

Applied Graphene Materials plc

("Applied Graphene Materials", "the Group" or "the Company")

Interim results for the six months ended 31 January 2020

Applied Graphene Materials, the producer of specialty graphene materials, is pleased to announce its interim results for the six months ended 31 January 2020.

Highlights

Operational highlights

Coatings:

- Significant progress during the period with a number of key mass market and industrial product launches re-enforcing customer momentum in core coatings market, highlights included:
 - Halfords launched instore and online sale of graphene primer in October 2019
 - Aerosol primer produces exceptional corrosion protection, due to Applied Graphene Materials ("AGM") graphene dispersion
 - James Briggs Ltd (JBL) launched Hycote graphene anti-corrosion primer in October 2019
 - Product for sale in mainstream market on Amazon and Tetrosyl Express
 - Alltimes Coatings Ltd launched Advantage Graphene liquid coating roofing system in August 2019
 - Significantly enhanced anti-corrosion performance delivered by incorporating AGM's graphene, includes unparalleled 30 year warranty
 - Blocksil launched Graphene enhanced Top Coat MT Product for harsh environment industrial applications demanding outstanding anti-corrosion protection in January 2020
 - Blocksil, has been specified for the supply of their product containing our graphene dispersions for a long-term refurbishment project for Avanti for its large industrial satellite communications structures.

Composites:

- Design, manufacture and demonstration of 10m carbon fibre forming tool incorporating graphene, suitable for advanced fibre placement methods for aerospace and other high volume manufacturing applications.
 - Cost effective solution incorporates graphene to enhance longevity in multi-component manufacturing, through increasing the toughness of the composite tooling material

Strategic highlights

- Strategic review completed with a focus on commercial momentum and cash conservation
- The strategic review established that Asia has potential to be a core market territory for AGM regarding graphene exploitation and commercialization
- Positive engagement with Beijing investor community in October 2019; ongoing COVID 19 has delayed follow up
- Resources aligned across business development and technical teams to support product development, rigorous testing and customer engagement
- Streamlining of manufacturing operations to focus on dispersion capabilities
- Company's cash run-way extended until at least Q4 2021

COVID 19

- Continuing operationally in a manner to maximise the safety of our team members and maintain business continuity. Activity at our customers is being monitored and we continue to work with them to maintain progress as circumstances will allow in the coming months.

Financial overview

- **REVENUE**
 - Revenue of £35,000 (2019: £26,000)
 - Strong sales in February 2020
 - YTD revenues are £60,000 - 20% higher than the total for the year ended 31 July 2019 of £50,000
- **EBITDA*** - Loss of £1.9 million (2019: loss of £2.2 million)
- **Loss before tax** - £2.3 million (2019: loss of £2.4 million)
- **Cash at bank** - £4.3 million (2019: £8.2 million)
- **Basic EPS** - Loss of 4.0 pence per share (2019: loss of 4.4 pence)

* EBITDA comprises loss on ordinary activities before interest, tax, exceptional costs, depreciation and amortisation.

Adrian Potts, Chief Executive Officer, said:

"I am pleased that AGM has continued to make good progress in converting customer engagement into product launches, with several applications launched in the period that are now available to retail as well as specialist industrial customers. Our progress continues to be underpinned by AGM's industry-leading know-how in graphene dispersion and application. We are building an ever-increasing bank of supporting data that will help us accelerate customer application and testing, while the standardisation of a number of our graphene products will also make our material more acceptable to a broader customer base. Our focus remains on helping our customers realise the significant commercial potential the incorporation of graphene can offer them. We are confident that our pipeline of engagements is moving progressively towards further product launches and growing revenues in the near-term, with these successes expected to come primarily from our focus area of paints and coatings.

Our year to date sales already exceed last year's total sales by 20%, and the business is in a strong position to support further progress, with net cash of £4.3m at 31 January 2020, and ongoing cash operating costs reduced by 23% as a result of our realignment in October. We are closely monitoring the COVID-19 pandemic and we have taken the appropriate precautions to keep our employees safe. We intend to operate and support our client engagements as much as we can, whilst following governmental guidelines."

This announcement contains inside information for the purposes of Article 7 of EU Regulation 596/2014.

Applied Graphene Materials' results presentation, with audio commentary, is expected to be made available on its website at <http://www.appliedgraphenematerials.com> in due course.

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Notes to Editors

Applied Graphene Materials works in partnership with its customers using its knowledge and expertise to provide bespoke graphene dispersions and formats to deliver enhancements and benefits for a wide range of applications. The Group's strategy is to target commercial applications in three core markets: coatings, composites and functional materials.

The Group has developed proprietary bottom-up processes which are capable of producing high purity graphene nanoplatelets using a continuous process. The manufacturing process is based on sustainable, readily available raw materials and therefore does not rely on the supply of graphite, unlike a number of other graphene production techniques. Applied Graphene Materials owns the intellectual property and know-how behind this process.

Applied Graphene Materials was founded by Professor Karl Coleman in 2010 with its operations and processes based on technology that he initially developed at Durham University. The Group was admitted to AIM in November 2013, raising £11 million, and is based at the Wilton Site on Teesside. In January 2016 the Group raised £8.5m to support its ongoing activities and in October 2017 the Group raised a further £9.8m.

Business review

with Adrian Potts

Our focus on working closely with customers to accelerate commercial momentum is yielding positive results with a number of important launches made during the period.

Overview

- **Commercial** progress has been positive in the period with further customer product launches. This follows extensive collaboration with customers to ensure they gain from AGM's unique graphene dispersion and application IP and data proof points. We are especially pleased that Blocksil, a UK coatings manufacturer, has been specified for the supply of their product containing our graphene dispersions for a long-term refurbishment project for Avanti for its large industrial satellite communications structures. Similarly, with a coatings product launched by Alltimes Coatings, we see the use of graphene dispersions deliver excellent performance and long-range cost benefits. I am confident that these and other products will progressively develop long-term revenue momentum for AGM as the benefits continue to be realised for larger scale industrial applications.

