Graphene Manufacturing Group

GRAPHENE MANUFACTURING GROUP LTD

Management's Discussion and Analysis

For the year ended June 30, 2022

(in Australian dollars)

(Unless specified otherwise, all amounts are expressed in Australian dollars)

This Management's discussion and analysis ("MD&A") provides a review of Graphene Manufacturing Group Ltd's ("GMG" or the "Company") operations, performance and financial position for the year ended June 30, 2022. This MD&A should be read in conjunction with the audited consolidated financial statements for the year ended June 30, 2022. The purpose of this document is to provide information on GMG's activities. The information contained herein is dated as of September 29, 2022. You will find more information about us on GMG's website and on SEDAR (the official site of the Canadian Securities Administrators, which is publicly available), including all news releases.

The period from April 1, 2022 to June 30, 2022 has been referred to as Q4FY22 and the period from April 1, 2021 to June 30, 2021 has been referred to as Q4FY21. The financial year ended 30 June 2022 has been referred to as FY22 and the financial year ended 30 June 2021 has been referred to as FY21.

The financial statements of GMG and extracts of those financial statements provided in this MD&A have been prepared in accordance with International Financial Reporting Standards ("IFRS"). The Company has consistently applied the accounting policies used in the preparation of its IFRS financial statements, including the comparative figures. References to the symbol AUD or $ or A$ means the Australian dollar, the official currency of Australia. References to the symbol CAD or C$ mean the Canadian dollar. References to "K" indicate thousands. Except as otherwise set out herein, all amounts expressed herein are in Australian dollars, the functional currency of the Company. As a result of the rounding of dollar differences, certain total dollar amounts in this MD&A may not add exactly to their constituent amounts. Throughout this MD&A, percentage changes are calculated using numbers rounded as they appear. Readers are cautioned that this MD&A contains certain forward-looking information. Please see the "Forward Looking Statements" section which follows.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING INFORMATION

This MD&A contains "forward looking statements" that reflect the Company's expectations and projections about its future results. When used in this MD&A, forward looking statements can be identified using words such as "may", or by such words as "will", "intend", "believe", "estimate", "consider", "expect", "anticipate", and "objective" and similar expressions or variations of such words. Forward looking statements are, by their nature, not guarantees of the Company's future operational or financial performance and are subject to risks and uncertainties and other factors that could cause the Company's actual results, performance, prospects or opportunities to differ materially from those expressed in, or implied by, these forward-looking statements. No representation or warranty is intended with respect to anticipated future results, or that estimates, or projections will be sustained.

In developing the forward-looking statements in the MD&A, the Company has applied several material assumptions, including the availability of financing on reasonable terms, the Company's ability and general business and economic conditions. Many risks, uncertainties and other factors could cause the actual results of GMG to differ materially from the results, performance, achievements or developments expressed or implied by such forward-looking statements. These risks, uncertainties and other factors include, but are not limited to the following: overall economic conditions, technical de-risking and market acceptance for GMG's products and solutions, the introduction of competing technologies/products, environmental and regulation requirements, competitive pressures, change in market conditions and other factors that may cause the actual results, performance or achievements to differ materially from those expressed or implied in these forward-looking statements.

Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of the MD&A or as of the date otherwise specifically indicated herein. Due to risks and uncertainties, including the risks and uncertainties elsewhere in this MD&A, actual events may differ materially from current expectations. The Company disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. All forward-looking statements contained in the MD&A are expressly qualified in their entirety by this cautionary statement.

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BUSINESS OVERVIEW

Company Overview

GMG is a clean-technology company which seeks to offer energy saving and energy storage solutions, enabled by graphene, including that manufactured in-house via a proprietary production process.

GMG has developed a proprietary production process to decompose natural gas (i.e. methane) into its elements, carbon (as graphene), hydrogen and some residual hydrocarbon gases. This process produces high quality, low cost, scalable, 'tuneable' and low/no contaminant graphene suitable for use in clean-technology and other applications. The Company's present focus is to de-risk and develop commercial scale-up capabilities, and secure market applications.

GMG is listed on the TSX Venture Exchange ("TSXV") under the ticker "GMG" and is also quoted on Tradegate in Germany under "0GF". GMG understands that its shares may have traded on OTCQB under "GMGMF". This quotation was initiated by third party market participants, not GMG. To date, GMG has not offered or sold any securities to investors in the United States. GMG share warrants trade on TSXV under the ticker "GMG.WT".

GMG's strategy has evolved over time. While GMG graphene may be suitable for a wide range of industries, GMG has narrowed its focus to target select applications and industries. GMG's management team ("Management") believes that focusing on downstream applications will provide a higher return on in-house graphene production. Also, the vertically integrated approach will enable it to build a long-term competitive advantage. In line with this approach, GMG's initial focus has been developing applications for energy savings and energy storage.

In the energy savings segment, GMG has focused on THERMAL-XR®, a graphene enhanced heating, ventilation, air conditioning and refrigeration ("HVAC-R") coating (or energy-saving paint), G Lubricant, a graphene enhanced lubricant additive that seeks to reduce fuel consumption and carbon emissions by reducing internal friction in engines, and G Coolant, a graphene enhanced engine coolant that seeks to improve the thermal efficiency of engines.

GMG and potential customers continue to undertake demonstrations on a range of HVAC coating projects as well as on large industrial applications to better understand the commercial opportunity of each taking into account mechanical, climatic, operational and economic circumstances of each. Similar demonstrations continue with respect to graphene enhanced lubricants. In both cases notable sales are targeted to follow from these demonstrations.

In the energy storage segment, GMG and the University of Queensland are working collaboratively with financial support from the Australian Government to progress further research and development ("R&D") and commercialization of graphene aluminium-ion batteries ("G+AI Batteries"). The Company is excited by its recent R&D breakthroughs and achievements, its growing integrated ability to repeatedly manufacture batteries in-house and accordingly is accelerating work on its strategic roadmap to the commercial development of G+AI Batteries.

GMG is focussing on near term revenue generating opportunities through the sale of THERMAL-XR® into HVAC and industrial heat management projects in Australia, the USA and various other international markets. In the medium term, GMG remains focused on transitioning from R&D to commercialisation of G+AI Batteries. Furthermore, GMG will continue to invest in new product development and graphene enhanced lubricants.

