



Quarterly Activities Report

FOR THE THREE MONTHS ENDING 31 MARCH 2023

Key Highlights:

- Entered Joint Venture with TAQAT Development Company
- Continued Progress Towards DOE ATVM Loan
- Received Terms & Conditions on DOE Grant to Continue Negotiations
- Progressed Anode Customer Discussions and NAM Operational Targets
- NOVONIX Cathode Materials Match Performance of Commercial Materials

Dr. Chris Burns, CEO of NOVONIX, noted, “This quarter has seen extremely promising progress on all fronts of our business. We have demonstrated our Generation 3 furnace technology performance in meeting all specification targets for our GX-23 grade of synthetic graphite product while continuing to sample different volumes of materials to various customers. Our cathode development team has also produced cathode material from our proprietary dry process that matches the performance of a leading commercial reference material in full cell testing. Lastly, we continue to see that the U.S. IRA legislation has focused OEMs and cell manufacturers on localized supply in North America, which is benefiting us in our discussions with potential customers.”



Riverside Facility in Tennessee

NOVONIX Anode Materials (NAM)

NOVONIX Anode Materials division (“NAM”), located in Chattanooga, Tennessee, USA, manufactures high-performance synthetic graphite anode materials used to make lithium-ion batteries that power electric vehicles, personal electronics, medical devices, and energy storage units. The Company plans to reach synthetic graphite production capacity of 10,000 tonnes per annum (“tpa”) at its current Riverside facility, beginning deliveries to KORE Power in 2024 at an initial 3,000 tpa rate and plans to add an incremental 30,000 tpa production capacity by 2025 and reach 150,000 tpa of total production capacity in North America by 2030.

- NOVONIX enters into joint venture (“JV”) agreement with TAQAT Development Company (“TAQAT”) to produce battery materials in the Middle East North Africa (“MENA”) region – 30 March 2023
- Continued installation and operation of equipment at Riverside as NOVONIX’s proprietary Generation 3 graphitization furnaces are being optimized ahead of the start of production in 2024 to support KORE Power’s required volume and other potential customers
- GX-23 grade of synthetic graphite produced from Generation 3 production furnaces meets its full specification targets
- Additional grades of synthetic graphite, as well as GX-23 sample volumes, under test with various potential customers
- Progressed engagements with tier 1 cell and automotive manufacturers through additional material sampling and qualification
- Continued expansion of equipment at NOVONIX’s pilot plant facility to support ongoing customer engagement
- Continued negotiation with the Department of Energy (DOE) on terms and conditions related to the announced US\$150m grant
- Advanced site selection process for a new facility to produce up to 75,000 tpa of high-performance battery grade synthetic graphite
- Continued discussions with DOE Loan Programs Office (LPO) with review of technical eligibility and financial viability review to progress to next stage (Stage 3- Due Diligence) of process
- Selection in progress for four college scholarships across four high schools in the local Chattanooga area
- Director Anode Technology nominated for the General Robert Neyland Young Engineer of the Year Award

NOVONIX-TAQAT Development JV

NOVONIX entered into a JV with TAQAT to develop and produce anode materials for electric vehicle and energy storage system batteries in the MENA region.

The JV is intended to utilize NOVONIX's battery technology and capability to develop a graphite anode materials facility with capacity of 30,000 tonnes per annum. The project is to be located in Saudi Arabia and is expected to secure ready access to precursor material as feedstock for critical battery materials and access to developing end-use markets for the manufacture and sale of EVs and ESS applications. Trends in government support and incentives for electrification and the localization of the supply chain are prominent in the United States with the Inflation Reduction Act but also strong in other jurisdictions. Saudi Arabia has set ambitious targets around electrification within its Vision 2030 goal and have opportunities to offer strong financial support to key strategic projects that are being built within the Kingdom.

