ENVIRONMENTAL CLEAN TECHNOLOGIES LIMITED

28 July 2023

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Lodgement of June 2023 Quarterly Report and Appendix 4C

ECT is pleased to attach the following items for immediate release to the market:

- June 2023 Quarterly Activity Report
- Appendix 4C

Sincerely,

Arron Canicais
Company Secretary

ENVIRONMENTAL CLEAN TECHNOLOGIES LIMITED

Quarterly Activity Report and Appendix 4C

28 July 2023: Environmental Clean Technologies Limited (ASX: ECT) (ECT or Company) is pleased to provide the following update and Appendix 4C for the quarter ending 30 June 2023.

Highlights

Corporate & Supporting Activities

- Panasonic Hydrogen Fuel Cell arrives in Melbourne ahead of installation at the Company's Bacchus Marsh facility, paving the way for demonstration
- Directors reaffirm their support for COLDry opportunities
- Biomass-lignite blended COLDry pellets
- Food Organic/Garden Organic (FOGO)-lignite blended pellet tests commence, targeting landfill diversion and new revenue streams
- HydroMOR (iron-making technology) Australian patent granted.

Projects

- **Viridian Hydrogen Demonstration Project (Bacchus Marsh)**
    - Phase 1 (COLDry – Zero Emission Drying) implementation of waste heat system changes progressing, following successful trials of waste heat harvesting from co-located data centre
    - Phase 2 (Syngas and Char Production) project development progresses, with key design work currently being finalised for the rotary kiln, ahead of tenders being issued for construction and installation in coming months
- **Latrobe Valley Viridian Hydrogen Project (Yallourn)**
    - Feasibility activities on hold whilst we prioritise:
        - Certainty of lignite supply
        - Collaborative partners for repurposing of Yallourn mine
    - Continued development of the iconic SECV building, seeking to attract community groups and social enterprise as tenants, including Men's Shed and Tender Funerals.

Corporate & Supporting Activities

Panasonic Hydrogen Fuel Cell arrives in Melbourne ahead of trials

Key points:

- Panasonic, a market leader in the development of fuel cells, has selected ECT's Bacchus Marsh site for a trial of their hydrogen fuel cell for clean hydrogen use in support of the global rollout of their new generation Hydrogen Fuel Cells.
- The Fuel cell is capable of turning hydrogen into on-site electricity and power
- ECT will provide Clean Hydrogen produced from COLDry to Panasonic as part of a 3-year trial
- Optimal Group Australia is in partnership with Panasonic to install, commission, maintain and provide training to ECT on fuel cell operation
- This is an important milestone for ECT, as it reinforces the company's push to develop clean hydrogen from its Bacchus Marsh facility
- The program commenced in January 2023 with the Purchase Order delivered to Panasonic to start manufacturing the fuel cell

The Company announced late last year the signing of a Term Sheet for the field trial of the Panasonic Hydrogen Fuel Cell technology as part of its COLDry Demonstration and Net Zero Hydrogen Project at JBD Industrial Park in Bacchus Marsh, northwest of Melbourne.

A presentation, approved by Optimal and Panasonic, provides an overview of the technology and trial and is available on the Company's website (link).

Managing Director Glenn Fozard visited the Panasonic hydrogen fuel cell manufacturing plant in Japan during March as part of the Company's broader hydrogen industry engagement activities.

During the March quarter, Panasonic progressed the fabrication of the unit, which landed in Melbourne late June.

The site and unit are currently being prepared for installation in August.

Photos (above): Before (left) and after (right), the preparation of the site for the installation of the Panasonic H2 Fuel Cell adjacent to the existing COLDry demonstration plant and LPG vessel.

Initial commissioning of the fuel cell will be performed using bottled hydrogen. Following Phase 2 completion, the fuel cell will utilise hydrogen produced from the Viridian Hydrogen Demonstration Project to supply electricity to the site and the grid.

This demonstration will be a first-of-a-kind for Panasonic in Australia and is an essential piece of the rapidly emerging hydrogen industry.