As at June 30, 2022, GMG had a cash position of $12.3 million and no debt. Q4FY22 EBITDA was a loss of $1,524K with the net profit for the quarter being $1,764K primarily after adjusting for the accounting for warrants. As outlined in more detail below, the quarterly adjustments included in net profit required by IFRS to account for certain warrants on issue are a non-cash item and largely result from movements in GMG's share price during the period.

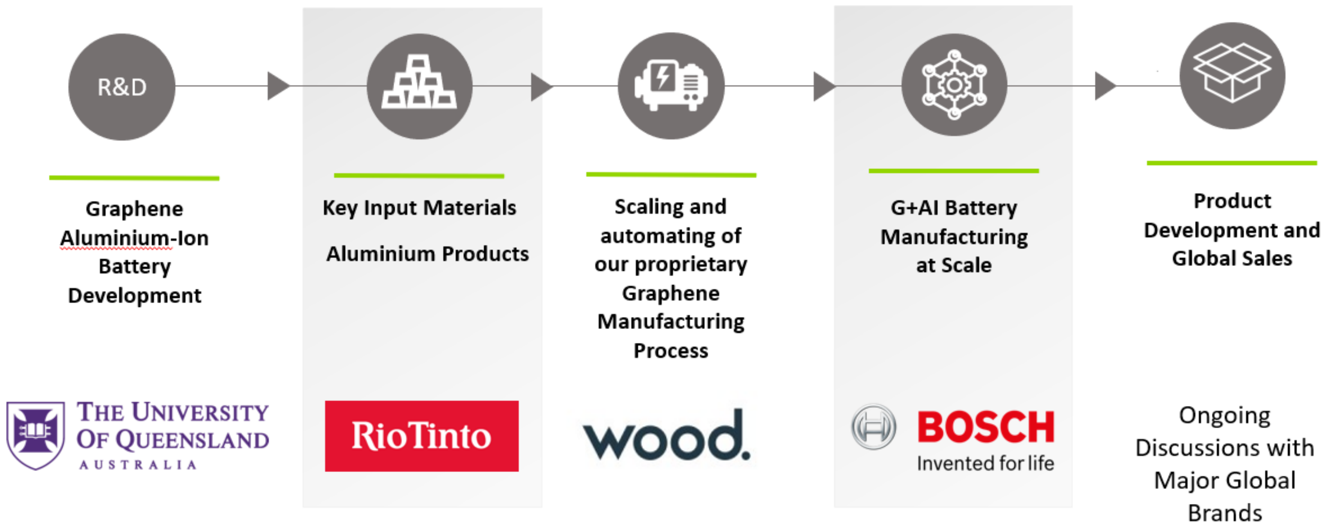
Business highlights

GMG continues to be focused on 4 key areas of activity:

1. Customer and industry partner engagement for potential battery application development
2. G+AI Battery Development Centre: optimisation and testing of both coin cell and pouch cell batteries
3. Securing revenue from *THERMAL-XR® powered by GMG Graphene* sales
4. Improving and scaling G+AI Battery grade graphene production

Key activity 1: Customer and industry partner engagement for potential battery applications development

Identifying the best possible customer and industry partners to de-risk, optimise and position GMG's G+AI Battery technology for successful scale up and commercialisation is a key priority. Set out below are some of the areas of the battery value chain partners that the Company either has identified, or is in discussions with, to position GMG's battery division for future growth.



Graphene is one of the main components enabling the GMG and University of Queensland G+AI Battery technology. In 2017 and 2018, GMG developed and proved its proprietary graphene production process to produce graphene from natural gas (i.e. methane). This process produces high quality, 'tunable' and scalable graphene with characteristics that underpin the G+Al batteries .

A Technical Services Agreement was signed with Wood Australia Pty Ltd on April 21, 2022, providing for terms and conditions between GMG and Wood for services by Wood to enable graphene production scale up. A Letter of Intent was signed with Bosch (news release October 25, 2021) for the design and delivery of targeted commercial G+AI Battery manufacturing plants. GMG and Wood will work in collaboration with Bosch to create an aligned production process from graphene manufacturing through to final G+AI Battery products across the Company's facilities.

Wood is supporting the recently announced graphene manufacturing expansion and the Company is currently engaging with Bosch to further develop its commercialisation road map for coin cell batteries.

As the likely first commercial production is of G+Al coin cell batteries, confidential sales discussions are most advanced in that area. Non-disclosure agreements have also been signed with a number of international, high profile potential customers across a wide range of industry segments to explore pouch pack opportunities, requirements and priorities for the subsequent development and commercial production.

Key activity 2: G+AI Battery Development Centre: optimisation and testing of both coin cell and pouch cell batteries

During Q2FY22, GMG's Battery Development Centre ("BDC") for its G+AI Batteries became operational and the first G+AI Batteries in coin cell format were manufactured.

The BDC was further upgraded during Q3FY22 to become a fully climate-controlled facility providing optimum temperature, moisture and dust conditions to manufacture batteries in a spacious, fully integrated work environment, incorporating all equipment required to assemble and test batteries. The Company has also successfully increased its organisational capability by attracting new staff experienced in coin cell and pouch cell manufacturing, thereby enabling the acceleration of its battery performance optimisation programme.

During Q4FY22, GMG commissioned pouch cell development equipment and produced the first working pouch cells.

GMG can now develop and test its own G+AI Battery in coin cell and pouch cell format in-house. This has allowed GMG to further improve and manufacture coin cells in a proven, repeatable and timely manner that sets the Company up to accelerate the commercial development of G+AI Batteries, work with future customers and further build on GMG's internal expertise. Pouch cells are typically used in a wide range of potential applications such as personal electronics, grid storage batteries and can also be used in electric vehicles.

GMG will continue to work on various scientific and engineering methods to optimise capacity, energy and power density, and overall design of the coin cell and pouch cell products.

Figure 1: GMG Battery Development Centre

Key activity 3: Securing revenue from THERMAL-XR® powered by GMG Graphene (TXR)

GMG and a number of potential customers continue to undertake demonstrations of THERMAL-XR® powered by GMG Graphene to assess the commercial opportunity taking into account a range of real world factors (see GMG's website for examples of successful projects). Results supported by GMG management and a number of external parties generally demonstrate improved heat transfer in space cooling (air-conditioning) and cooling units thereby delivering energy and emission reductions and cost savings. Learnings regarding specific location climatic conditions, HVAC equipment, and economic parameters continue to be derived and are being used for prioritising subsequent efforts.