Key Deal Terms:

- It is intended that the JV will undertake engineering for the facility in its first year with the target to begin facility construction in 2024
- NOVONIX will contribute access on a royalty-free basis to its proprietary intellectual property to the JV for the production and sales of high-performance graphite anode
- TAQAT will hold a 60 percent equity stake in the JV and NOVONIX will hold a 40 percent stake, with each party contributing their share of operating and capital costs for engineering and subsequent facility construction and operation

U.S. DOE Grant

The Biden Administration's Inflation Reduction Act (IRA) and the Bipartisan Infrastructure Law (BIL) have provided many potential incentives to companies to build out a robust supply chain in the United States. NOVONIX was selected to receive \$150M for an approximate \$1 billion greenfield project to supply the EV battery supply chain. In March, the DOE began distributing terms and conditions to BIL grant awardees, including NOVONIX, as the next step in the negotiation process.

U.S. DOE Loan Application

The DOE Loan Programs Office has \$15.1 billion in loan authority to support the manufacture of eligible light-duty vehicles and qualifying components under the Advanced Technology Vehicles Manufacturing Loan Program (ATVM), authorized by the Energy Independence and Security Act of 2007, providing debt capital at U.S. Treasury rates.

In October 2022, NOVONIX formally submitted its application for a loan under the ATVM program. The loan, if received, would contribute a large component of the funding needed for the company’s current expansion of battery materials capacity for the production of synthetic graphite to support the United States EV and ESS supply chain. The Company continued discussions this quarter progressing the loan towards Stage 3, formal due diligence.

Battery Technology Solutions (BTS)

NOVONIX Battery Technology Solutions division (“BTS”) focuses on innovative battery research and development, along with providing advanced battery testing equipment and services on a global scale. BTS provides front-line access across the battery value chain and continues to be an industry leader, delivering materials and technologies to support high-performance and cost-effective battery development.

BTS launched a new, proprietary cell testing and analytics software service for battery R&D efforts focused on improving time-to-market and reducing battery costs. Based on BTS’s expertise in material evaluation and degradation analysis, this new advanced analytics software platform will give higher confidence in predicting cell performance and reliability.

In the three months ended 31 March 2023, BTS continued strong revenue growth each quarter with expansion of hardware sales and R&D service offerings by adding and expanding key strategic accounts.

Quarter Ending (US\$ Million)	31 March 2023	31 December 2022	30 September 2022	30 June 2022
Revenue	US\$2.57	US\$1.33	US\$1.71	US\$2.09

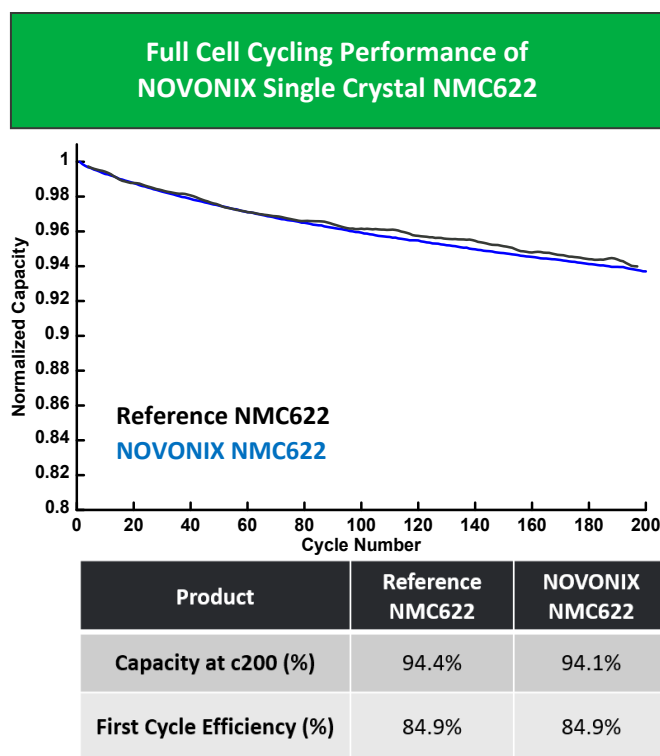
Note: Quarterly revenue figures have not been audited.