Applying graphene into high performance composite materials continues to be challenging and involves long trialing processes. However, AGM has developed a practical technology to extend the longevity of composite materials, which offers excellent opportunity for end-users in both tooling and part manufacturing. Most recently AGM and its composites partners have demonstrated a 10m graphene-enhanced composite tooling fixture, which is proving to the composite materials community the practical viability of using AGM's graphene to enhance composite performance further. It is also encouraging to see companies starting to place repeat orders for graphene dispersions to enhance their composite application technology in space and aerospace sectors.

Continuing the theme of excellence in engagement, we are optimistic about the completion of efforts with Airbus to qualify and approve for flight our TP300 thermal adhesive and continue to work closely with them to support the process.

- **Technical knowledge.** We are well ahead of the curve in terms of market-leading dispersion technology for graphenes whereby our products are commercially available, stable, easy to use and come with exceptional product guidance. We continue our push with product development in the area of coatings technology primarily to support near term revenue potential – and are seeing this borne out by product launches by coatings customers. Underpinning all our technical progress and IP are significant data proof points we have created that are borne from extensive long term trials.
- **Regulatory** approval is all-important for the long-term volume supply chain. As a new materials technology, the challenge in this area is to work with the relevant authorities to determine the appropriate data which in turn will give confidence in the products we make and sell as regards safe use. I see our efforts in this area as second-to-none, as typified by the extensive testing completed to support customer product launches in the aerosol coatings sector. All this takes time and resource, but I am confident that the long-range positive results firmly based on detailed supporting data will be realised.
- **Re-alignment.** We have completed the re-alignment of the business. We are focused on the key areas that will drive revenue in the future – dispersion technology, specific graphene manufacturing, excellent customer service, and supporting data to enable easy adoption of this new technology for the coatings sector. We are in good shape and achieving momentum, solid technical progress and have a cash runway to Q4 2021. This gives the board confidence that the coming months leave AGM in a good position to continue to fulfil our mission to deliver revenue growth from graphene materials dispersed in a manner that can be readily adopted for real applications.

In summary, we continue our efforts to develop the potential for graphene adoption into publicly available applications including coatings, composites and specialty products. The in-depth technical engagements with our customers are starting to gain momentum with the launch of both commercial mass market and specialist industrial products. The development of sales revenues will come as these products become specified and approved for use on a broader basis in a growing number of industrial areas. Operating from a re-aligned cost base, we are in a good position for business continuity.

COVID-19

As the coronavirus situation develops, we have taken the appropriate precautions, to keep our employees safe. We also recognize that the seriousness of the situation has the potential to impact our customers' and partners' activity, so continue to work as closely with them as possible, whilst following governmental guidelines, to ensure positive progress continues to be made.

AGM's cash runway to Q4 2021 is not impacted by COVID-19 - in fact the reduction in travel and remote working will improve the Company's cash position.

The essential manufacturing of customer orders and monitoring of customer service and long term projects is managed on a rotating staff basis. No sickness from this virus has been reported to date. All meetings are moved to remote format and all travel halted until further notice. All planned conference attendance has been postponed until a later date by organisers. Costs have reduced accordingly. Our customers may find it more difficult to generate sales as their customers may be focused on the current crisis rather than new technology projects. We are monitoring government guidance on a daily basis and our policy is to follow such guidance.

Commercial Progress Summary

At AGM, we are firmly of the view that a continuing strategy focused on well-dispersed graphene materials targeted at key sectors is the best means for successful long-range commercial success. The reason for this is simple – the supply of easily-to-adopt, ready-to-use dispersions suitable for a range of target applications is the best catalyst for customer success. It should be noted that, once supplied and even with the support of AGM-supplied data, there is often an iterative nature to customer testing to ensure the best results are achieved on a customer-by-customer basis. It is often the case that such iteration can take 6 months or more to prove the utility of graphene in a customer's particular chemistry or proposed end-use, and some engagements have been ongoing for much longer. This requires patience on the part of AGM.

We are able to supply standardized dispersions which help to satisfy a growing number of applications. These give customers critical confidence in the consistency of quality and reproducibility of batch to batch test results for their finished products. Of course, there is also the option to customize our dispersed materials to suit a specific customer's application or need for method of delivery into their formulation. This requires an even deeper level of engagement to ensure the level of understanding is high to provide the best chance of success. There can be many variables to this, but excellence in customer collaboration is one of our key values ensuring we work assiduously to deliver success for our customers. It is the quality of this engagement that will ultimately ensure a successful outcome to a project and ensure revenue in the longer term.

In the high-performance coatings space, where we have chosen to principally operate, we continue to make good progress towards generating exemplary technical solutions for customers to consider. Once engaged with a customer, and graphene dispersions have been supplied and tested, we aim to generate profitable revenue from the repeat supply of high-quality dispersed materials.

We continue with 92 positive engagements in our pipeline at 31 January 2020 and the movements since 31 July 2019 are as follows:

Stage of development	Approval time			Scouting/ unclear	Total
	Short	Medium	Long		
Agreement on scope of sampling and engagement	4 (0)	8 (-3)	0 (-5)	0 (-1)	12 (-9)
Initial testing and interpretation of results	12 (3)	27 (-1)	5 (-8)	1 (0)	45 (6)
Repeat testing for consistency and review of results	7 (2)	6 (-3)	1 (1)	0 (0)	14 (0)
Final product trials formulation and specification	5 (2)	8 (4)	0 (0)	0 (0)	13 (6)
Final commercial engagement	6 (0)	2 (0)	0 (0)	0 (0)	8 (0)
Totals at 31 January 2020	34	51	6	1	92
Movement since 31 July 2019	(7)	(-3)	(-12)	(-1)	(-9)

It is also pleasing to see progress with composite materials and with our specialty industrial focused product offerings. Our printed graphene inks for composite materials incorporation have been demonstrated in a large composite application for tooling technology. We continue to make positive progress towards successful completion of the qualification of our TP300 thermal paste with Airbus with a view to securing revenues for this application.

Coatings Sector

The commercial realization of previously announced customer product launches has been the focal point in the coatings sector. Coatings technology is recognized by the industry as one of the application focus areas for graphene commercialization.