GMG now has live demonstration projects in progress in a number of locations and engagement continues with numerous HVAC-R service contractors and providers in Australia, and internationally, to establish commercial arrangements. In addition to demonstrations on established air-conditioning units, GMG achieved encouraging results on new equipment during the quarter. Such results open the potential for route to market via major Original Equipment Manufacturer ("OEM") brands.

An experienced, senior North American representative has been engaged recently, and GMG is encouraged by early traction in multiple routes to market in the important USA market. This adds to our existing sales representation in South East Asia. Our Australian capability has been further bolstered by two additional appointments in Australia in September 2022.

In addition GMG is applying TXR to a number of customers' industrial processes to ascertain the opportunity to be derived from its heat management capabilities. This represents a potentially large and direct route to key markets.

On August 15, 2022, GMG and OzKem Pty Ltd ("OzKem") signed a binding agreement for GMG to acquire the manufacturing intellectual property and brand rights of OzKem's THERMAL-XR® coating products. OzKem developed the THERMAL-XR® coating system products using GMG graphene together with OzKem's base HVAC (Heating Venting and Air Conditioning) coating. Under the agreement GMG owns the THERMAL-XR® brand, will buy the base coatings product from OzKem, and GMG will manufacture the THERMAL-XR® products containing GMG graphene.

Key activity 4: Improving and scaling G+AI Battery grade graphene production

GMG's graphene manufacturing technology R&D is focussed on developing the process further to improve the manufacture of commercial quantities of the grade(s) of graphene required to commercialise G+AI Batteries.

Results from trials during the quarter show progress towards this objective. Further planned trials focussed on different production parameters and systems designs are expected to show further improvements.

On August 17, 2022 GMG made a Final Investment Decision ("FID") on Phase 1 of its graphene manufacturing expansion project. The expansion project includes an executed 5 year lease to expand total office and warehouse space to 3,500 square metres, the next generation of the GMG's proprietary graphene production technology with enhanced automation, a micro-grid with energy storage component to improve commercial and environmental electricity supply for the production process, and an infrastructure corridor to allow rapid scaling of further graphene manufacturing capacity during future phases of the graphene manufacturing expansion project. The Phase 1 expansion project is expected to provide ample graphene supply for the production of GMG's G+AI Battery coin cells, as well as the Company's energy saving liquid graphene products.

ESG Statement

"No Harm to People or Environment" remains at the core of GMG's values. The board appointed Sustainability Committee continues to take a holistic view of sustainability factors with a vision to enrich our environment and society. The United Nations 17 Sustainable Development Goals ("SDGs") was identified as the benchmark for goal alignment and enabled the Sustainability Committee to identify key focus areas.

GMG is committed to focus on targeted SDGs where the Company can best contribute. These are identified as:

- # 7 Ensure access to affordable, reliable sustainable and modern energy for all.
- # 13 Take urgent action to combat climate change and its impact.
- # 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

These goals form part of the standing agenda within the Sustainability Committee and are aligned with goals in GMG's business plan.

GMG is committed to providing transparent reporting on the Company's carbon emissions footprint from its operations and verified by an independent party using the National Greenhouse and Energy Reporting ("NGER") Framework and guidance notes on estimating emissions and energy from industrial processes. Once GMG's baseline carbon emissions are verified, GMG is committed to continued focus on Environmentally Sustainable Governance practices to ensure ongoing improvement within its business activities. Through the application and use of GMG's products and services the Company will continue to maintain transparent reporting on its carbon footprint and carbon footprint reductions through the application of energy saving products and services with our customers.

FINANCIAL HIGHLIGHTS

Income Statement

$'000 unless otherwise stated	12 month period ended June 30 2022	2021	Variation $'000	%
Revenue from operations	54	246	*(192)*	*(78%)*
Other income including subsidies, grants and incentives	1,462	1,013	*449*	*44%*
Total revenue	**1,516**	**1,259**	***257***	***20%***
Employee expenses	(5,272)	(2,684)	*(2,588)*	*96%*
Plant expenses	(311)	(189)	*(122)*	*65%*
Occupancy expenses	(206)	(154)	*(52)*	*34%*
Overheads expenses	(2,524)	(1,998)	*(526)*	*26%*
Total operating expenses	**(8,313)**	**(5,025)**	***(3,288)***	***65%***
EBITDA	(6,797)	(3,766)	*(3,031)*	*80%*
Listing expenses	-	(2,226)	*2,226*	*(100%)*
Change in fair value of warrants	(4,559)	(1,832)	*(2,727)*	*149%*
Finance costs	(63)	(23)	*(40)*	*174%*
Depreciation	(351)	(263)	*(88)*	*33%*
Loss before income tax	**(11,770)**	**(8,110)**	***(3,660)***	***45%***
Income tax expense	-	-	-	-
Loss for the period	**(11,770)**	**(8,110)**	***(3,660)***	***45%***
Non-IFRS financial measures [1]				
Adjusted loss before income tax	(7,211)	(4,053)	*(3,158)*	*78%*
Basic and diluted loss per share (cents)	(15.48)	(13.40)	*(2.08)*	*16%*
Adjusted basic and diluted loss per share (cents)	(9.48)	(6.69)	*(2.79)*	*42%*

(1) Refer to Non-IFRS financial measures for further information.

