



**ENVIRONMENTAL CLEAN  
TECHNOLOGIES LIMITED**

31 January 2023

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### **Lodgement of December 2022 Quarterly Report and Appendix 4C**

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

- December 2022 Quarterly Activity Report
- Appendix 4C

Sincerely,

**Arron Canicais**  
Company Secretary



## Quarterly Activity Report and Appendix 4C

**31 January 2023:** Environmental Clean Technologies Limited (ASX: ECT) (ECT or Company) is pleased to provide the following update and Appendix 4C for the quarter ending 31 December 2022.

### Highlights

#### Projects

- **COLDry Demonstration Project (Bacchus Marsh)**
  - Renamed “Viridian Hydrogen Demonstration Project”
  - Phase 1 (COLDry – Zero Emission Drying) - Concluded wet commissioning program with the systems performing within the expected parameters.
  - Phase 2 (Syngas and Char Production)- Continued planning and engineering with joint venture partner GrapheneX targeting the downstream production of syngas, hydrogen, char, formic acid, dimethyl ether, electricity and advanced carbon products.
  - Increased engagement with industry players as the project progresses:
    - Commencement of Panasonic Hydrogen fuel cell program
    - Signing of MoU for Waste Innovation Hub development at the Company’s Bacchus Marsh site
    - Commercial end-user trials of COLDry product commenced and will continue across H1 2023.
  - Delivered “Vision 2023 – Viridian Hydrogen” for Bacchus Marsh project.
- **Net Zero Hydrogen Refinery Project (Latrobe Valley)**
  - Renamed “Latrobe Valley Viridian Hydrogen Project”
  - Feasibility activities on hold whilst we prioritise:
    - Certainty of lignite supply
    - Status of HESC project
    - Collaborative partners for repurposing of Yallourn mine
  - Small demonstration of data centre moved to Bacchus Marsh to expand for waste heat supply
  - Continued upgrade of buildings and facilities to support expanded tenancies.

#### Technology, R&D and Engineering

- HydroMOR patent granted in Australia (late Dec 2022) in addition to other geographies already granted
- Spontaneous combustion tests on COLDry pellets returned outstanding results
- Research programs with universities and CRCs initiated and continued, including:
  - Federation University – Commenced joint project with Federation University and GrapheneX on the use and recycling of Potassium in the production of advanced carbon products
  - FEnEx – Hydrogen industry activation and development
    - Status – Active participant
    - Pending project – developing advanced carbon materials from COLDry/COHgen

- HILT – decarbonising heavy industries
  - Status – Active participant
  - Pending project – incorporation of biomass into HydroMOR feed

### **Corporate**

- R&D Tax Incentive rebate received, delivering \$1.797 million cash
- Expression of Interest opened for Equity Lending Facility in relation to ECTOE options
- Full-year ESG and TCFD reports released

### **Commentary to Appendix 4C**

The Company had a net inflow of cash from operating activities during the quarter due to receiving the Research and Development Tax Incentive in relation to the 2022 financial year. The incentive totalled \$1.8M. Cash outflows relating to research and development and administration costs were reduced compared to the previous quarter by \$0.16M and \$0.12M, respectively. Research and development costs were reduced as commissioning activities for the new plant commenced, and administration costs were reduced as the prior quarter included one-off costs for listing fees and preparing the 2022 annual report.

There were no other significant variations in cash flows compared to the previous quarter. Approximately \$0.41M was spent on property, plant and equipment during the quarter compared to \$0.46M in the prior quarter as the Company completed construction of Phase 1 of the Bacchus Marsh COLDry facility.

No capital raisings were undertaken during the quarter ended 31 December 2022.

Payments of \$0.12M (previous quarter \$0.12M) were made to related parties of the entity, which included directors' fees and payments to the Company's full-time executive director.

### **Bacchus Marsh COLDry Demonstration Plant (“Bacchus Marsh Project”)**

#### **Phase 1 Quarterly Update**

Building on the successful completion of dry and wet commissioning of the primary processing system in the prior quarter, the Company completed the wet commissioning for the conditioning system, in addition to supporting COLDry product trials:

- Wet commissioning of COLDry primary processing and conditioning systems completed
- Equipment performance within expected parameters
- COLDry product validated via end-user trial, with superior performance
- Lowest value use for COLDry plant capacity demonstrated at \$6.25M notional revenue
- Estimated reduction of 500kg CO<sub>2</sub> in Scope 3 emissions per tonne of solid fuel consumed by the end user
- External testing confirms excellent (low) spontaneous combustion qualities

The Company looks forward to advancing Phase 2 activity in parallel with Phase 1 operational trials over the coming months.

#### **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.

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

At the date of this report, project planning is well advanced. The site layout has been finalised, vendors shortlisted, and tender packs are being released.