- BTS data services application launched on the cloud to allow access to selected organizations and customers in the second quarter
- BTS and Emera Technologies have continued progress towards the successful completion of the development of battery storage technology project with further results and next steps expected later this year
- Entered UHPC battery testing equipment distribution agreement with AVL for the United States market
- Presented “Considerations for the Rapid Acceleration of Cell Technology: Ultra High Precision Coulometry and a Nimble R&D Setting” at the International Battery Seminar in Orlando highlighting the value BTS brings to both early stage and established battery materials and technology organizations

Cathode Pilot Line

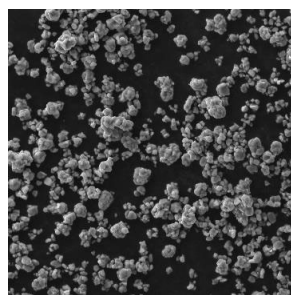
BTS has increased its investment in the intellectual property developed around cathode synthesis technology, which the Company believes could enable a substantial reduction in the cost of producing high energy density (high nickel-based) cathode materials including cobalt-free materials. Additionally, it expects to leverage BTS's battery cell pilot line and cell testing capabilities to further expand the dedicated cathode development team and its larger-scale (up to 10 tpa) pilot line which is about to commence commissioning in Nova Scotia. The aim of the pilot line is to demonstrate the manufacturability of the technology along with the performance in industrial format lithium-ion cells.

Cathode Cycle Performance Similar to Commercial Material

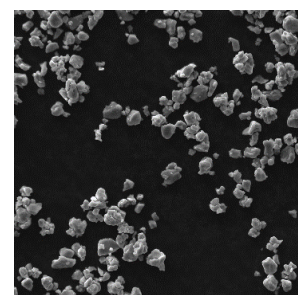


Enhanced Production Process Yields Consistent Performance

- Normalized cycling results in 1Ah pouch cell show that NOVONIX NMC622 has comparable cycling performance to a commercial reference material
- Scanning Electron Microscope (SEM) images below showing similar single crystal structure NOVONIX and commercial materials
- Higher nickel and cobalt free materials also being made using NOVONIX's process technology



Reference NMC622



NOVONIX NMC622

This quarter, the team has demonstrated the performance of grades of single crystal NMC622 made through its all-dry synthesis technology is matching the performance of leading cathode materials from existing suppliers in full cell performance testing. These positive results allow the company to progress plans to scale to larger test samples and begin commercial discussions with potential partners and customers.

BTS's cathode team has started commercial discussions with precursor and cathode suppliers regarding the Company's technology and current state of demonstration capability in terms of synthesizing capability and performance.

In the first quarter 2023, BTS also engaged with multiple established and potential lithium suppliers in material evaluation programs which build on the Company's initiatives in cathode precursor as well as final cathode synthesis technology.

- Further development of mid and high-nickel cathode chemistries
 - Currently focusing on 'finishing' additive optimization
- Critical equipment for 10 tpa line on track for commissioning this year
- Commencing discussions about NOVONIX's proprietary technology with cathode manufacturers, OEMs, and feedstock suppliers
- Continue to grow cathode patent portfolio internally and with Prof. Mark Obrovac
 - Cathode: 6 families of patent applications
 - Other: 5 families of patent applications

Corporate Update

- NOVONIX participated in:
 - Roth's 35th Annual Investor Conference– 13 March 2023
 - International Battery Seminar in Orlando, Florida and was a "Best of Show" finalist for its Ultra High Precision Coulometry technology – 18-20 March 2023
- A total of US\$401,458 was paid to directors and their associates for salaries, director fees and superannuation during the quarter ended 31 March 2023

Cash Balance

The Company's cash balance at 31 March 2023 was US\$78.7 million.