Victorian hydrogen industry development received a significant boost from the announcement earlier this year of significant Japanese investment.

Separate from the Company's planned Viridian Hydrogen Project in the Latrobe Valley, an international consortium has been advancing the Hydrogen Energy Supply Chain (HESC) project.

On March 3, 2023, Japan's Ministry of Economy, Trade and Industry announced that Japan's $21.7Bn Green Innovation Fund would commit $2.35Bn toward the HESC project, which aims to produce clean hydrogen from Victoria's vast, world-class lignite resource for export to Japan.

The Japanese developers agreed to proceed with the project, and a memorandum of understanding was signed for this purpose between Japan Suiso Energy, Ltd., Iwatani Corporation, Electric Power Development Co. Ltd., and Sumitomo Corporation with the presence of Minister Nishimura, Mr Hiroaki Ishizuka, Chairman of NEDO, Hon. Jenny McAllister, Assistant Minister for Climate Change and Energy of Australia, Hon. Justin Hayhurst, Australian Ambassador to Japan, and Hon. Tim Pallas, Treasurer of Victoria.

This announcement by Japan, the HESC project developers and the Victorian and Australian governments validate the Company's view that the future of brown coal lies in the refined chemistry of lignite via its conversion into clean fuel like hydrogen, soil health products and advanced carbons like battery-quality graphitic carbon. The technology is available to establish a multi-trillion-dollar industry in Victoria with low to net zero emissions and transform Victoria into a hydrogen powerhouse, supporting the energy transition.

The Company continues to prepare its COLDry demonstration facility for any vendor selection process for relevant projects that require a lignite drying solution, including HESC. The development of our Viridian Hydrogen project at Bacchus Marsh and the early commissioning of the COLDry process provides a working demonstration to allow for independent engineering reviews and showcase COLDry at an appropriate scale.

Directors Reaffirm theirSupport for COLDry Opportunities

In a strategy aimed at balancing the challenging market conditions and supporting COLDry opportunities, the Company announced that directors will take shares in lieu of cash for at least the next six months.

All Non-Executive Directors will receive 70% of their monthly fee as shares to be calculated on a 30-day VWAP price on the prior month's trading period.

The Managing Director will be taking 50% of his monthly remuneration as shares to be calculated on the same basis as outlined above.

All shares issued to directors will be subject to shareholder approval at the next available General Meeting.

The Company has also reached agreement with its executive, some contractors and some service providers to also receive shares partly in lieu of cash payment.

Link: COLDry Opportunities Supported by Directors.

Technology, R&D and Engineering

Biomass-lignite Blended COLDry Pellets

During the reporting period, the Company conducted a series of tests entailing biomass blending with lignite from Victoria's three mines; Yallourn, Loy Yang and Maddingley.

The biomass selected for this trial was waste sawdust from the manufacture of hardwood flooring products.

In all cases, a blend of up to 20% biomass was successful, resulting in composite pellets within the targeted moisture range.

Photos (above): Successful bench scale extrusion of biomass-lignite COLDry pellets (left) and dried COLDry pellets made using Yallourn, Loy Yang and Maddingley lignite combined with waste hardwood saw dust (right).

The composite pellets are currently undergoing gasification testing at Newcastle University, with results to be used to inform their performance in gasification and pyrolysis processes.

In the context of the Company's Viridian hydrogen process, blending biomass is the key to delivering a net zero hydrogen product without the need for carbon capture and storage (CCS).

At a blended ratio of 15% biomass to 85% lignite (on a dry basis), the hydrogen produced has a carbon footprint slightly less than net-zero.

The net-zero status is determined by and compliant with the *National Greenhouse and Energy Reporting (NGER) Act 2007* criteria.

FOGO-lignite Blended Pellets

Hampered by contamination, such as plastics, metal and glass, food organics/garden organics (FOGO) is increasingly being diverted to landfill, presenting a significant problem for industry and local governments trying to find sustainable, affordable solutions to deal with this substantial waste stream.

