquiries, including some questioning how the Prospectus relates to the previously announced Equity Lending Facility (28 April 2017).

The Company is in the final stages of completing the requirements to be able to formally offer financing to ESIOA and ESIOB holders under the ELF, and is aiming to release the full details in coming weeks, in time for the offer to open for application by Friday 14 July 2017 or earlier.

The ELF is intended to provide a financing solution to those options holders unable to secure their own financing should they wish to convert their options to fully paid ordinary shares (ASX:ESI) ahead of expiry on 31 July 2017 .

In relation to ESIOC Bonus Issue eligibility, only shareholdings at the record date (21 July 2017) will be entitled to receive the Bonus Options. Under the ELF, ESIOA and ESIOB options will not convert to shares until 31 July 2017, which is after the record date (21 July 2017) for entitlement under the Bonus Issue. Therefore, if an option holder takes up the ELF facility in order to convert options to shares, those shares will not be eligible for the Bonus Issue

The current intended terms of the ELF are consistent with prior announcements, with some variation:

- **Eligibility:** The Company will offer all ESIOA and ESIOB option holders a loan to convert their options into fully paid ordinary shares.
- **Restrictions:** Lending approvals are not restricted by lending or leverage ratios, although a minimum loan size of \$1,000 will apply. Only one loan per registered name will be offered.
- **Loan Term:** The term of the loan will be fixed for three years.
- **Interest Rates:**
  - Initial interest rates are tiered, per the following table:

	IPM	6 Months in Arrears	12 Months in Advance	Capitalised Monthly	
LSR (%)		↓	↓	↓	
>84%	→	9.64%	8.64%	<b>11.64%</b>	<b>Per annum</b>
84%-75%	→	7.14%	6.64%	8.64%	Per annum
74%-55%	→	6.64%	5.64%	7.14%	Per annum
<54%	→	4.14%	3.14%	5.14%	Per annum

- The above table is intended to act as a guide and the final interest rates are subject to change.
- A benchmark interest rate (11.64%) will be charged across the loan period and will be discounted by two factors:
  - Loan to Strike Ratio (LSR) – The loan to strike ratio refers to the value of the loan as a percentage of the overall costs of exercising the options (0.9 cents x the number of ESIOA options plus 1.5 cents x the number of ESIOB options). In this way, the more cash contributed in taking the loan up, the lower the LSR, and the lower the interest rate
  - Interest Payment Method (IPM) – For example, pre-paid interest will receive a lower interest rate, whereas quarterly capitalised interest payments will attract a higher interest rate
- The benchmark interest rate is referenced to CBA’s 6 month fixed margin lending rate plus 500 basis points (bps). This reference rate will continue over the life of the ELF loans. See <http://www.ratecity.com.au/margin-loans/commsec/margin-loan-6mth-fixed?q%5Bamount%5D=30000&source=ratecity>
- **No margin calls:** The borrower will have no exposure to margin calls but the secured shares<sup>1</sup> will be held under a locked account with the Share Registry for the term of the loan.
- **Limited recourse:** The loan recourse will be limited to the shares held as security.
- **No Trading:** The secured shares cannot be traded until each loan is fully satisfied and the trading lock is removed.
- **Repayment:** At expiry of the facility, the loan balance will need to be paid out in cash, otherwise the loan will be due and payable and the Company will seek a buy-back of the stock at the prevailing share price (requiring approval of shareholders at the next general meeting), inclusive of additional interest, facility fees, and buy-back costs.
- **Early repayment:** No penalties will be charged for early repayment before the expiry of the three year term.
- **Partial pre-payment:** Borrowers can make partial pre-payments at the scheduled 6 monthly intervals. Such payments may attract interest rate discounts, where the borrowers LSR falls into a

<sup>1</sup> The ‘secured shares’ are those shares created through the exercise of options which are funded under the ELF program.

lower category, but all secured shares will remain locked until the loan is repaid in full. There are no opportunities for partial release of securities throughout the loan term without repayment of the loan balance in full.

- **Offer open to SMSF:** The ELF has been structured to support self-managed super fund (SMSF) applicants, although each SMSF will be required to provide their own custodian (bare trust) to hold the shares as security for the loan. We recommend SMSF trustees seek financial advice to determine whether this offering is suitable for them.

The Company has set up an online pre-application form. We encourage interested option holders to complete this non-binding, pre-application process.

Those who complete the pre-application form, and are subsequently approved, will receive a 25 basis points (0.25%) discount on their loan for the first year.

The pre-application form will be available via the ECT Finance Ltd website from Tuesday 27<sup>th</sup> of June. The link will be provided on that day.

#### **Establishment of ECT Finance Ltd**

ECT has previously advised shareholders that it would establish a special purpose entity, ECT Finance Ltd, to assist in the delivery of the ELF. This has now occurred. ECT Finance Ltd (ECTF) was established to:

1. Provide financing to future Coldry product customers to assist with the funding of capital upgrades at the point of use. These financing arrangements are considered a conventional means of supporting Coldry product sales where the cost of financing the capital upgrades would be recovered over time through the product sales contract established with the customer.
2. Support acquisition of new technologies and businesses, consistent with the company's investment strategy. including the use of loans and debt as part of any offer for an approved acquisition or purchase.
3. Offer an equity lending facility (ELF) to provide funding for ESIOA and ESIOB options conversion.