Capital Expenditures

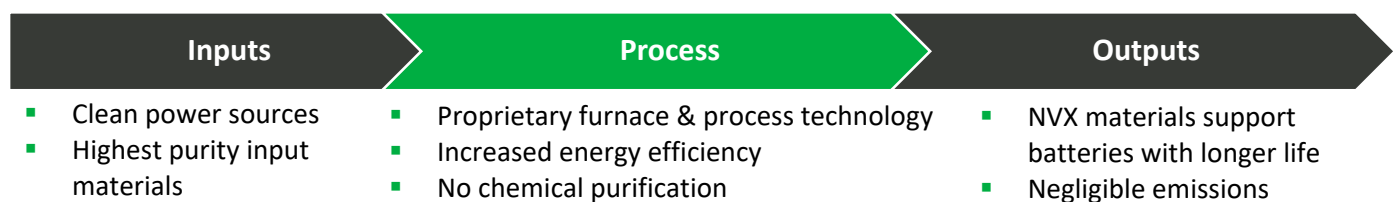
The company invested US\$6.95 million in the first quarter of 2023 inclusive of capital to advance its Riverside facility capacity and optimization plus to progress the cathode pilot line in Nova Scotia to 10 tpa capacity in 2023.

ESG Update

The Company has accelerated efforts to enhance NOVONIX’s Environmental, Social and Governance (ESG) policies and reporting. The Company has implemented a standing ESG management committee and is progressing a materiality assessment to aid in prioritizing its efforts. Oversight of the Company’s ESG program was placed under the oversight of the Nominating & Corporate Governance Committee of the Board of Directors.

Environmental

Life Cycle Assessment (LCA)¹ on NOVONIX process for production of GX-23 material demonstrated a ~60% decrease in global warming potential (GWP) relative to conventional anode grade synthetic graphite and a 30% decrease compared to natural graphite, both supplied from China.



Social

The health, safety, and wellbeing of our employees and the communities we operate in are essential to NOVONIX’s success and growth.

Governance

NOVONIX believes healthy corporate governance is central to its business objectives and a critical element contributing to the preservation of shareholder value.

This announcement has been authorized for release by NOVONIX Chairman, Admiral Robert J. Natter, USN Ret.

¹ [Life Cycle Assessment \(LCA\) conducted by Minviro Ltd](#)

About NOVONIX

NOVONIX is a leading battery technology company revolutionizing the global lithium-ion battery industry with innovative, sustainable technologies, high-performance materials, and more efficient production methods. The company manufactures industry-leading battery cell testing equipment in Canada and is growing its high-performance synthetic graphite anode material manufacturing operations in the United States. Through advanced R&D capabilities, proprietary technology, and strategic partnerships, NOVONIX has gained a prominent position in the electric vehicle and energy storage systems battery industry and is powering a cleaner energy future. To learn more, visit us at www.novonixgroup.com or on [LinkedIn](#), and [Twitter](#).

For NOVONIX Limited

Scott Espenshade, ir@novonixgroup.com (investors)

Lori McLeod, media@novonixgroup.com (media)

Forward-Looking Statements

This communication contains forward-looking statements about the Company and the industry in which we operate. Forward-looking statements can generally be identified by use of words such as “anticipate,” “believe,” “contemplate,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “should,” “target,” “will,” or “would,” or other similar expressions. Examples of forward-looking statements in this communication include, among others, statements we make regarding current legislation, graphite and battery markets, our joint venture with TAQAT, the Company’s ability to scale-up production of its anode or cathode materials, the development of a new facility for the production of anode materials for EV batteries, the cathode pilot line and the anticipated performance and benefits, the benefits of the Phillips 66 relationship, the continuation of the Company’s partnership with the Research Group of Dr. Mark Obrovac at Dalhousie University for the development of the Company’s technology, the Company’s ability to attract and retain key management and technology personnel and the accuracy of our estimates regarding expenses, future revenue, capital requirements and needs for additional financing. We have based such statements on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, business strategy and financial needs. Such forward-looking statements involve and are subject to known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking information. Such factors include, among others, our ability to achieve the objectives and financial benefits of the joint venture, the accuracy of our estimates regarding expenses, future revenue, capital requirements and needs for additional financing, and regulatory developments in the Canada, United States, Saudi Arabia, Australia and other jurisdictions. Detailed information regarding these and other factors that could affect our business and results is included in our filings, including the Company’s most recent transition and annual reports on Form 20-F, particularly the “Operating and Financial Review and Prospects” and “Risk Factors” sections of those reports. Copies of these filings may be obtained by visiting our Investor Relations website at www.novonixgroup.com or the SEC’s website at www.sec.gov.