As part of the Company's plans to deliver broader energy and resource solutions from its Bacchus Marsh facility, the R&D team is currently exploring a range of FOGO sources, undertaking characterisation studies and analysing the candidate waste streams' suitability for use as a feedstock for blending with lignite prior to drying and pyrolysis.

If successful, a range of FOGO could be diverted from landfill while supporting the production of clean hydrogen, agricultural char, activated carbon, battery carbon, liquid fuels and other specialty chemical products.

Currently, FOGO attracts a landfill fee of ~$130t[1] across metropolitan Melbourne, presenting the Company with an opportunity for an additional revenue stream as it takes FOGO into its process.

Intellectual Property

HydroMOR

The Company's HydroMOR process patent was granted in Australia, adding to patents previously granted in Hong Kong, the EU and Russia.

Patent application examinations are progressing in Canada, the USA, India and China.

The Company's HydroMOR technology is the world's first and only primary iron-making technology that utilises lignite instead of metallurgical coal, with a 30% lower carbon footprint than conventional blast furnace iron and steel-making.

Viridian Hydrogen Demonstration Project (Bacchus Marsh)

Phase 1 Quarterly Update (Q4FY23)

Key points:

- Phase 1 (COLDry – Zero Emission Drying)
    - Implementation of changes to the waste heat system following a successful trial of a data centre as a new waste heat source in the previous quarter
    - Site preparation for the arrival of the Panasonic Hydrogen Fuel Cell
- Phase 2 (Syngas and Char Production)
    - Ongoing project development
    - Key design work being finalised for the rotary kiln
    - Tender preparation ahead of construction and installation of rotary kiln in coming months
- Increased engagement with industry players as the project progresses:
    - Activated char trials of COLDry product commenced and will continue across H1 2024.
    - Investigation of FOGO sources as biomass candidates for Phase 2 feedstock

As outlined in past updates, the engineering team identified significant potential process efficiency gains that centre on the new five-pass conditioning system. These efficiency gains are expected to provide substantial CAPEX and OPEX savings across Phase 1 and Phase 2 of the Bacchus Marsh Project and flow-on benefits for the planned Latrobe Valley project.

In addition, the Company previously highlighted (Quarterly Report, 31 October 2022) the deployment of a small data centre as a tenant at its Yallourn site. Noting the substantial volume and ideal temperature range of the waste heat generated by the data centre, the Company arranged to move the data centre to Bacchus Marsh, effectively combining two key research and development activities:

1. Conditioning system performance profile evaluation
2. Waste heat integration and utilisation

[1] Source: EPA Victoria website - https://www.epa.vic.gov.au/for-business/find-a-topic/landfill-guidance/waste-levy

The Company confirmed in its previous quarterly report that, building on the successful completion of the wet commissioning of the conditioning system, a series of experimental runs were conducted during the quarter, confirming a higher-than-anticipated drying performance profile and operational envelope.

Further, harnessing and utilising waste heat from the co-located data centre also proved successful.

The implications:

Conditioning System

The greater-than-anticipated performance of the conditioning system means the Packed Bed Dryer design parameters are being refined, reducing the total size of the vessel, which reduces CAPEX and OPEX and reinforces the cost-effectiveness of the COLDry process as a drying solution.

These design changes are currently being prepared and will be incorporated under Phase 2 activity.

Waste Heat System

The successful integration and utilisation of waste heat from the data centre to conduct the conditioning system trials have prompted an expansion of the co-located data centre to supply the Packed Bed Dryer.

When complete, the data centre will provide sufficient waste heat to service the conditioning system and Packed Bed Dryer at a production capacity of 35,000 tonnes of finished COLDry pellets per annum.

The original design of the COLDry demonstration plant entailed the harnessing of waste heat from the char kiln to be deployed under Phase 2. The data centre has proven to be a much more cost-effective method.

The Company set up the initial trial in the basement of the building and is expanding the footprint from the basement to the ground level, with fans and ducting added to harvest the waste heat once the servers are installed.