Solid progress has been made with Blocksil Ltd in the marketing and application of their Graphene Enhanced Top Coat MT, a high performance, anti-corrosion coating for industrial applications across a broad range of harsh environments. Blocksil's new graphene-enhanced coatings system delivers mechanical and physical properties following a single coat, and the Graphene Enhanced Top Coat MT is sustainable, volatile organic compound free and easily applied. Retaining full flexibility and adhesion, the enhanced product delivers excellent anti-corrosion performance and UV resistance, alongside improved levels of toughness and fire resistance. As a result, Blocksil has now secured global approval with Avanti Communications plc for supply of this coating for front and rear surfaces and support structures on their large satellite communications dish structures.

Avanti is a pioneering satellite communications technology business, with a global network of high value ground stations, some in the most remote and demanding of locations. The selection of the Graphene Enhanced Top Coat MT is anticipated to deliver significant long-term cost savings in repainting and maintenance across Avanti transmission dish structures on a progressive basis. The first application is anticipated to take place in the coming months at an Avanti site in Germany, with the expectation of follow up activity across multiple Avanti sites. The success of Blocksil in this field underscores the performance of the graphene enhanced coating technology and we look forward to forthcoming revenue generation accordingly.

Blocksil remains actively engaged with other end users and specifiers across industries with high value assets and infrastructure operating under harsh environmental conditions. Blocksil believes the long-term cost savings offered by the new, higher-performance coating, will drive significant demand from its customers and as a result, Genable dispersion revenues for AGM. Guy Williams, MD of Blocksil Ltd described the quality of working with AGM and the expectations from their coatings technology – "Blocksil has been working with AGM for many months now in developing our Graphene Enhanced Top Coat MT. As with any product Blocksil develops or brings to market, we spend time researching and testing it before launching. In this case, we were able to utilise AGM's extensive laboratory facilities to identify the key features. We have also been working behind the scenes with potential end-users to obtain real life application data. This, in turn, allows us to fine-tune the finished product. Blocksil sees huge potential for Graphene Enhanced Top Coat MT across all manner of structural steel industries worldwide. To this end we are

interested in talking to any structural steel users or contractors – the benefits and cost savings they will gain over conventional corrosion-resistant coatings cannot be overestimated.”

Alltimes Coatings launched their Advantage Graphene Coatings system in July 2019. Since that time, Alltimes has been extremely active in promoting the new technology designed to enhance the construction industry. Working with Architects and Surveyors is a key activity in this sector to ensure the knowledge base is available and awareness is high regarding new coating materials technologies in a relatively conservative space. The technology was recently demonstrated at the Wilton site in Redcar, Cleveland through the replacement coating of one of the buildings. This is typical of the types of coastal assets subject to harsh environments and resulting corrosion where Alltimes Advantage Graphene was used to good effect to refurbish the building.

Video coverage of this activity can be seen here :- <https://www.appliedgraphenematerials.com/news-events/archive/real-life-roofing-application-using-graphene-enhanced-anti-corrosion-coatings/>

Nigel Alltimes, MD, talking about the product and the quality of engagement with AGM as their development partner notes “We believe with the launch of Advantage Graphene, we are bringing to market a unique and revolutionary liquid roofing system for our industrial and commercial customers. Without doubt, AGM's deep understanding of coating technology and how best to effectively integrate graphene into novel chemistry, has played a major role in the successful launch of this product. Early feedback from our customers has been very positive and we anticipate strong uptake as we extend the performance of our product range with graphene technology.”

Alltimes, through their Advantage Graphene product, have been able to extend the warranty of their coatings system from 20 to 30 years life as a result of our graphene development efforts.

In the aerosols sector, we saw the launch of a graphene-containing primer in the Halford's retail range in addition to the previously announced launch of the Hykote aerosol primer from James Briggs Ltd. The standout advantage of the new aerosol primer is the exceptional corrosion protection (1750+ hours ASTM G-85), that has resulted from the incorporation of AGM's graphene dispersion. As a zinc-free primer system, the paint also has positive environmental and performance features, significantly outperforming current industry standards.

Jim Millar, Commercial Director of James Briggs noted “We were pleased to see the retail launch of the Halfords branded coating and have good expectations for sales of this and our Hycote branded product as the season for application for these coatings approaches. Outlets for these aerosol products is through both the retail sector and the professional automotive paint shops, so we anticipate strong sales for both channels.”

Continuing the theme of quality of engagement and delivery of high-performance products, we see positive progress in the areas of anti-corrosion on steel for a range of environments, as well as coatings for aluminium corrosion performance through to barrier performance for other substrates including concrete.

Engagement with close customers such as HMG Paints, Teal and Mackrill and others continues to be meaningful, as we seek to optimize graphene-enhanced coating solutions with them. As noted above, this is an iterative process of formulation, test and review of data.

In an additional area of protective coatings, a customer completed testing of AGM graphene dispersions for an automotive protective finish system. The customer is approaching launch of a new product imminently. AGM looks forward to a successful launch and revenue stream in the autofinish market. We are now pursuing other similar potential customers for this specific technology application.

Product development follows our strategic focus on the coatings sector as the prime means of delivering revenue and value for AGM. We have continued in FY20 H1 with our product development efforts to deliver exemplary technology solutions using graphene that coatings customers can consider adopting.

Water-based product dispersions development continues for both acrylic and epoxy platforms to maximise the opportunity for engagement in environmentally friendlier coatings. A-GNP35 high surface area materials at low loading levels in final coatings formulations continues to perform well. The *Genable*® dispersions range suitable for water-based product continues to develop and we are able to support customers to an ever greater extent with in-depth technical advice.