Balance Sheet

$'000	As at 30 June, 2022	As at 30 June, 2021
Cash and cash equivalents	12,258	3,359
Trade and other receivables	143	56
Research and development grants receivable	1,412	736
Inventories	350	336
Other current assets	318	184
Property, plant and equipment	2,162	224
Intangible assets	33	49
Total assets	**16,676**	**4,944**
Trade and other payables	804	539
Lease liabilities	137	-
Financial liabilities	4,410	2,189
Employee benefit liabilities	207	162
Provisions	20	20
Long term liabilities	998	-
Total liabilities	**6,576**	**2,910**
Total equity	**10,100**	**2,034**

Summary of Cash Flows

$'000	For the year ended June 30 2022	2021	Variation $'000	%
Cash flows from operating activities	(6,568)	(3,348)	*(3,220)*	*(96%)*
Cash flows from investing activities	(1,080)	1,901	*(2,981)*	*(157%)*
Cash flows from financing activities	16,547	4,107	*12,440*	*303%*
Total cash flows	**8,899**	**2,660**	*6,239*	*235%*

Summary of Historical and Quarterly Financial Information

$'000 unless otherwise stated	**2022**	**2021**	**2020**
Total revenue	1,516	1,259	1,325
Loss for the year from continuing operations	(11,770)	(8,110)	(2,067)
Basic and diluted loss per share (cents)	(15.48)	(13.40)	(3.87)
Total assets	16,676	4,944	1,903
Non-current financial liabilities	-	-	-
Dividends declared per share	-	-	-

		IFRS			NON-IFRS	
$'000 unless otherwise stated		**Total revenue**	**Profit / (loss)**	**Basic and diluted profit / (loss) per share (cents)**	**Adjusted Profit / (loss) (1)**	**Note (IFRS)**
Q4-2022	June 30, 2022	1,430	1,764	2.25	(1,688)	1
Q3-2022	March 31, 2022	15	1,877	2.42	(1,900)	2
Q2-2022	December 31, 2021	54	(16,252)	(21.22)	(2,062)	3
Q1-2022	September 30, 2021	17	841	1.18	(1,562)	4
Q4-2021	June 30, 2021	836	(5,384)	(7.91)	(1,326)	5
Q3-2021	March 31, 2021	114	(1,134)	(1.91)	(1,134)	6
Q2-2021	December 31, 2020	93	(926)	(1.57)	(926)	7
Q1-2021	September 30, 2020	216	(666)	(1.19)	(666)	8

(1) Refer to Non-IFRS financial measures for further information.

Notes:

1. Higher profit in Q4FY22 was driven by higher revenue, mainly comprised of the refundable R&D tax offset of $1,412K for FY22, as well as the gain recognised from the reduction in the fair value of financial liabilities. The reduction in fair value was attributable to GMG's lower share price at reporting date compared to the prior quarter end on March 31, 2022. Higher operating expenses were mainly driven by the increase in staff resources in line with the strategic growth of the business.
2. Higher profit in Q3FY22 was driven by a reduction in the fair value of financial liabilities due mainly to changes in GMG's share price compared to the prior reporting date at December 31, 2021. Lower revenues are considered a normal fluctuation given GMG's various products being at an early stage of commercialisation.
3. The increase in Q2FY22 losses was mainly due to fair value adjustments required to reflect the higher value of financial liabilities (warrants), due to share price increases during the quarter.
4. Higher profit in Q1FY22 was driven by a reduction in the fair value of financial liabilities due to a lower share price than the prior reporting period at the end of FY21. Lower revenues were due mainly to the refundable R&D tax offset of $736K and the $84K Export Market Development Grant in the prior quarter and conclusion of a quarterly take or pay customer contract at 30 June 2021.

5. Higher revenue in Q4FY21 was mainly due to the refundable R&D tax offset of $736K and the $84K Export Market Development Grant. The higher loss was due mainly to $2,226K listing expenses related to the Cuspis transaction (due to the premium paid to acquire the listing vehicle Cuspis Capital Ltd.), $1,832K change in fair value of warrants issued and other legal, investor relations, compliance and consultancy costs associated with the Company's listing on the TSXV.
6. Revenue during the quarter included $80K of sales of graphene powder to GMG's TXR supplier (OzKem), for the production of TXR. The higher loss in the quarter was due to $275K of legal expenses incurred in preparing for listing, as well as for advisory services related to commercial and research collaboration agreements.
7. Revenue primarily consists of sales of graphene powder, as well as approximately $48K in COVID-19 related government subsidies.
8. Revenue primarily consists of sales of graphene powder, as well as $165K in COVID-19 related government subsidies.

Fourth Quarter Results

			Variation	
$'000 unless otherwise stated	**Q4FY22**	**Q4FY21**	**$'000**	**%**
Revenue from operations	17	38	*(21)*	*(55%)*
Other income	1,412	798	*614*	*77%*
Total operating expenses	(2,982)	(2,086)	*(896)*	*43%*
Listing expenses	-	(2,226)	*2,226*	*(100%)*
Gain / (loss) from change in fair value of warrants	3,452	(1,832)	*5,284*	*(288%)*
Depreciation and amortisation	(135)	(99)	*(36)*	*36%*
Profit / (loss) for the period	1,764	(5,384)	*7,148*	*(133%)*
Basic and diluted earnings / (loss) per share (cents)	2.25	(7.91)		

Total revenue in Q4FY22 consisted primarily of other income from the FY22 refundable R&D tax offset of $1,412K, which is finalised in the fourth quarter of each year.

Significant items which drove the profit for Q4FY22 in comparison to the loss for Q4FY21 included:
- The gross refundable R&D tax offset of $1,412K for FY22 was higher than the $736K recognised for FY21, due to the increased research and development activities in FY22 compared to FY21, which had more commercial production activity in respect of the production of TXR;
- Gain of $3,452K in Q4FY22 recognised from the change in fair value of warrants compared to an expense of $1,832K in Q4FY21 (see further details in 'Fair value of warrants' below);
- Q4FY21 included listing expenses incurred on acquisition of Cuspis Capital Ltd of $2,226K (see further details in 'Listing expenses' below); and
- Higher legal fees, investor relations and accounting and professional services costs incurred for listing on the TSXV in Q4FY21.

Further details of the Q4FY22 results and their impacts on the FY22 results are provided in the next 'Operations' section.

OPERATIONS

Non-IFRS financial measures

This MD&A refers to adjusted profit and loss for the period and adjusted basic and diluted loss per share that are measures with no standardised meaning under IFRS. They are non-IFRS measures and may not be comparable to similar measures presented by other companies. Their measurement and presentation is consistently prepared and is intended to provide additional information and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS.

Adjusted loss for the period and adjusted loss per share

Adjusted loss for the period and adjusted loss per share are used by management and investors to measure the underlying operating performance of the Company. Adjusted loss for the period, excludes specific items that are significant but not reflective of the underlying operating performance of the Company, such as the impact of changes in the fair value of warrants. Adjusted loss per share amounts are calculated using the weighted average number of shares outstanding on a basic and diluted basis as determined by IFRS.