Photos (above): The ground level of the building is being prepared to receive several megawatts of servers, which will be mounted on racks. Fans will draw the waste heat from the enclosed data centre to the conditioning system and Packed Bed Dryer.

Phase 2 Quarterly Update – Site Layout & Project Planning Progressing

During the AGM on 18 November 2022, the Company delivered a presentation (link) outlining the vision for the Viridian Hydrogen Demonstration project at Bacchus Marsh, focusing on commercial demonstration.

A follow-up presentation was released on 6 April (link), outlining the multi-billion dollar hydrogen market and how the COLDry enabled Viridian Hydrogen Demonstration project plans to leverage this opportunity through a unique net-zero approach to hydrogen production that doesn't require conventional carbon capture and storage (CCS).

During 2022 ECT addressed many of the technical risks associated with COLDry, such as:

- An equipment scale increase of up to 10 times from the previous pilot plant
- Processing equipment integration
- Increased design efficiency of the conditioning system
- Meeting production pellet quality standards
- The site supporting new infrastructure
- ECT is now focused on the commercial demonstration and integration of its highly efficient, patented drying technology.

Our aim in 2023 is to:

- Add downstream hydrogen and char production (Phase 2)
- Finalise and fix key inputs like electricity, waste heat and feedstock
- Add collaborative partnerships (like Optimal, Panasonic, GrapheneX, and GDT)
- Establish offtake partnerships

During the quarter, the engineering team progressed the design work for the rotary kiln cowl and peripheral conveyor systems, with tenders expected to be awarded in the coming weeks for the fabrication, construction and installation of the kiln and its supporting plant and equipment.

Continued planning and engineering activities with joint venture partner GrapheneX saw progress around equipment selection and site preparation for receipt of equipment in late April.

Subsequent to the End of the Period

There are no material events subsequent to the end of the period to report.

Commentary to Appendix 4C

The Company had a net outflow of cash from operating activities during the quarter of $0.545M compared to $0.935M during the prior quarter. Significant differences compared to the prior quarter include:

- Administration and corporate cash outflows were reduced by $0.236M. This was mainly due to directors and executives agreeing to take shares in lieu of cash for director and consulting fees, respectively.
- Receipts from customers increased by $0.088M. These receipts are monies received from the data centre operator located at the Bacchus Marsh facility.

There were no other significant variations in cash flows compared to the previous quarter.

No capital raisings were undertaken during the quarter ending 30 June 2023.

Cash payments of $0.039M (previous quarter $0.1M) were made to related parties of the entity, which included directors' fees and service-related payments to the Company's full-time executive director. There was a decrease to the cash payments as a result these related parties agreeing to be partly paid in shares (subject to shareholder approval at the next AGM) in lieu of cash.

// END //

This announcement is authorised for release to the ASX by the Board.

For further information, please contact:

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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 with 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.

Appendix 4C

Quarterly cash flow report for entities subject to Listing Rule 4.7B

Name of entity	
Environmental Clean Technologies Limited	
ABN	**Quarter ended ("current quarter")**
28 009 120 405	30 June 2023

Consolidated statement of cash flows		**Current quarter $A'000**	**Year to date (12 months) $A'000**
1.	**Cash flows from operating activities**		
1.1	Receipts from customers	105	122
1.2	Payments for		
	(a) research and development	(233)	(954)
	(b) product manufacturing and operating costs		
	(c) advertising and marketing		
	(d) leased assets		
	(e) staff costs	(177)	(765)
	(f) administration and corporate costs	(229)	(1,933)
1.3	Dividends received (see note 3)		
1.4	Interest received	8	36
1.5	Interest and other costs of finance paid	(19)	(56)
1.6	Income taxes paid		
1.7	Government grants and tax incentives		1,825
1.8	Other (provide details if material)		
1.9	**Net cash from / (used in) operating activities**	**(545)**	**(1,725)**

2.	**Cash flows from investing activities**		
2.1	Payments to acquire or for:		
	(a) entities		
	(b) businesses		
	(c) property, plant and equipment	(206)	(1,336)
	(d) investments		
	(e) intellectual property		
	(f) other non-current assets		