Further, establishing ECT Finance will allow for:

1. Appropriate compartmentalisation of a distinct business unit away from the core business of technology commercialisation
2. Greater transparency of performance related to this distinct business unit
3. Improved risk and compliance management through separation of business risks into more appropriate entities and structures

Current and short-term initiatives of ECTF will include:

- Managing the ELF application process
- Managing the ongoing requirements of the ELF
- Financing capital upgrades for customers in support of solid fuel sales
- Project financing for HVTF upgrades and other Coldry plant projects

#### **High demand for alternative fuel in Victoria**

As outlined in prior announcements (e.g. 19 May 2017), ECT is undertaking several R&D programs aimed at testing our alternative solid fuel produced using our Coldry technology.

The Company has previously completed successful trials through small scale boiler systems and has recently completed a very successful trial through a medium sized boiler system.

This R&D program typically requires tuning of the boiler system to ensure that the solid fuel meets performance, maintenance and compliance requirements.

The detailed data generated from these tests highlight that Coldry solid fuel performs well in all solid fuel boilers tested to date, in regards to its thermal properties, product handling characteristics and system performance. Given the positive results of the recent trials, the Company will continue its medium boiler system R&D program over the next 3-4 months, on commercial pricing terms.

The outcome is expected to further deliver detailed performance data to help drive the continued refinement of Coldry plant parameters at scale while also allowing the Company to establish a robust commercial framework for future sales of R&D product output, including infrastructure requirements and supply chain logistics.

The Company is also pleased to advise that contract negotiations with multiple parties have commenced and if successful would take supply of solid fuel pellets up to the full capacity of our planned Stage 3 Upgrades at the Bacchus Marsh High-volume Test facility (HVTF).

The company will provide regular updates to the market in accordance with future supply contract developments, as the Company intends for these to become an important part of the company's operational cashflows.

#### **Bacchus Marsh HVTF heading into the final stages of upgrades**

As previously announced, the upgrades at the HVTF have been staged to allow for progressive testing and commissioning of each upgrade along the process train.

Below is an outline of the major items in the upgrade plan:

Stage	Timing	Target Capacity	Budget	Status
1	Jun 2016 – Jan 2017	Up to 10,000 tpa	~\$875,000	Complete
<b>Description</b> <ul style="list-style-type: none"> <li>• Security and safety upgrades</li> <li>• 4MW hot water boiler system to provide waste heat simulation across a range of integration scenarios</li> <li>• Overhaul of in-feed hopper system</li> <li>• Upgrade/maintenance of all conveyor systems</li> <li>• Ducting systems upgrades</li> </ul>				

Stage	Timing	Target Capacity	Budget	Status
2	Jan 2017 – Jun 2017	15,000 tpa	~\$500,000	On schedule / near completion
<b>Description</b> <ul style="list-style-type: none"> <li>• Coal pit cover – allowing large deliveries of raw feedstock to be stored under cover</li> <li>• Telehandler loader – efficiency improvements with logistics and yard management</li> <li>• Outfeed conveyor system and storage hopper – decrease impact of a major system bottleneck and improves efficiencies of product loading and handling.</li> </ul>				

Stage	Timing	Target Capacity	Budget	Status
3	Jul 2017 – Oct 2017	25,000 tpa	\$1.25m - \$1.5m	Planning
<b>Description</b> <ul style="list-style-type: none"> <li>• New pellet extrusion system added as second line allowing for significant scale-up of throughput</li> <li>• Conditioning belt overhaul including: <ul style="list-style-type: none"> <li>a. High efficiency heat exchangers and fans</li> <li>b. Belt assembly changes to improve drying efficiency</li> <li>c. Efficiency improvements through improved air-pellet contact</li> </ul> </li> <li>• Boiler efficiency upgrades to support higher product throughput</li> <li>• Packed Bed Dryer refinements to monitoring and outflow system</li> </ul>				

Stage	Timing	Target Capacity	Budget (tbc)	Status
4	Aug 2017 – Nov 2017	35,000 tpa	\$1.0m	Planning
<b>Description</b> <ul style="list-style-type: none"> <li>• Yard management upgrades including: <ul style="list-style-type: none"> <li>a. Improved roads and loading area</li> <li>b. Weighbridge</li> </ul> </li> <li>• Additional boiler system as demonstration of multi-feedstock systems (Coldry solid fuels and Biomass)</li> <li>• Additional security, remote monitoring and increased safety support infrastructure.</li> </ul>				

Stages 1 & 2 featured upgrades to deliver improved R&D capability at higher volumes and across a broader range of variables in support of both our planned demonstration project in India and Coldry product testing in local boiler systems.

The demand for alternative sources of fuel supply in the steam and hot-water boiler market has recently increased the rate of enquiries for Coldry product from our HVTF, subsequently leading to an increase in contracts currently under negotiation for the supply of solid fuel.