We are approaching completion of our efforts for developing graphene dispersions for harsher “C4/C5” corrosion applications. The output from this programme has yielded a useful technology package whereby:-

- Graphene doped interlayer tie coat layers can yield significant system performance improvements. This in turn:-
 - o Enables the customer to continue use of regulated zinc-based primers where needed
 - o Enables the customer to use their nominated top coat to maintain colour choice
 - o Enables critical anti-corrosion performance enhancement through the use of graphene in the inter-layer of a 3 layer coating
 - o Provides lowest Risk to incorporate Graphene tie coat into a 2 or 3 coat system to work with conventional legislative environment
- As a single layer alternative, Genable 1200 added to a thicker coatings layer has also demonstrated outstanding performance – good for both barrier performance and UV resistance. The low loading of A-GNP35 graphene means less colour change in a coating – another positive. Such a coating using our in-house starting point formulations can achieve “C4High” performance with a single layer. Such a system could be used directly with commercial top coat for good performance advantages as a complete system.

Anti-corrosion performance enhancing dispersions for coatings in yet harsher environments continue to be pursued in our CX advanced development programme. Anticipating good utility for full offshore, marine and cyclic applications such as ballast tanks, we expect completion of our test efforts around Q3 2020.

It was recently noted by The Graphene Council in their Commercialization Update that the key to successful exploitation of the technology is a matter of matching the right material at a certain price point to specific application and performance objective. Whilst the technology for integrating graphene into coatings is producing excellent test results in our exemplar testing, the key underlying benefit for this technology remains the potential value proposition for the end user or asset owner. With potential extension to a coating's life (as evidenced for example by Alltimes warranty extension) combined with the reduction of corrosion and also the possible realization of using thinner coatings or fewer layers, it is important to recognize the true value potential this represents. Significant systemized cost-downs should be realizable using these materials.

AGM is confident the prospects remain good for long range success through the communication of this key summary messaging.

- Graphene in coatings can be a highly effective anti-corrosion and barrier additive
- Graphene is available in easy-to-use dispersions
- Full guidance is available for easy integration of this new technology
- Low risk adoption for new technology is possible
- Significant cost effectiveness and performance improvement is realized in end-to-end review of coatings uses

We believe this approach is validated by both the traction we are starting to see in the markets we operate in and by good alignment with The Graphene Council's assessment of where the industry is currently at, with a view to longer range Industry / Application adoption as a widely used material, as follows:-

- Identification of markets and customers beyond universities and small R&D sales.
- Identification of the right price / volume mix for profitability.
- Customer education (awareness, information, interest, evaluation, adoption).
- Engagement with regulatory scrutiny and requirements for volume uptake (e.g. REACH)
- Engagement with and satisfaction of Health and Safety concerns (human exposure)

I believe we are doing the right things to encourage the adoption of our products in this sector.

Composites Sector

We recently witnessed the completion of a major demonstration of AGM's novel graphene enhanced chemistry, pointing towards lower cost and high-performance composite tool designs for the Aerospace Industry and beyond. Composite materials are routinely used for flight components. However, in the manufacture of these parts, due consideration has to be made to the selection of the tooling, or forming fixture. Such fixtures are frequently also made of composite materials. Following on from the successful completion of the UK government-funded NATEP technology programme, AGM partners Composite Tooling and Engineering Solutions Ltd (CTES), and SHD Composites Ltd (SHD) have made a significant step forward in demonstrating viability of the programme output with an example 10m long composite tool.

Composite forming fixtures or mould tools themselves require a master model to enable them to be made accurately to service the manufacture of the finished part. The complete process can be expensive and time-consuming due to multiple manufacturing stages.

SHD have developed a prototype composite tooling material that combines cure at lower initial process temperatures yet can be used at elevated service temperature in excess of 300C. This cure flexibility enables the use of a lower cost route to a final mould tool.

The composite tooling resin chemistry has been further enhanced by the addition of AGM's A-GNP35 graphene nanoplatelets, significantly strengthening the matrix fracture toughness and providing extra resilience against variations in processing conditions and resin micro-cracking over repeated part production cycles. The graphene can be applied into the bulk of the tool structure by addition into the tooling material matrix resin or can be discretely targeted at critical areas by means of AGM's Structural Ink printing technology. Longevity and robustness of tooling in a multi-part production environment is key to overall programme cost management, and this technology represents the good potential in this regard.

A suitably ambitious mould tool demonstrator to show real manufacturing potential was selected as a 10m long Carbon Fibre Reinforced Plastic Advanced Fibre Placement mandrel tool. The fixture was engineered by CTES, manufactured by Retrac Composites Ltd, Swindon and is a purposeful representation of the industry's latest and highly demanding requirements.

The delivery of a fully functional, large composite tool incorporating AGM's graphene application technology, which will significantly lower fixture costs while offering superior longevity to match long part build programmes, is a testament to the quality of the collaboration. Over coming weeks, the project team will be disseminating more details through industry forums. The technology can equally be applied to thermoset and thermoplastic composite component materials parts, and represents an exciting new materials development that has the clear potential to offer significant time and cost savings to composite tool designers.

In the world of composite materials structures, there are few more demanding applications than those found in space programmes. Repeat customer Infinite Composites Technology (ICT) continue to press ahead with their exciting developments for pressure vessels. Using AGM graphenes dispersed in components of their structural materials, ICT are enabled to realise the additional mechanical and barrier performance our graphene materials have to offer. ICT recently received their fourth patent for their innovative solutions to pressure vessel technology.

Composites Evolution Ltd continues to press ahead with customer testing of their AGM graphene-containing products derived from the NEAT collaborative project. The programme yielded a prepreg product that can be used in aircraft interiors with enhanced

mechanical performance as well as critical fire, smoke and toxicity attributes. We are pleased to have been able to supply further materials for their extended customer testing and look forward to successful outcomes with materials approvals for transport and infrastructure applications for their materials. We continue with customer engagements with our Structural Ink technology. In printing graphene inks into composite structures, we continue to see positive performance uplifts in the area of fracture toughness – an essential attribute for the longevity of composite parts. As this technology continues to develop on a customer-by-customer basis, it will enable the development of longer-range revenue.

Functional Materials Sector

Airbus continues apace with their product and flight qualification of our TP300 thermal paste adhesive. Final product configuration is now being pursued through a third-party to enable the product to be supplied in meter-and-mix pre-kitted cartridges. The final testing of the product through this formatting change is now ongoing. Target completion for this work is now in the first half of 2020. It is Airbus's intention to offer this product thereafter on their new-generation satellite platforms such as Eurostar Neo. TP300 is a very low density, high-performance thermal paste adhesive that offers specific performance and commercial benefits against established competitor products. We have also now received a number of inquiries related to thermal interface materials, but the successful fulfilment of these is mainly subject to successful outcomes with Airbus.