Consolidated statement of cash flows		Current quarter $A'000	Year to date (12 months) $A'000
2.2	Proceeds from disposal of:		
	(a) entities		
	(b) businesses		
	(c) property, plant and equipment		30
	(d) investments		
	(e) intellectual property		
	(f) other non-current assets		
2.3	Cash flows from loans to other entities		
2.4	Dividends received (see note 3)		
2.5	Other (provide details if material)		
2.6	**Net cash from / (used in) investing activities**	**(206)**	**(1,306)**

3.	**Cash flows from financing activities**		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)		
3.2	Proceeds from issue of convertible debt securities		
3.3	Proceeds from exercise of options		
3.4	Transaction costs related to issues of equity securities or convertible debt securities		
3.5	Proceeds from borrowings		
3.6	Repayment of borrowings	(27)	(86)
3.7	Transaction costs related to loans and borrowings		
3.8	Dividends paid		
3.9	Other (provide details if material)		
3.10	**Net cash from / (used in) financing activities**	**(27)**	**(86)**

4.	**Net increase / (decrease) in cash and cash equivalents for the period**		
4.1	Cash and cash equivalents at beginning of period	2,064	4,403
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(545)	(1,725)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(206)	(1,306)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	(27)	(86)
4.5	Effect of movement in exchange rates on cash held		
4.6	**Cash and cash equivalents at end of period**	**1,286**	**1,286**

5.	**Reconciliation of cash and cash equivalents** at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	**Current quarter $A'000**	**Previous quarter $A'000**
5.1	Bank balances	1,286	2,064
5.2	Call deposits		
5.3	Bank overdrafts		
5.4	Other (provide details)		
5.5	**Cash and cash equivalents at end of quarter (should equal item 4.6 above)**	**1,286**	**2,064**

6.	**Payments to related parties of the entity and their associates**	**Current quarter $A'000**
6.1	Aggregate amount of payments to related parties and their associates included in item 1	39
6.2	Aggregate amount of payments to related parties and their associates included in item 2	

Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.

7.	**Financing facilities** *Note: the term "facility' includes all forms of financing arrangements available to the entity.* *Add notes as necessary for an understanding of the sources of finance available to the entity.*	**Total facility amount at quarter end $A'000**	**Amount drawn at quarter end $A'000**
7.1	Loan facilities		
7.2	Credit standby arrangements		
7.3	Other – Research and development loan	1,968	1,968
7.4	**Total financing facilities**	1,968	1,968

7.5	**Unused financing facilities available at quarter end**	-

7.6 Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.

The Company has a fully drawn lending facility with Invest Victoria for $1.968M which has an interest rate of 4.265%, matures 31 October 2023 and is secured by the Company's R & D Tax Incentive.

8.	**Estimated cash available for future operating activities**	**$A'000**
8.1	Net cash from / (used in) operating activities (item 1.9)	(545)
8.2	Cash and cash equivalents at quarter end (item 4.6)	1,286
8.3	Unused finance facilities available at quarter end (item 7.5)	-
8.4	Total available funding (item 8.2 + item 8.3)	1,286
8.5	**Estimated quarters of funding available (item 8.4 divided by item 8.1)**	2.36

Note: if the entity has reported positive net operating cash flows in item 1.9, answer item 8.5 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.5.

8.6 If item 8.5 is less than 2 quarters, please provide answers to the following questions:

8.6.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?

Answer:

8.6.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?

Answer:

8.6.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

Answer:

Note: where item 8.5 is less than 2 quarters, all of questions 8.6.1, 8.6.2 and 8.6.3 above must be answered.

Compliance statement

1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.

2 This statement gives a true and fair view of the matters disclosed.

Date: 28 July 2023

Authorised by: The board
(Name of body or officer authorising release – see note 4)

Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.

2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standard applies to this report.

3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.

4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [*name of board committee – eg Audit and Risk Committee*]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".

5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.