The following table provides the calculation of the adjusted loss for the period and adjusted basic and diluted loss per share, as adjusted and calculated by the Company:

	12 month period ended June 30	
$'000 unless otherwise stated	**2022**	**2021**
Loss for the period	(11,770)	(8,110)
Less:		
Listing expenses - Cuspis acquisition	-	2,226
Change in fair value of warrants	4,559	1,832
Total adjustment items	4,559	4,058
Adjusted loss for the period	**(7,211)**	**(4,053)**
Loss per share (1)		
Basic and diluted (cents) (2)	(15.48)	(13.40)
Adjusted basic and diluted (cents) (3)	(9.48)	(6.69)
Weighted average number of ordinary shares - basic and diluted	76,035,720	60,534,549

(1) Due to the loss recognised for the years, all outstanding stock options, warrants, broker warrants, restricted share units and performance share units were excluded from the calculation of diluted loss per share due to their anti-dilutive effect.
(2) Calculated using loss for the period over the weighted average number of ordinary shares as per IFRS.
(3) Calculated using adjusted loss for the period over the weighted average number of ordinary shares (non-IFRS measure).

Revenue

$'000	12 month period ended June 30 2022	2021	Variation $'000	%
Revenue from operations	54	246	*(192)*	*(78%)*
Grants, subsidies and tax incentives	1,443	1,011	*432*	*43%*
Interest, sundry and forex gains	19	2	*17*	*850%*
Total revenue	**1,516**	**1,259**	***257***	***20%***

Revenue from operations was lower at $54K in FY22 compared to $246K in FY21. FY21 revenues were primarily graphene powder sales for the production of TXR, as well as, graphene powder sales for research projects under a 'take or pay' customer agreement for a fixed quarterly fee. This research project ended on 30 June 2021. Q4FY22 revenue included both standard and mini TXR kit sales to new customers, as well as graphene mixed coolants and lubricants being trialled with new customers.

In comparison to FY21, GMG's focus in FY22 had shifted away from external graphene powder sales, to instead be primarily on the further development and optimisation of energy saving and energy storage applications. Accordingly the focus was on customer TXR demonstrations, battery-grade graphene development, and further research and development of coin cell and pouch cell battery technology.

Other income

The business has received grants, subsidies and tax incentives, which are recognized as other income. The largest component of this item is the refundable R&D tax offset which was $1,412K in FY22 and $736K in FY21. FY22 production activity was lower than FY21 due to the primary focus of GMG's operations being dedicated to research and development activity in the battery technology, battery-grade graphene and TXR extended application areas. Higher expenses associated with the strategic growth of the organisation, included additional staff and technical advisory resources, as well as the operating premises and equipment required to support them. GMG receives external advice on this process of calculating the R&D tax offset at the completion of each financial year, which is also when it is recognized. The remainder of other income for FY22 was for grants received. Other income in FY21 also included $214K of COVID-19 related government subsidies that were not applicable to FY22.

In FY23, Management expects R&D expenditure and therefore revenue from tax incentives to be received again, with the amount received depending on the amount of eligible expenditure incurred during the year and timing of GMG's transition from a predominantly R&D focus to a commercial operations phase for part of its operations. The revenue from products is expected to be largely from sales of TXR coating systems and full service TXR projects.

Operating costs

Shown in the table that follows, are total operating expenses, which exclude finance costs and depreciation and amortization.

$'000	12 month period ended June 30 2022	2021	Variation $'000	%
Employee expenses	5,272	2,684	*2,588*	*96%*
Plant expenses	311	189	*122*	*65%*
Occupancy expenses	206	154	*52*	*34%*
Overheads expenses	2,524	1,998	*526*	*26%*
Total operating expenses	**8,313**	**5,025**	***3,288***	***65%***

Following is a description of, and commentary on the high-level expense categories of GMG:

Employee expenses

Employee expenses consist of salaries, on-costs (e.g. superannuation), and share based payments for all employees, directors and certain contractors. The total amount to be expensed as share based payments is determined by reference to the fair value of any options granted under the employee share option plan, and share units granted under the Share Incentive Plan:

- including any market performance conditions (e.g. the entity's share price); and
- excluding the impact of any service-based vesting conditions (for example, remaining an employee of the entity for a period of time).

The total expense is recognised over the vesting period, which is the period over which all of the specified vesting conditions are to be satisfied. Total salary costs have increased with increases in the number of employees and any adjustments to salaries of existing employees during the relevant period.

Plant expenses

This includes raw materials and production inputs, general warehouse expenses, Health, safety and environment ("HSE"), machinery parts and consumables, repairs and maintenance ("R&M") and other costs. While expenses on items such as consumables can be estimated, there are various expenses relating to R&M, machinery spares and components for battery prototype development that are variable and cannot be estimated with a high degree of certainty.

Plant expenses, excluding raw materials and production inputs, were $276K in FY22 and $145K in FY21. The $131K increase was primarily $69K in battery and machinery consumables, in addition to $71K in health and safety assessment costs and equipment. Minor increases in general warehouse expenses and equipment rental were offset by reductions in repairs and maintenance costs.

Occupancy

Occupancy expenses relate primarily to lease costs for the production facilities located at Sumner, Queensland held under short-term leases. These are short-term leases to which the IFRS 16 *Leases* exemption has been applied, and as such, lease costs are recognised on a straight-line basis as an expense.

The Company's Richlands Headquarters lease meets the recognition criteria as a right-of-use ("ROU") asset under IFRS 16. The ROU asset and corresponding lease liability are recognised on the balance sheet with lease payments split between lease liability principal repayments and interest expense and therefore do not appear under occupancy expenses. Depreciation of the leased asset is recorded on a straight-line basis.

Overall occupancy expenses increased from $154K to $206K from FY21 to FY22, primarily due to $50K higher rental outgoings costs associated with the Company's Richlands headquarters lease and $11K higher electricity costs. This was offset by lower repairs and maintenance costs in respect of the leased premises, as well as lower lease rental expense resulting from the different lease accounting treatment between the previous and new headquarter premises, as described above.