Marketing

Our commitment continues in disseminating the findings of our research and product development efforts to the technical community. We recognize this as a prime means of engaging with technologists at key customer targets. We presented at a webinar arranged jointly by The Graphene Council and The Society for Protective Coatings (SSPC) specific to the performance of graphene as a real technology prospect for the anti-corrosion sector for coatings products. Planned presentations at NACE and ACS conferences have had to be shelved due to the postponement of these events amongst many others due to COVID-19 concerns. We continue with our objective to provide supporting data to achieve successful outcomes with customer engagements. As such, our Technical Application Notes, available on our web site represent a valuable resource to guide customers through the practical integration of our technology.

Distribution

Recognizing our products require strong technical backup support, CAME in Italy are performing well in their development of a number of potential customers for AGM's Genable dispersion technology across a number of sectors. We are pleased with their level of engagement with their customer base and anticipate the start of revenues from their activity soon. Similarly, we have seen good levels of engagement with Carst & Walker and Inabata from their expanded arrangement with AGM.

We anticipate building on this model as a key conduit to market with the appointment of further distributors in the near future.

Asia

Building on the solid technological progress leading to engagement on a broadening global platform, we were pleased to be included as a presenter to IP Group's Deep Tech Conference in Beijing in October 2019. The Conference assembles investors, stakeholders, government entities and potential clients for emerging technologies. In an extremely busy session, we presented and held multiple one-to-one meetings. Substantial interest was generated from this one event, highlighting the potential of a well-thought-out applications-focused exploitation strategy for graphene materials. With multiple graphene manufacturers in the region, the opportunity is apparent to engage more fully with good potential for positive momentum in the longer term. For now, our efforts are subject to the constraints of the COVID-19 situation. Still, we continue to pursue engagements remotely until such time as we are able to visit again in person.

Regulatory

We continue with our efforts with the graphene REACH consortium to achieve the long-range goal of accreditation for volume supply. We have recently submitted data packages to ECHA for review of our products as part of the continuing process towards REACH compliance in the graphene space.

We are actively pursuing our OECD parallel process with a view of receiving approval for supply of graphene-related materials in volume.

Safe use of our materials is an all-important subject and to this end the data we have gives us a high degree of confidence in the products we manufacture and their end-use application. We see our ability to support new customers in the adoption of our products as second-to-none, from applications guidance to in-depth environmental, health and safety information.

Re-alignment of resources and cash runway

In October 2019 AGM confirmed its operational update announcing the re-alignment of resources. This has better positioned the Group to support the product development of customers presenting nearest-term revenue opportunities, in order to focus on sales growth. Over recent years AGM's core expertise has been proved to be in dispersion and the application know-how to effectively integrate the performance benefits of graphene in customer products. The Board decided to focus resources and activities around meeting customer opportunities through the dispersion and end-use application of graphene as the best means of revenue growth. Re-alignment has reduced the Company's operating cost base and extended AGM's cash runway to Q4 2021, positioning the Company well to deliver new technology and products to the market place.

The cash operating cost base of £4.3m in the year to 31 July 2019 is expected to fall by circa £0.9m and £1.1m for the years ending 31 July 2020 and 2021, respectively. The cost of implementation of these changes of circa £0.2m was incurred during the period to 31 January 2020. The Company retains the capability to scale up at the appropriate time and maintains its core skill base.

Staff Resources

Andy Gent was promoted to the role of Commercial Director following Nigel Blatherwick's decision to leave the Company. Andy steps into this role with a strong background in coatings technology, applications and distributor management resulting in revenue growth. I wish Nigel well in the next stages of his career in the composites sector.

We continue to monitor global guidance on the evolving situation related to COVID-19, its potential impact on the business and the safety and well-being of all our staff. Effective policies have been put in place to manage the developing nature of the challenge of this pandemic, including flexible working to enable continuity of supply to our customers and maintenance of our long term projects.

Outlook

The Board carries out strategic reviews to monitor the Company's strategy and its successful execution. The Board is encouraged by the progress made during the period and combined that with recent changes to our cost base believes AGM is in good shape to realise the longer-term opportunities to:

- Introduce graphene materials primarily into coatings applications
- Develop an appropriate technology platform to enable the delivery of success in our chosen areas of activity
- Focus on customer support and excellent customer service, product quality and consistency
- Work closely with customers to create the best opportunity for success
- Secure and realise the emerging revenues arising from customer product launches
- Deliver shareholder value in the long term

Adrian Potts

Chief Executive Officer

25 March 2020

Financial review

with David Blain

Revenue

Revenue for the period was £35,000 (2019: £26,000) arising from the supply of production orders of graphene and evaluation quantities of graphene to commercial partners. Strong revenues in February 2020 and year to date revenues are £60,000 - 20% higher than whole of the year ended 31 July 2019 of £50,000.

Other income

Other income, which comprises grant income, was £nil (2019: £23,000). Grants received related to funding for the development of new graphene applications, with a small amount for the creation of new jobs or the purchase of assets.

Cost of sales

Cost of sales has increased as a result of increased rent, labour and materials used in preparing the plant for commercial production.

Loss on ordinary activities before tax

A loss on ordinary activities before tax of £2,278,000 (2019: loss of £2,374,000) was recognised.

Loss on ordinary activities before interest, tax, exceptional costs, depreciation and amortisation (EBITDA)

The EBITDA loss for the Group narrowed a loss of £1,900,000 for the six month period ended 31 January 2020 (2019: loss of £2,233,000). The losses incurred in the period relate to the day to day costs of the business and include the ongoing costs associated with the technical input provided to our commercial partners as they look to evaluate and incorporate graphene into their product lines.

Exceptional costs

Exceptional costs recognised in the period were £168,000 (2019: £nil) following a re-alignment of the cost base during the period.