### **Panasonic Hydrogen Fuel Cell Trial at Bacchus Marsh**

#### **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 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](#)).

### **Latrobe Valley Net Zero Emission Hydrogen Refinery (Renamed "Latrobe Valley Viridian Hydrogen Project")**

The Company has continued to focus on improving the site acquired in February 2022 at Yallourn Drive, Yallourn, including on-site safety and security and essential upgrades to allow for utilities and services to support the tenancy of the buildings.

The site has been acquired primarily to host the deployment of the Company's proposed headline Latrobe Valley Viridian Hydrogen Project, which aims to deliver:

- Net-zero emission hydrogen: supporting the energy transition needed to achieve emission reduction targets
- Critical minerals: supplying the crucial battery storage and industrial minerals market
- Agricultural char: supporting national agricultural industry through soil health and productivity
- Other valuable products: including high-value carbon and minerals products

The site also includes a large heritage-listed building, the headquarters of the original State Electricity Commission of Victoria (SECV). This building will support the Latrobe Valley Project as an administration and training centre, as was the focus for the launch of the Victorian Labor government's election campaign ([link](#)).

In addition, the Company is looking at how it can also support local social enterprises with low rent and power, in alignment with the Company's ESG principles of providing wealth and prosperity to the community.

Trials with a data centre business were completed over the quarter and were transferred to the Bacchus Marsh Viridian Hydrogen Project to supply free waste heat.

The development of the full feasibility package for the Latrobe Valley Project has focused on securing long-term lignite supplies. A consortium is being formed to look at presenting a repurposing proposal for the existing lignite mines that are being directed away from electricity as part of the industry-wide shut-down of electricity generated from mineral-based resources. Over this time, ECT's resources will be directed to establish commercial credentials for the Bacchus Marsh project. The Company aims to recommence the full feasibility study in the new year once we have established a clear direction for securing lignite supplies.

# ESG Reporting

## Environmental Clean Technologies

ASX:ECT

**Progress**  
P In progress  
C Completed  
N Not applicable

### Period Comparison (Period 5 vs 6)

Governance		Period 5 (Jul to Sep 2022)		Period 6 (Oct to Dec 2022)	
Code	Description	Status	Progress (A1-A5)	Status	Progress (A1-A5)
<b>GOVERNING PURPOSE</b>					
GO-01-C1	Setting purpose	VERIFIED	C C C C C	VERIFIED	C C C C C
<b>QUALITY OF GOVERNING BODY</b>					
GO-02-C1	Governance body composition	VERIFIED	C C C C C	VERIFIED	C C C C C
<b>STAKEHOLDER ENGAGEMENT</b>					
GO-03-C1	Material issues impacting stakeholders	VERIFIED	C P C C C	VERIFIED	C C C P C
<b>ETHICAL BEHAVIOUR</b>					
GO-04-C1	Anti-corruption practices	VERIFIED	C C P	VERIFIED	C C P
GO-04-C2	Mechanisms to protect ethical behaviour	VERIFIED	C P	VERIFIED	P C
<b>RISK AND OPPORTUNITY OVERSIGHT</b>					
GO-05-C1	Integrating risk and opportunity into business process	VERIFIED	C C C C C	VERIFIED	C C C C C
<b>Planet</b>		<b>Period 5 (Jul to Sep 2022)</b>		<b>Period 6 (Oct to Dec 2022)</b>	
Code	Description	Status	Progress (A1-A5)	Status	Progress (A1-A5)
<b>CLIMATE CHANGE</b>					
PL-01-C1	GHG emissions	VERIFIED	C C C	VERIFIED	C C C
PL-01-C2	TCFD implementation	VERIFIED	C C C	VERIFIED	C C C
<b>NATURE LOSS</b>					
PL-02-C1	Land use and key biodiversity areas	VERIFIED	N C N N N	VERIFIED	C N N N N
<b>FRESHWATER AVAILABILITY</b>					
PL-03-C1	Water consumption	VERIFIED	N N N N C	VERIFIED	N N N N C
<b>People</b>		<b>Period 5 (Jul to Sep 2022)</b>		<b>Period 6 (Oct to Dec 2022)</b>	
Code	Description	Status	Progress (A1-A5)	Status	Progress (A1-A5)
<b>DIGNITY AND EQUALITY</b>					
PE-01-C1	Diversity and inclusion	VERIFIED	P P C P P	VERIFIED	P C P P P
PE-01-C2	Pay equality	VERIFIED	P P C P	VERIFIED	P C P P
PE-01-C3	Wage level	VERIFIED	P P	VERIFIED	P P
PE-01-C4	Child, forced or compulsory labour	VERIFIED	P	VERIFIED	P
<b>HEALTH AND WELL-BEING</b>					
PE-02-C1	Health and safety	VERIFIED	P C	VERIFIED	C P
<b>SKILLS FOR THE FUTURE</b>					
PE-03-C1	Training provided	VERIFIED	C C	VERIFIED	C C
<b>Prosperity</b>		<b>Period 5 (Jul to Sep 2022)</b>		<b>Period 6 (Oct to Dec 2022)</b>	
Code	Description	Status	Progress (A1-A5)	Status	Progress (A1-A5)
<b>EMPLOYMENT AND WEALTH GENERATION</b>					
PR-01-C1	Rate of employment	VERIFIED	C C	VERIFIED	C C
PR-01-C2	Economic contribution	VERIFIED	C C	VERIFIED	C C
PR-01-C3	Financial investment contribution	VERIFIED	C C	VERIFIED	C C
<b>INNOVATION OF BETTER PRODUCTS AND SERVICES</b>					
PR-02-C1	Total R&D expenses	VERIFIED	C	VERIFIED	C
<b>COMMUNITY AND SOCIAL VITALITY</b>					
PR-03-C1	Total tax paid	VERIFIED	C	VERIFIED	C