Overheads

Insurance, IT, legal, travel, sponsorships, other R&D related expenses, and various other expenses have been classified as 'Overheads'. While expenses such as IT related expenses, travel and marketing are expected to increase as the business grows, others such as licensing and registration, website, other R&D, and filing fees will be uncorrelated to the number of employees, product offerings or number of customers. Following are various sub-items that constitute 'Overheads', for which the change from FY21 to FY22 has been greater than $10,000:

- Consultants and contracting expenses increased from $286K in FY21 to $625K in FY22, mainly due to higher costs associated with regulatory compliance, commencement of director fees, and specialist technical consultants engaged to accelerate product development and sales, including expansion of GMG sales representation in North America;
- Investor relations expenses in FY21 of $247K were directly associated with the listing on the TSXV in Q4FY21, compared to the $649K expense in FY22, which represents the Company's ongoing communication management with current and prospective investors post transition to public markets;
- Legal expenses of $213K in FY22 were lower than the $588K incurred during FY21, due to FY21 including advisory costs incurred in preparation for listing, and on commercial and research collaboration agreements;
- Listing expenses excluding ongoing share registry costs were $51K, together with finders fees of $245K, were one-off expenses applicable to FY21 only;
- Accounting and tax planning expenses increased to $351K in FY22 from $256K in FY21 primarily due to additional costs required for capital raising, as well as higher costs associated with increased reporting and compliance requirements and associated with being a public company;
- International and domestic travel expenses collectively increased from $7K in FY21 to $81K in FY22 due to travel recommencing post COVID-19 border restrictions being lifted – primary costs were associated with travel for investor engagements and other travel required for research and development projects;
- Insurance increased from $50K in FY21 to $145K in FY22, mainly due to increases in policy coverage and limits required with becoming a listed company, ongoing business growth, and expansion of business premises since Q2FY22;
- Filing fees of $56K in FY22 represented a full year of expense compared to the $11K incurred in FY21 for the applicable period since listing on TSXV;

- IT expenses increased from $47K in FY21 to $80K in FY22, mainly due to the increased staff employed during the year;
- Share registry expenses of $36K in FY22 represented a full year of expense compared to the $8K incurred in FY21 for the applicable period since listing on TSXV;
- Testing and quality control expenses increased from $55K in FY21 to $85K in FY22; and
- Research and development expenses of $83K in FY22, compared to $63K in FY21, is mainly the collaboration projects with The University of Queensland ("UQ") for 'Enabling Next-generation Rechargeable Aluminium-ion Batteries', as well as commencement of the membership with Stanford University for the 'Thermal and Fluid Sciences Affiliates Program'.

Listing expenses

In FY21, listing expenses of $2,226K resulted from the premium paid to acquire Cuspis Capital Ltd as the Company's listing vehicle, being the difference between the fair value of the consideration paid at the date of the Transaction, and the value of the net assets acquired.

Fair value of warrants

The favourable change in fair value of warrants of $3,452K in Q4FY22 was mainly driven by the reduction in GMG's share price from Q3FY22 to Q4FY22, which resulted in a significant decrease in the fair value of the warrant liability during Q4FY22.

The change in fair value of warrants expense of $4,559k in FY22 was driven mainly by GMG's share price increase over the FY22 year.

The share purchase warrants impacted by this adjustment are certain warrants that are recognised by the Company as a derivative liability due to their Canadian dollar denominated, fixed exercise price being different to the Company's functional currency which is Australian dollars. IFRS requires such instruments to be treated as a derivative liability and not equity, until the warrants are exercised or expire. The fair value of the warrants is determined using the Black Scholes option pricing model at the period-end date, or the market trading price in respect of GMG's traded warrants.

There are no cash obligations for the Company relating to this liability. Changes in fair value will continue to be reported in subsequent periods until the warrants are exercised or expire at which time the derivative liability ceases.

A number of factors influence the warrant liability valuation including share price, interest rates and a volatility assumption. For example, share price increases may result in an expense recorded in the profit and loss in conjunction with any increase in the fair value of the warrant liability, while share price decreases, warrant exercises or a reduced time to expiry with the passage of time would result in a gain and decrease in the fair value of the warrant liability.

For warrants exercised, the cumulative difference between the fair value of the warrant liability recognised at grant date, and the fair value based on the GMG share price at exercise date, which is applied to profit or loss, is then extinguished as a liability, with the offsetting entry applied to equity.

Projects

The Company has not generated significant revenue to date. Graphene powder is a commercialized product that has generated revenue, but sale of graphene powder is not the Company's core strategy. Recent progress and status of the G+AI Battery Project has been described in detail above. The Company is currently focusing on developing the market for TXR and accelerating sales into various global markets. The Company is also undertaking significant product development activities to commercialize various other products. This section provides a summary of projects (each project corresponds to a product under development). These are not capital-intensive projects with well-defined project plans, but are ongoing initiatives driven by certain employees, with the cost of the employees being the key expense associated with the projects.

G™ LUBRICANT

This product is under development and testing internally and with prospective customers. Results achieved so far are encouraging. The research and development for this product is being undertaken in-house. Research is ongoing and there is no fixed end date. Customer engagement is taking place simultaneously, and hence timing of commercial production will be based on customer accepted scientific results, energy savings calculations and receipt of substantial orders. In a business-to-business environment with large corporate counterparties, the timeline for product validation and acceptance is uncertain. There is no significant operating cost for development, other than part of the salary costs of the Head Product Scientist and Marketing Manager. Necessary capital equipment has already been acquired for current activities.

Several large lubricant blending and marketing companies and original equipment manufacturers are either testing or have expressed interest in testing G™ LUBRICANT concentrates for their performance characteristics for potential adoption as an additive for their products. Some smaller lubricant blending and marketing companies have purchased GMG's graphene for initial trials and/or early-stage small scale commercial production. The Company intends to pursue these opportunities for commercialization of G™ LUBRICANT. The Company's staff undertake multiple projects simultaneously and a project cost tracking system has not been required to date. Expenditures made to date on each project are not separately identified.

G™ COOLANTS and G™ FLUIDS

These products are currently under development and testing. The research and development for this product is being undertaken in-house. Research is ongoing, but with lesser focus than on G™LUBRICANTS, and there is no fixed end date. Customer engagement is taking place simultaneously, and therefore timing of commercial production will be based on customer accepted scientific results, energy savings calculations and receipt of substantial orders. There is no significant operating cost for development, other than part of the salary costs of the Chief Scientific Officer responsible for development. Necessary capital equipment has already been acquired for current activities.

The Company intends to continue to develop these products with a view to commercialization in the future. The Company's staff undertake multiple projects simultaneously and a project cost tracking system has not been required to date. Expenditures made to date on each project are not separately identified.