Net finance income

Net finance income for the period was £18,000 (2019: £34,000).

Loss on ordinary activities before tax, exceptional costs and amortisation (PBTA)

PBTA for the period decreased from a loss of £2,374,000 in 2019 to a loss of £2,278,000 for the period ended 31 January 2020.

Tax

R&D tax credits for the current year are accrued on a monthly basis resulting in a credit of £300,000 for the period (2019: £200,000).

Earnings per share

Basic earnings per share was a loss of 4.0 pence per share (2019: loss of 4.4 pence per share). Adjusted basic earnings per share (before exceptional costs) was a loss of 3.7 pence per share (2019: loss of 4.4 pence per share).

Dividend

No dividend has been proposed for the period ended 31 January 2020 (2019: £nil).

Cash flow

Net cash used in operations was £2,334,000 (2019: £2,173,000).

Capital expenditure of £82,000 (2019: £57,000) has been incurred in the period mainly relating to the development of intellectual property assets.

Balance sheet

Net assets have reduced to £6,661,000 (2019: £10,087,000), principally reflecting the trading loss for the period.

Cash at bank at 31 January 2020 was £4,329,000 (2019: £8,246,000). Monies are on deposit with a small number of financial institutions for time periods ranging between instant access and up to 95 days in maturity.

Accounting policies

The Group's consolidated financial information has been prepared in accordance with International Financial Reporting Standards as adopted in the EU. The Group's significant accounting policies, which are consistent with those set out in the audited financial statements for the year ended 31 July 2019, have been applied consistently throughout the period with the exception of the adoption of IFRS 16 'Leases' but this has not had a material impact on the Income Statement.

Principal risks and uncertainties

Risk management forms an integral part of the business planning and review cycle. The principal risks and uncertainties remain unchanged from those set out on pages 24 to 27 of the Annual Report for the year ended 31 July 2019.

Forecasting timing and quantum of revenues at this stage of development continues to be a key difficulty faced by the Company as this is heavily dependent upon the product development cycle of our customers and, therefore, is not under our control.

Cautionary statement

The Business and Financial reviews have been prepared for the shareholders of the Company, as a body, and no other persons. Their purpose is to assist shareholders of the Company in assessing the strategies adopted by the Group and the potential for those strategies to succeed, and for no other purpose. The Business and Financial reviews contain forward-looking statements that are subject to risk factors associated with, amongst other things, the economic and business circumstances occurring from time to time in the sectors and markets in which the Group operates. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a wide range of variables which could cause actual results to differ materially from those currently anticipated. No assurances can be given that the forward-looking statements in the Business and Financial reviews will be realised. The forward-looking statements reflect the knowledge and information available at the date of preparation.

David Blain
Chief Financial Officer
25 March 2020

Consolidated income statement and statement of comprehensive income

for the six months ended 31 January 2020

	Note	Unaudited 6 months to 31 January 2020 £'000	Unaudited 6 months to 31 January 2019 £'000	Audited year ended 31 July 2019 £'000
Revenue	5	35	26	50
Other income		-	23	74
		35	49	124
Cost of sales		(135)	(231)	(472)
Gross loss		(100)	(182)	(348)
Operating expenses		(2,196)	(2,226)	(4,554)
EBITDA		(1,900)	(2,233)	(4,559)
Exceptional costs		(168)	—	—
Depreciation of tangible fixed assets		(228)	(175)	(343)
Operating loss		(2,296)	(2,408)	(4,902)
Net finance income		18	34	67
PBTA		(2,110)	(2,374)	(4,835)
Exceptional costs		(168)	—	-
Loss on ordinary activities before tax	5	(2,278)	(2,374)	(4,835)
Tax on loss on ordinary activities	3	300	200	908
Loss for the period attributable to equity shareholders		(1,978)	(2,174)	(3,927)
Other comprehensive income		-	—	—
Total comprehensive loss		(1,978)	(2,174)	(3,927)
Earnings per share (pence per share)				
Basic	6	(4.0)	(4.4)	(7.9)
Diluted	6	(3.7)	(4.4)	(7.9)

EBITDA comprises loss on ordinary activities before interest, tax, exceptional costs, depreciation and amortisation.

PBTA comprises loss on ordinary activities before tax, exceptional costs and amortisation.

Consolidated statement of changes in shareholders' equity

for the six months ended 31 January 2020

	Share capital £'000	Share premium £'000	Merger reserve £'000	Retained earnings £'000	Unaudited total £'000
As at 31 July 2018	989	27,473	1,231	(17,572)	12,121
Comprehensive loss	—	—	—	(2,174)	(2,174)
IFRS 2 share based payments	—	—	—	140	140
As at 31 January 2019	989	27,473	1,231	(19,606)	10,087
Comprehensive loss	-	-	-	(1,753)	(1,753)
IFRS 2 share based payments	-	-	-	154	154
As at 31 July 2019	989	27,473	1,231	(21,205)	8,488
Comprehensive loss	-	-	-	(1,978)	(1,978)
IFRS 2 share based payments	-	-	-	150	150
As at 31 January 2020	989	27,473	1,231	(23,033)	6,660

Consolidated balance sheet

as at 31 January 2020

	Note	Unaudited 31 January 2020 £'000	Unaudited 31 January 2019 £'000	Audited 31 July 2019 £'000
Assets				
Non-current assets				
Intangible assets		211	90	155
Right-of-use assets		99	-	-
Property, plant and equipment		1,518	1,763	1,645
		1,828	1,853	1,800
Current assets				
Inventories		69	52	52
Trade and other receivables		221	128	171
Corporation tax recoverable		1,000	615	1,323
Cash		4,329	8,246	6,135
		5,619	9,041	7,681
Liabilities				
Current liabilities				
Trade and other payables		(687)	(807)	(993)
Lease liabilities		(91)	-	-
		(788)	(807)	(993)
Net current assets		4,841	8,234	6,688
Non-current liabilities				
Lease liabilities		(8)	-	-
		6,661	10,087	8,488
Shareholders' equity				
Called up share capital	8	989	989	989
Share premium account		27,473	27,473	27,473
Merger reserve		1,231	1,231	1,231
Retained earnings		(23,033)	(19,606)	(21,205)
Equity shareholders' funds		6,661	10,087	8,488