ESG Report Data Disclaimer  
 Environmental Clean Technologies | Period Comparison | Published on 25 Jan 2023

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 Socialsuite ESG

## Subsequent to the End of the Period

There were no material events subsequent to the end of the reporting period.

**// 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<sub>2</sub> 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.

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## Appendix 4C

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

**Name of entity**

Environmental Clean Technologies Limited

**ABN**

28 009 120 405

**Quarter ended ("current quarter")**

30 December 2022

<b>Consolidated statement of cash flows</b>	<b>Current quarter \$A'000</b>	<b>Year to date (6 months) \$A'000</b>
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers		1
1.2 Payments for		
(a) research and development	(149)	(457)
(b) product manufacturing and operating costs		
(c) advertising and marketing		
(d) leased assets		
(e) staff costs	(214)	(395)
(f) administration and corporate costs	(559)	(1,240)
1.3 Dividends received (see note 3)		
1.4 Interest received	11	15
1.5 Interest and other costs of finance paid	(13)	(21)
1.6 Income taxes paid		
1.7 Government grants and tax incentives	1,825	1,825
1.8 Other (provide details if material)		
<b>1.9 Net cash from / (used in) operating activities</b>	<b>901</b>	<b>(272)</b>
<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire or for:		
(a) entities		
(b) businesses		
(c) property, plant and equipment	(412)	(870)
(d) investments		
(e) intellectual property		
(f) other non-current assets		



Consolidated statement of cash flows		Current quarter \$A'000	Year to date (6 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)		
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	<b>(412)</b>	<b>(840)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
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		(24)
3.6	Repayment of borrowings		
3.7	Transaction costs related to loans and borrowings		
3.8	Dividends paid		
3.9	Other (provide details if material)		
<b>3.10</b>	<b>Net cash from / (used in) financing activities</b>		<b>(24)</b>

<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	2,778	4,403
4.2	Net cash from / (used in) operating activities (item 1.9 above)	901	(272)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(412)	(840)

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

<b>Consolidated statement of cash flows</b>		<b>Current quarter \$A'000</b>	<b>Year to date (6 months) \$A'000</b>
4.4	Net cash from / (used in) financing activities (item 3.10 above)		(24)
4.5	Effect of movement in exchange rates on cash held		
<b>4.6</b>	<b>Cash and cash equivalents at end of period</b>	<b>3,267</b>	<b>3,267</b>

<b>5.</b>	<b>Reconciliation of cash and cash equivalents</b> at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	<b>Current quarter \$A'000</b>	<b>Previous quarter \$A'000</b>
5.1	Bank balances	3,267	2,778
5.2	Call deposits		
5.3	Bank overdrafts		
5.4	Other (provide details)		
<b>5.5</b>	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>3,267</b>	<b>2,778</b>

<b>6.</b>	<b>Payments to related parties of the entity and their associates</b>	<b>Current quarter \$A'000</b>
6.1	Aggregate amount of payments to related parties and their associates included in item 1	116
6.2	Aggregate amount of payments to related parties and their associates included in item 2	
<i>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.</i>		

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

<b>7. Financing facilities</b>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
<i>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.</i>		
7.1 Loan facilities		
7.2 Credit standby arrangements		
7.3 Other (please specify)	1,968	1,968
7.4 <b>Total financing facilities</b>		
7.5 <b>Unused financing facilities available at quarter end</b>		-
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 3.265%, matures 31 October 2023 and is secured by the Company's R & D Tax Incentive.		

<b>8. Estimated cash available for future operating activities</b>	<b>\$A'000</b>
8.1 Net cash from / (used in) operating activities (item 1.9)	901
8.2 Cash and cash equivalents at quarter end (item 4.6)	3,267
8.3 Unused finance facilities available at quarter end (item 7.5)	
8.4 Total available funding (item 8.2 + item 8.3)	3,267
8.5 <b>Estimated quarters of funding available (item 8.4 divided by item 8.1)</b>	3.6
<i>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.</i>	
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: N/A	
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: N/A	
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: N/A	
<i>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.</i>	

**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.

31 January 2023

Date: .....

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.