G™DIESEL and bio-Diesel

This application is still in the early stages of development and testing, which has not been prioritized in the near term. The potential for this product has been identified from third party research studies conducted using graphene in diesel and bio-diesel. Research will likely require use of local university facilities to enable performance testing in a controlled environment. As of now, the Company remains interested in this product and is engaged with potential collaboration partners towards the progression of this project, but at this time does not plan to spend significant resources on this project in the next 12 months. There is no timeline or end date for development of this product. The Company's staff undertake multiple projects simultaneously and a project cost tracking system has not been required to date. Expenditures made to date on each project are not separately identified.

FINANCIAL POSITION, LIQUIDITY AND CAPITAL RESOURCES

Cash and cash equivalents have increased by $8,899K in FY22, with cash outflows being offset primarily by the Offering and Private Placement in September 2021, raising gross proceeds of C$11.55 million and C$909K respectively, and proceeds from the exercise of warrants and options. Further information regarding the share capital movements, as well as warrants and options exercised during FY22, is disclosed in the audited consolidated financial statements for the year ended June 30, 2022.

The gross R&D tax incentive relating to FY22 of approximately $1,412K was calculated as 43.5% of eligible R&D expenditure of $3,246K in FY22. This amount was a receivable as at June 30, 2022 and is anticipated to be received by December 31, 2022. Any R&D related expenses for FY23 will be determined only at the end of the financial year.

Trade and other receivables were low at 30 June 2022, due to limited sales achieved to date. The balance of $143K in FY22 was higher than the $56K recorded in FY21, primarily due to $115K of GST receivables at year end.

Inventories increased by $15K to $350K as at June 30, 2022, due to the purchase of TXR also linked to expanded distribution rights in Singapore and Malaysia, offset by sales of TXR kits.

Other current assets of $318K is largely $309K of prepayments, primarily $106K for insurance and $103K for investor relations and platform costs, $39K for research and development costs, $30K for filing fees and $27K for lease payments made in advance including related outgoings.

The trade and other payables relate to expenses in the ordinary course of business, including accounts payable, wages payable, PAYG withholding tax payable, superannuation payable, and other accrued expenses. The balance of $804K at FY22 year end was higher than the FY21 year end, mainly due to higher accruals for professional, consultancy and investor relations fees for services rendered prior to June 30, 2022. In addition to higher PAYG withholding tax and superannuation payable balances which were due to the overall increase in staff employed.

The financial liability relates to certain share purchase warrants issued with an exercise price denominated in Canadian dollars (as described in detail in a previous section).

Liquidity and capital resources

GMG has generated limited revenue to date. Cash expenses mainly relate to R&D activities and other operational expenses. Capital raised has been mainly used to fund the development of the Company's proprietary graphene powder production technology, graphene enhanced products and solutions, and plant and equipment and expenses for developing, testing, manufacturing and marketing these products. Development of G+Al Battery technology, production and commercialisation planning has been an increasing focus area for GMG's employees and intended use of current cash resources.
Timing for commercialisation of G+Al Batteries will depend on the further successful development of a commercial G+Al Battery prototype including the process technology required to produce the necessary grade graphene powder, timing for completion of front end design and construction of a battery manufacturing facility (subject to a final investment decision).

Revenue in the near term is targeted to be generated from TXR. Growth in customer demand for this and other product offerings, and timing for commercialisation of G+Al Batteries, will influence the future funding requirements for GMG. The go-to-market strategy for TXR will evolve as GMG receives more feedback from customers, has more referenceable energy savings data from its energy savings products and solutions and more customer success stories. Based on these parameters, GMG will determine how much to invest to achieve rapid market penetration of TXR in different geographies. A rapid penetration strategy may require additional capital, but deployment of capital for marketing purposes would be controllable by Management.

As at June 30, 2022, cash and cash equivalents were $12,258K with the increase in funds since FY21 due mainly to the Offering and Private Placement in September 2021, raising gross proceeds of C$11.55 million and C$909K respectively and proceeds from exercises of warrants and options.

Management believes GMG has sufficient cash to meet its objectives for at least 12 months. To date, the Company has relied on funding from equity investors and also grants, subsidies and R&D incentives. There is no guarantee that revenue generated by the business will be sufficient to fund the business for a longer period of time. While there can be no assurance that adequate funding will be available in the future, or on terms that are favourable to the Company, the Company remains very positive about its future prospects.

Although the operating and investing cash flow for FY21 and FY22 were negative, it is assumed that the Company has neither the intention nor the need to liquidate any of its assets to discharge its liabilities and commitments in the normal course of business. Though not guaranteed, Management believes that investors will continue to support the business to fund its expansion and development of products and solutions until the business becomes profitable.

Financial instruments and risk management

Financial assets and financial liabilities are recognised in the balance sheet when the Company becomes party to the contractual provisions of the financial instrument. GMG's financial instruments are its cash and cash equivalents, trade and other receivables, trade and other payables. The Company is exposed to a variety of financial risks, which result from its financing, operating and investing activities. The objective of financial risk management is to contain, where appropriate, exposures in these financial risks to limit any negative impact on the Company's financial performance and position.

The risks arising from the Company's financial instruments are mainly credit risk and foreign currency risk. The risk management policies employed by the Company to manage these risks are discussed below:

Credit risk

Credit risk arises when a failure by counterparties to discharge their obligations could reduce the amount of future cash inflows from financial assets on hand at the balance sheet date. The maximum exposure to credit risk at balance date in relation to each class of recognised financial assets is the gross carrying amount of those assets.

As the company expands and increases sales, this will become a larger consideration. Management closely monitors, the activities of its counterparties and potential counterparties.

Liquidity risk

Liquidity risk is the risk that arises when the maturity of assets and the maturity of liabilities do not match. Some financial assets may not be able to be monetised in a timely manner. Based on current cash resources, Management considers liquidity risk to be low for at least 12 months. While the company does not have any credit facilities from banks, GMG ensures it maintains enough cash, to fulfil its near-term liabilities.