Consolidated cash flow statement

for the six months ended 31 January 2020

	Note	Unaudited 6 months to 31 January 2020 £'000	Unaudited 6 months to 31 January 2019 £'000	Audited year ended 31 July 2019 £'000
Operating activities				
Net cash used in operations	7	(2,349)	(2,173)	(4,184)
Net finance income		2	45	69
Tax received		623	—	—
Net cash used in operating activities		(1,724)	(2,128)	(4,115)
Investing activities				
Purchase of intangible assets		(56)	(12)	(77)
Purchase of property, plant and equipment		(16)	(57)	(116)
Net cash used in investing activities		(82)	(69)	(193)
Net cash generated from financing activities		-	—	—
Net decrease in net cash and cash deposits		(1,806)	(2,197)	(4,308)
Net cash and cash deposits at 31 July 2019		6,135	10,443	10,443
Net cash and cash deposits at 31 January 2020		4,329	8,246	6,135
Net cash and cash deposits include:				
Cash (maturity less than 95 days)		4,329	8,246	6,135
Net cash and cash deposits at 31 January 2020		4,329	8,246	6,135

Notes to the Interim Report

for the six months ended 31 January 2020

1 General information

The principal activity of Applied Graphene Materials plc is the manufacture, dispersion and development of applications for graphene. The Group operates principally in the United Kingdom.

The Company is incorporated and domiciled in the United Kingdom and its registered number is 8708426. The address of the registered office is The Wilton Centre, Redcar, Cleveland TS10 4RF. The Company was incorporated on 27 September 2013.

The interim financial information was approved for issue on 25 March 2020.

2 Basis of accounting

The consolidated interim financial information for the period ended 31 January 2020 has been presented under the historical cost accounting convention, as modified by financial assets and liabilities at fair value through the income statement and share based payments at fair value, and in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union, IFRIC interpretations and those parts of the Companies Act 2006 applicable to companies reporting under IFRS. The consolidated interim financial information has been prepared on a going concern basis.

The accounting policies used in the consolidated interim financial information are consistent with those set out in the audited financial statements for the year ended 31 July 2019 with the exception of the adoption of IFRS 16 'Leases'. These accounting policies are drawn up in accordance with adopted International Accounting Standards ('IAS') and International Financial Reporting Standards ('IFRS') as issued by the International Accounting Standards Board and adopted by the EU.

AIM-quoted companies are not required to comply with IAS 34 Interim Financial Reporting and accordingly the Company has taken advantage of this exemption.

Further IFRS or interpretations may be issued that could apply to the Group's financial statements for the year ending 31 July 2020. If any such amendments, new standards or interpretations are issued, then these may require the consolidated financial information provided in this report to be changed. The Group will continue to review its accounting policies in light of emerging industry consensus on the practical application of IFRS.

The preparation of financial information in conformity with IFRS requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Although these estimates are based on management's best knowledge of the amount, events or actions, actual events ultimately may differ from those estimates.

The consolidated interim financial information does not include all financial risk management information and disclosures required in the annual financial statements.

The consolidated interim financial information for the six months ended 31 January 2020 and for the six months ended 31 January 2019 contained within the Interim Report does not constitute statutory financial statements within the meaning of Section 434 of the Companies Act 2006 and is unaudited. The comparative figures for the year ended 31 July 2019 have been extracted from the audited financial statements, on which the Company's auditors have given an unqualified opinion.

New and amended standards adopted by the Group

The Group has adopted IFRS 16 with effect from 1 August 2019. The standard eliminates the classification of leases as either operating or finance leases and introduces a single accounting model requiring lessees to recognise assets and liabilities for all leases unless the underlying asset has a low value or the lease term is twelve months or less. Lessees are required to recognise on the balance sheet right-of-use assets which represent the right to use underlying assets during the lease term and a lease liability representing the minimum lease payment for all leases. Depreciation of right-of-use assets and interest on lease liabilities is charged to the Income Statement, replacing the corresponding operating lease rentals. The Group has applied the modified retrospective approach and therefore at the date of initial application an amount equal to the lease liability, using appropriate incremental borrowing rates, has been recognised as a right-of-use asset. The Group has taken the exemptions available under IFRS 16 not to apply the lease accounting model to leases which are considered low value or which have a term of less than twelve months. The adoption of IFRS 16 has increased 'non-current assets' and 'total liabilities' at the balance sheet date by £0.1 million and £0.1 million respectively, but has not had a material impact on the Income Statement. Depreciation and interest costs were increased by £75,000 and £4,000 respectively while operating charges were reduced by £79,000. No adjustment was necessary to equity at the date of transition as the Group chose to measure the right-of-use asset at the same value as the lease liability. A weighted-average incremental borrowing rate of 8% has been applied to lease liabilities.

3 Taxation

The Group has not recognised any tax assets in respect of trading losses arising in either the current financial year or accumulated losses in previous financial years. Research and development tax credits for the period up to 31 January 2020 have been accrued after having taken into account the anticipated level of research and development work carried out in the period.

4 Dividends

No dividend has been proposed for the period ended 31 January 2020 (2019: £nil).

5 Segmental analysis

The Group currently has one operating segment. Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the Chief Operating Decision Maker (CODM) in deciding how to allocate resources and in assessing performance. The Group's Chief Executive Officer has been identified as the CODM. Revenue and profits arising from that operating segment are the same as presented on the face of the consolidated income statement and statement of comprehensive income.