Stages 3 & 4, whilst providing for important improved R&D capability and testing at scale, will only be pursued with the economic support of adequate off-take agreements for solid fuel into nearby markets.

With this in mind, and given the local market economics and the potential interest from customers combined with the planned commencement of Indian project, the Company is currently planning to fast-track Stages 3 & 4. Current qualified interest in solid fuel supply now exceeds the estimated Stage 4 capacity of the plant.

The Company is therefore considering initiating a feasibility study for the construction of a commercial demonstration Coldry plant in the Latrobe Valley. The market will be further updated if and when the Company formally commences this process.

#### **Sales strategy for solid fuel in Victoria**

ECT is offering a cost effective solid fuel (i.e. Coldry Pellets) for use in steam and hot water boiler systems across Victoria.

The cost effectiveness of our solid fuel in the eyes of the local market is further highlighted against the rising costs of natural gas, with fears of greater price increases over the coming years threatening the viability of energy consuming industries largely reliant on natural gas for their utility energy requirements.

With gas at ~\$12/GJ, solid fuel may be priced on an energy equivalent basis, at \$252-\$264 per tonne.

If industry sees gas prices rise to \$22/GJ, the energy equivalent price for solid fuel could increase to \$462-\$484 per tonne.

However, the Company's pricing strategy aims to offer customers a chance to hedge out future price rises by securing long-term, fixed pricing on their fuel supply.

In addition, ECT Finance will, under appropriate circumstances, offer to finance required upgrades to customers' existing boiler systems to allow them to run a multi-feedstock system, including Coldry, biomass and gas, where possible.

ECT project and ECT Finance lead, Glenn Fozard commented, "We believe there is a tremendous opportunity to future-proof Victorian industry against 'single-fuel' price shocks through supporting energy diversification. The rapid escalation of natural gas prices is squeezing margins and impacting on business viability. If this continues, then the human impact of course is lost jobs. Manufacturing businesses that need on-site utility heat are having their profit margins decimated and can't rely on wind or solar to meet their needs. Upgrading boiler systems to allow customers to use a diversified range of fuel gives more cost control to the business owner. Energy security is essential to economic security."

The delivery of the Company's solid fuel proposition to the target market is also improved through its close co-operation with existing boiler services providers.

Mr Fozard continued, "Sustaining the benefits that come with converting to a multi-feedstock boiler system is only achieved when the fuel provider works closely with a qualified boiler systems operator. The boiler system – from fuel receipt, storage, feed & control, combustion and steam generation through to maintenance and spares management – needs to be tuned to meet the fuel as much as the fuel needs to be tuned to meet the boiler specifications, with ongoing co-operation and communication essential. When you consider that 95% of the lifetime costs of running a boiler system is in the fuel supply and 1% is in the operating and maintenance costs, ongoing tuning to assure efficiency of fuel usage is smarter cost management."

Mr Fozard concluded, "Any new plant development by ECT will be considered in the context of both its R&D capabilities combined with clear commercialisation project drivers. To accomplish this, we must build with future scale-up in mind. Coldry, as a gateway solution, is alive and well and the fact we are considering the advancement of our commercialisation objectives, is testament to the continued success of our R&D, design and engineering work undertaken by the ECT team over the last few years."

### **Strategic fit with India Project**

In the context of the above local opportunities, it is important to highlight that the Indian Project remains a key priority for the Company and that any new build project will be developed in addition to the Indian project.

The Company believes that demonstrating the financial feasibility of its Coldry technology at increasing scale in the Australian market can only improve its standing in the eyes of its Indian partners and may act to shorten lead times in delivering the integrated Coldry-Matmor project in India.

Other benefits to our India strategy from pursuing increased scale of Coldry operations in Australia may include:

1. Initiating activity with our EPC partner Thermax for manufacturing and procurement of key plant and equipment at similar scale needed for the Indian plant.
2. Demonstrating "Make in India" benefits to the Indian Government through our Indian partnership.

3. Demonstrating that plant and equipment sourced from India support delivery of the technology at the lowest possible cost.
4. Parallel trialling of key pieces of equipment at scale alongside the Indian project, potentially doubling the rate at which we can refine and improve operations.

The ECT project in India continues to move ahead and by way of update this progress includes:

- the tender program run by NLC closed as scheduled
- a preferred service provider was selected
- the appointment of the provider is now in process

ECT Managing Director Ashley Moore stated "We respect the processes that NLC and NMDC must follow as we move towards the formal agreement to proceed with the integrated demonstration project. It is necessary, and we will allow it the time to conclude as required, supporting it at every turn. We do this because we expect the outcome will be extremely valuable to ECT and our shareholders, and because we have no doubts as to the commitment of our partners to pursue the project, and the developments which will flow from that once complete."

"While these processes are continuing, we are not simply waiting. We continue with our detailed R&D efforts at our pilot plant, creating valuable refinements and improvements to our IP, as well as continuing our local business development. These activities, outlined above in this announcement, also create value for ECT, as well as improve the speed and precision for our Indian project on commencement."

**For further information:**

Ashley Moore – Managing Director

[info@ectltd.com.au](mailto:info@ectltd.com.au)

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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 licencing 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 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 have 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.