Currency risk

Currency risk is the risk that the value of financial instruments will fluctuate due to changes in foreign exchange rates. Currency risk arises when future commercial transactions and recognized assets and liabilities are denominated in a currency that is not the Company's functional currency. The Company is exposed to foreign exchange risk, however, at present, this risk is relatively low as revenue is limited and most expenses are denominated in Australian dollars. However, in the past, the Company has sourced funding from investors and will increasingly source capital equipment from overseas. Because of the short term nature of these foreign currency exposures to date and low level of associated risk, the Company has not considered it necessary to enter into any currency hedging transactions. More recently the Company has become exposed to currency risk relating to the financial liability required by IFRS to be recognised in relation to certain warrants with exercise prices denominated in Canadian dollars. As there is no cash obligation associated with this liability, the Company considers the associated currency risk to be low.

Off-balance sheet arrangements

As of the date of this MD&A, the Company did not have any off-balance sheet arrangements, except for the non-cancellable operating leases for the Sumner warehouse and portable office units. The Company has elected not to recognise right-of-use assets and lease liabilities for leases of low-value assets, as well as short-term leases, including for leased premises and portable office units, and recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

The Company recognises a contingent liability as at June 30, 2022, of approximately C$102,195 relating to the repatriation of cash acquired in the Cuspis transaction at the time of listing, prior to the dissolution of Cuspis Capital Ltd on August 12, 2021. The contingent liability relates to a potential withholding tax obligation in Canada at the rate of 5% of the amount of cash distributed. The transaction is being treated as a return of capital for Australian tax purposes. At the date of this report, GMG is consulting with the Canadian tax authorities in relation to this amount.

Outstanding shares

As at September 23, 2022, the Company has:

- 79,078,586 ordinary shares issued and outstanding;
- 4,498,559 options outstanding with expiry dates ranging between March 12, 2024 and March 11, 2028, with exercise prices between A$0.36 and C$1.00. If all the options were exercised, 4,498,559 shares would be issued for proceeds of A$2,335,645[1];
- 2,781,887 warrants outstanding with expiry dates ranging between October 13, 2022 and September 2, 2024, with exercise prices between C$1.00 and C$2.60. If all the warrants were exercised, 2,789,977 shares would be issued for proceeds of A$7,204,966[1]; and
- 905,120 restricted share units and 77,359 performance share units outstanding with a nil exercise price and expiry dates ranging between October 20, 2026 and September 20, 2027.

RELATED PARTY TRANSACTIONS

For a detailed description of all related party transactions, please refer to the Note 27 "Related parties" in the consolidated financial statements for the year ended June 30, 2022.

RISKS AND UNCERTAINTIES

The Company's business is subject to numerous risks and uncertainties, including those described elsewhere in this MD&A, as well as general economic and market risks. These risk factors could materially affect the Company's future operating results and could cause actual events to differ materially from those described in forward-looking information relating to the Company. For a detailed description of risks and uncertainties, please refer to the Prospectus available on the Company's SEDAR profile.

[1] Assuming a C$/A$ exchange rate of 1.12.

CRITICAL ACCOUNTING JUDGEMENTS AND ESTIMATES

The key reported numbers requiring the use of estimates and critical judgments that may potentially have a significant impact on the Company's earnings and financial position are the useful life of property and equipment and the recognition and amortization of intangible assets.

Intangible assets and property and equipment are amortized or depreciated over their useful lives. Useful lives are based on Management's estimates of the period that the assets will generate revenue, which are periodically reviewed for continued appropriateness. Changes to estimates can result in significant variations in the amounts charged to the statement of comprehensive income in specific periods.

Intangible assets that have an indefinite useful life are not subject to amortisation and are tested annually for impairment, or more frequently if events or changes in circumstances indicate that they might be impaired. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount.

FUTURE CHANGES IN ACCOUNTING POLICIES

In FY22 the Company applied for the first-time certain standards and amendments, which are effective for annual periods beginning on or after 1 January 2021. The Group has not early adopted any other standard, interpretation or amendment that has been issued but is not yet effective.

- *Interest Rate Benchmark Reform – Phase 2* (Amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16);
- Amendments to IFRS 16 *Covid-19 Related Rent Concessions beyond 30 June 2021*

These amendments had no material impact to the Company during the reporting period.
There are a number of standards, amendments to standards, and interpretations which have been issued by the IASB that are effective in future accounting periods that the group has decided not to adopt early.

- Amendments to IAS 1 *Classification of Liabilities as Current or Non-current*
  The amendments were originally effective for annual reporting periods beginning on or after 1 January 2022. In May 2020, the effective date was deferred to annual reporting periods beginning on or after 1 January 2023 and must be applied retrospectively. The Group is assessing the impact the amendments will have on current and future practice.

- Amendments to IAS 37 *Onerous contracts – Costs of Fulfilling a Contract*
  The amendments are effective for annual reporting periods beginning on or after 1 January 2022. The Group will apply these amendments to contracts for which it has not yet fulfilled all its obligations at the beginning of the annual reporting period in which it first applies the amendments.

- Amendments to IAS 1 and IFRS Practice Statement 2 *Disclosure of Accounting Policies*
  The amendments are effective for annual reporting periods beginning on or after 1 January 2023 with earlier application permitted. Since the amendments to the Practice Statement 2 provide non-mandatory guidance on the application of the definition of material to accounting policy information, an effective date for these amendments is not necessary. The Group is assessing the impact the amendments will have on the Group's accounting policy disclosures.

- Amendments to IAS 8 *Definition of Accounting Estimates*
  The amendments are effective for annual reporting periods beginning on or after 1 January 2023, with earlier application permitted as long as this fact is disclosed. The Group is assessing the impact the amendments will have on current and future practice.

- Amendments to IAS 12 *Deferred Tax related Assets and Liabilities arising from a Single Transaction*
  The amendments are effective for annual reporting periods beginning on or after 1 January 2023. When these amendments are first adopted for the year ended June 30, 2024, they apply prospectively to all transactions that occur on or after the beginning of the earliest comparative period, being July 1, 2022. The cumulative effect of initially applying these amendments will be recognised in opening balances of retained earnings on July 1, 2022. The Group is assessing the impact the amendments will have on current and future practice.

Other standards

The following amendments are effective for the period beginning 1 January 2022 and apply prospectively. These amendments are not expected to have a material impact on the Group's consolidated financial statements:

- *References to Conceptual Framework* (Amendments to IFRS 3);
- *Property, Plant and Equipment: Proceeds before Intended Use* (Amendments to IAS 16); and
- *Annual Improvements to IFRS Standards 2018-2020* (Amendments to IFRS 1, IFRS 9, IFRS 16 and IAS 41).