Forward-looking statements are not guarantees of future performance or outcomes, and actual performance and outcomes may differ materially from those made in or suggested by the forward-looking statements contained in this communication. Accordingly, you should not place undue reliance on forward-looking statements. Any forward-looking statement in this communication is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether written or oral, that may be made from time to time, whether as a result of new information, future developments or otherwise.

Industry and Market Data

This Report contains estimates and information concerning our industry and our business, including estimated market size and projected growth rates of the markets for our products. Unless otherwise expressly stated, we obtained this industry, business, market, and other information from reports, research surveys, studies and similar data prepared by third parties, industry, and general publications, government data and similar sources. This Report also includes certain information and data that is derived from internal research. While we believe that our internal research is reliable, such research has not been verified by any third party.

Estimates and information concerning our industry and our business involve a number of assumptions and limitations. Although we are responsible for all of the disclosure contained in this Report and we believe the third-party market position, market opportunity and market size data included in this Report are reliable, we have not independently verified the accuracy or completeness of this third-party data. Information that is based on projections, assumptions and estimates of our future performance and the future performance of the industry in which we operate is necessarily subject to a high degree of uncertainty and risk due to a variety of factors, which could cause results to differ materially from those expressed in these publications and reports.

Appendix 4C

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

Name of entity

NOVONIX LIMITED

ABN

54 157 690 830

Quarter ended ("current quarter")

31 MARCH 2023

Consolidated statement of cash flows	Current quarter \$USD'000	Year to date (3 months) \$USD'000
1. Cash flows from operating activities		
1.1 Receipts from customers	3,105	3,105
1.2 Payments for		
(a) research and development	(904)	(904)
(b) product manufacturing and operating costs	(1,258)	(1,258)
(c) advertising and marketing	(117)	(117)
(d) leased assets	-	-
(e) staff costs	(6,327)	(6,327)
(f) administration and corporate costs	(6,720)	(6,720)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	-	-
1.5 Interest and other costs of finance paid	(476)	(476)
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	-	-
1.8 Other (provide details if material)	68	68
1.9 Net cash from / (used in) operating activities	(12,629)	(12,629)

Consolidated statement of cash flows	Current quarter \$USD'000	Year to date (3 months) \$USD'000
2. Cash flows from investing activities		
2.1 Payments to acquire or for:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	(6,952)	(6,952)
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	(4)	(4)
2.2 Proceeds from disposal of:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	-	-
(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 – Refunds / (payments for security deposits)	(522)	(522)
2.6 Net cash from / (used in) investing activities	(7,478)	(7,478)

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	52	52
3.4 Transaction costs related to issues of equity securities or convertible debt securities	(2)	(2)
3.5 Proceeds from borrowings	919	919
3.6 Repayment of borrowings	(426)	(426)
3.7 Transaction costs related to loans and borrowings	-	-

Consolidated statement of cash flows		Current quarter \$USD'000	Year to date (3 months) \$USD'000
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	(96)	(96)
3.10	Net cash from / (used in) financing activities	447	447

4.	Net increase / (decrease) in cash and cash equivalents for the period		
4.1	Cash and cash equivalents at beginning of period	99,039	99,039
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(12,629)	(12,629)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(7,478)	(7,478)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	447	447
4.5	Effect of movement in exchange rates on cash held	(672)	(672)
4.6	Cash and cash equivalents at end of period	78,707	78,707

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 \$USD'000	Previous quarter \$USD'000
5.1	Bank balances	78,707	99,039
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)	78,707	99,039