6 Earnings per share

Basic earnings per share is calculated by dividing the earnings attributable to ordinary shareholders by the weighted average number of shares in issue during each period. The weighted average number of shares in issue during the period used in the calculation of basic earnings per share was as follows:

	Unaudited 6 months to 31 January 2020 'm	Unaudited 6 months to 31 January 2019 'm	Audited year ended 31 July 2019 'm
Weighted average number of shares for basic earnings per share	49.4	49.4	49.4

Adjusted earnings per share has been calculated so as to exclude the effect of exceptional costs including related tax charges and credits. Adjusted earnings used in the calculation of basic earnings per share reconciles to basic earnings as follows:

	Unaudited 6 months to 31 January 2020 £'000	Unaudited 6 months to 31 January 2019 £'000	Audited year ended 31 July 2019 £'000
Basic earnings	(1,978)	(2,174)	(3,927)
Exceptional costs	168	—	—
Adjusted earnings	(1,825)	(2,174)	(3,927)
Earnings per share (pence per share)			
Basic	(4.0)	(4.4)	(7.9)
Adjusted earnings per share (pence per share)			
Basic	(3.7)	(4.4)	(7.9)

The Group was loss making for the periods ended 31 January 2020 and 31 January 2019 and also for the year ended 31 July 2019. Diluted loss per share has not been presented above as the effect of share options issued is anti-dilutive.

7 Notes to the cash flow statement

	Unaudited 6 months to 31 January 2020 £'000	Unaudited 6 months to 31 January 2019 £'000	Audited year ended 31 July 2019 £'000
Loss for the period attributable to equity shareholders	(1,978)	(2,174)	(3,927)
Tax on loss	(300)	(200)	(908)
Net finance income	(18)	(34)	(67)
Depreciation of property, plant and equipment	153	175	343
Exceptional costs	168	—	—
EBITDA	(1,975)	(2,233)	(4,559)
Depreciation of property, plant and equipment	(153)	(175)	(343)
Exceptional costs	(168)	—	—
Operating loss	(2,296)	(2,408)	(4,902)
Depreciation of tangible fixed assets	153	175	343
Disposal of property, plant and equipment	—	—	9
IFRS 2 share based payments charge	150	140	294
(Increase)/decrease in net working capital	(356)	(80)	72
Net cash used within operations	(2,349)	(2,173)	(4,184)

8 Share capital

	Unaudited number of Ordinary shares	Unaudited total £'000
Allotted, called up and fully paid		
At 31 July 2018 Ordinary shares of 2 pence each	49,429,380	989
At 31 July 2019 Ordinary shares of 2 pence each	49,429,380	989
At 31 January 2020 Ordinary shares of 2 pence each	49,429,380	989

9 Related party transactions

Transactions between Applied Graphene Materials plc and its subsidiaries, which are related parties, have been eliminated on consolidation and are not disclosed in this note.

Transactions with shareholders

The following transactions with shareholders of the Group were recorded, excluding VAT, during the period:

	Unaudited 6 months to 31 January 2020 £'000	Unaudited 6 months to 31 January 2019 £'000	Audited year ended 31 July 2019 £'000
University of Durham (shareholder)			
Staff secondment, consultancy and other fees	4	17	33
Top Technology Limited (controlled by shareholder)			

Non-Executive fees and expenses	8	8	15
Corporate finance fees	-	—	—
IP2IPO (shareholder)			
Non-Executive Director expenses	-	—	1

Remuneration of key management personnel

The remuneration of the Directors and the key management personnel of the Group is set out below in aggregate for each of the categories specified in IAS 24 Related Party Disclosures:

	Unaudited 6 months to 31 January 2020 £'000	Unaudited 6 months to 31 January 2019 £'000	Audited year ended 31 July 2019 £'000
Short term employee benefits (excluding bonuses)	373	357	746
Payments to third parties	15	8	15
IFRS 2 share based payments charge	150	140	167
	538	505	928

10 Seasonality

The Group experiences no material variations in performance arising due to seasonality.

11 Availability of Interim Report

It is anticipated that the Interim Report will be sent to all shareholders on 3 April 2020. Electronic copies of the report will also be available on Applied Graphene Materials' website at www.appliedgraphenematerials.com.

Glossary of terms

Term	Meaning
Anti-corrosion	A type of coating made with neutral or slightly alkaline pigments and a water resisting vehicle for use as a primer on steel and other metals to prevent or inhibit corrosion
Barrier system	A method of preventing corrosion by using barrier materials within the coating that restrict the movement of water and other chemicals towards the metal surface
Coat/coating	When used as a verb, “coat” means to cover or apply; as a noun, the word signifies the amount of finishing material applied to a surface during one or more applications without a drying period between applications
Composites	A material made up of resin and reinforcement
Conductive inks	An ink that results in a printed object which conducts electricity
Conductivity – electrical	The degree to which a specified material conducts electricity, calculated as the ratio of the current density in the material to the electric field which causes the flow of current
Conductivity – thermal	The rate at which heat passes through a specified material, expressed as the amount of heat that flows per unit time through a unit area with a temperature gradient of one degree per unit distance
Dispersion	A mixture in which very small pieces of one substance are scattered within another substance
Elasticity	The property of a film that allows it to stretch or otherwise change size or shape and return to its original condition without breaking or rupturing
Fracture toughness	Resistance to cracks, crazing or delamination resulting from physical damage
Functional fluids	Sustainable base oil products – enhanced with graphene nanoplatelets – offer exceptional performance, and friction and wear protection, especially for lubricants and machining fluids used in automotive and industrial applications
Mechanical	Strength, hardness, toughness, elasticity, plasticity, brittleness, ductility and malleability are mechanical properties used as measurements of how materials behave under a load
NATEP	National Aerospace Technology Programme
Polymer	A long-chain molecule, consisting of many repeat units
Prepreg	A factory-made combination of reactive resins and reinforcing fibres, plus other necessary additive chemicals, ready to be moulded
Primer	A substance used as a preparatory coat on wood, metal or canvas, especially to prevent the absorption of subsequent layers of paint or the development of rust
Resin system	A polymer with indefinite and often high molecular weight and a softening or melting range that exhibits a tendency to flow when subjected to stress
Substrate	A material which provides the surface on which something is deposited or inscribed
Thermal paste adhesive	A thermally conductive paste applied to mating surfaces to bond them together by surface attachment in order to transfer heat across the materials
Tie coat	Paint specifically formulated for situations and conditions to provide a transition from a primer or undercoat to a finish coat. Tie coats are used to seal the surface of a zinc-rich primer, to bond generically different types of coatings, or to improve the adhesion of a succeeding coating

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