6. Payments to related parties of the entity and their associates		Current quarter \$USD'000	
6.1	Aggregate amount of payments to related parties and their associates included in item 1	401	
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-	
<p><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></p> <p>Payments to related parties (directors and Nick Liveris) includes director fees, salary and wages (including STI), and superannuation.</p>			
7. Financing facilities		Total facility amount at quarter end \$USD'000	Amount drawn at quarter end \$USD'000
<p><i>Note: the term "facility" includes all forms of financing arrangements available to the entity.</i></p> <p><i>Add notes as necessary for an understanding of the sources of finance available to the entity.</i></p>			
7.1	Loan facilities	39,750	38,396
7.2	Credit standby arrangements	-	-
7.3	Other (please specify)	-	-
7.4	Total financing facilities	39,750	38,396
7.5	Unused financing facilities available at quarter end		1,354

- 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.
 - Loan facility with BDC for CAD\$2,680,000 secured by first mortgage over the group's freehold land and buildings. The facility is repayable in monthly instalments ending 15 September 2044. Interest rate is variable and is currently 7.55%. As at 31 March 2023 the facility has been fully drawn down.
 - On 28 May 2021, the Group purchased commercial land and buildings in Nova Scotia, Canada for CAD\$3,550,000 from which the Cathode business operates. The Group entered into a loan facility to purchase the land and buildings. The total available under the facility is CAD \$4,985,000 and it has been drawn down to CAD\$4,953,060.67 as at 31 March 2023. The total liability at 31 March 2023 is CAD \$4,705,240. Interest rate is variable and is currently 7.55%. The full facility is repayable in monthly instalments, commencing 31 December 2022 and ending 30 November 2047. The land and buildings have been pledged as security for the bank loan.
 - Loan facility with BDC for CAD\$2,300,000 secured by first mortgage over the group's freehold land and buildings. The facility is repayable in monthly instalments, commencing 31 December 2023 and ending 30 November 2033. Interest rate is variable and is currently 7.05%. As at 31 March 2023 it has been drawn down to CAD\$500,000.
 - Contribution agreement with Atlantic Canada Opportunities Agency (ACOA), for CAD\$450,000. As at 31 March 2023 it has been fully drawn down. The facility is interest free and repayable in monthly instalments commencing 1 September 2019 and ending 1 December 2025.
 - Contribution agreement with Atlantic Canada Opportunities Agency (ACOA), for CAD\$500,000. As at 31 March 2023 it has been fully drawn down. The facility is interest free and repayable in monthly instalments commencing 1 April 2020 and ending 1 March 2026.
 - Contribution agreement with Atlantic Canada Opportunities Agency (ACOA), for CAD\$250,000. As at 31 March 2023 it has been fully drawn down. The facility is interest free and repayable in monthly instalments commencing 1 January 2024 and ending 1 December 2026.
 - Contribution agreement with Atlantic Canada Opportunities Agency (ACOA), for CAD\$1,886,000. As at 31 March 2023 it has been fully drawn down. The facility is interest free and repayable in monthly instalments commencing 1 January 2025 and ending 1 December 2036.
 - On 28 July 2021, the Group purchased commercial land and buildings in Chattanooga for USD \$42.6M to expand the NAM business. The Group entered into a loan facility with PNC Real Estate to purchase the land and buildings. The total available amount under the facility is USD\$30,100,000 and it has been fully drawn down as at 31 March 2023. The facility is repayable in monthly instalments, commencing September 2021 and ending August 2031. The land and buildings have been pledged as security for the loan.

8.	Estimated cash available for future operating activities	\$USD'000
8.1	Net cash from / (used in) operating activities (item 1.9)	(12,629)
8.2	Cash and cash equivalents at quarter end (item 4.6)	78,707
8.3	Unused finance facilities available at quarter end (item 7.5)	1,354
8.4	Total available funding (item 8.2 + item 8.3)	80,061

8.5 **Estimated quarters of funding available (item 8.4 divided by item 8.1)** 6.3

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: 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

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: 26 April 2023

Authorised by: By the Chairman of 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.