VESUVIUS PLC

Annual Report
2023

AR2023

Focusing on technology

Creating value for our customers

We think beyond today's solutions and shape the future through innovation.

Our purpose

Vesuvius is a global leader in molten metal flow engineering and technology, serving process industries operating in challenging high-temperature conditions.

We think beyond today to create the innovative solutions that will shape the future, delivering products and services that help our customers make their industrial processes safer, more efficient and more sustainable.

In turn, we provide our employees with a safe workplace where they are recognised, developed and properly rewarded, and aim to deliver sustainable, profitable growth to provide our shareholders with a superior return on their investment.

Contents

Financial highlights

Revenue
£m

£1,930m

23	1,930
22	2,047
21	1,643

Trading profit[1]
£m

£200m

23	200
22	227
21	142

Return on sales[1]
%

10.4%

23	10.4
22	11.1
21	8.7

Operating profit
£m

£190m

23	190
22	217
21	133

Statutory EPS
p

44.0p

23	44.0
22	67.2
21	37.7

Free cash flow[1]
£m

£128m

23	128
22	123
21	-0.3

1. For definitions of alternative performance measures, refer to Note 35 of the Group Financial Statements.

Non-financial highlights

Lost Time Injury Frequency Rate

0.6

23	0.6
22	1.08
21	1.06

Total R&D spend[1]
£m

£37m

23	37
22	36
21	31

Female representation in the Senior Leadership Group %

20%

23	20
22	20
21	19

Reduction of Scope 1 and Scope 2 CO_2e emission intensity per metric tonne of product packed for shipment versus 2019[2] %

-20.2%

23	-20.2[3]
22	-18.5
21	-16.0

1. At constant 2023 currency.
2. Re-baselined using pre-acquisition data for the business acquired from Universal Refractories, Inc. (Vesuvius Penn Corporation), and BMC (Yingkou YingWei Magnesium Co., Ltd).
3. Pro forma: performance as if the dolime process had been operating normally in 2023.

Forward-looking statements

This Annual Report contains certain forward-looking statements which may include reference to one or more of the following: with respect to operations, strategy, performance, financial condition, financing plans, cash flows, capital and other expenditures and growth opportunities of the Vesuvius Group. Forward-looking statements can be identified by the use of terminology such as 'target' 'intend', 'aim', 'project', 'anticipate', 'estimate', 'plan', 'believe', 'expect', 'forecasts', 'may', 'could', 'should', 'will' or similar words.

Although the Company makes such statements based on assumptions that it believes to be reasonable, by their nature, these statements involve uncertainty and are based on assumptions and involve risks, uncertainties and other factors that could cause actual results and developments to differ materially from those implied by the forward-looking statements anticipated. Such forward looking statements should, therefore, be considered in light of various important factors that could cause actual results to differ materially from estimates or projections contained in the forward looking statements.

The forward-looking statements reflect knowledge and information available at the date of preparation of this Annual Report and, other than in accordance with its legal and regulatory obligations, the Company undertakes no obligation to update these forward-looking statements. Nothing in this Annual Report should be construed as a profit forecast or a guarantee of the Vesuvius Group's future performance.

At a glance

Vesuvius is a specialist provider of high technology products and solutions to industrial customers who operate in challenging high-temperature conditions

Our customers are predominantly in the steel and foundry industries which we serve from our two Divisions. Our technology-led products allow our customers to tackle some of the most complex problems in their production processes.

Our world-leading R&D supports the consistent delivery of our high-tech consumables. Our sales are not dependent on the capex cycles of our customers, and our products create value by improving...

Safety
Improved safety at customer plants

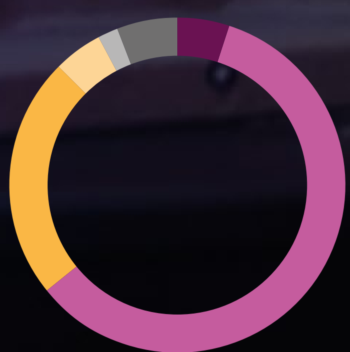
Quality
Better steel, better castings

Efficiency
Cheaper steel, cheaper castings

Sustainability
Less energy usage and fewer CO_2 emissions in steel and foundry processes

Sales by customer activity

Iron · Steel · Ferrous foundries · Non-ferrous foundries · Aluminium · Other (glass, cement...)



At a glance continued

OUR DIVISIONS

Steel

Vesuvius is a world leader in the supply of refractory products, systems and solutions to steel producers and other high-temperature industries. We help our customers increase their efficiency and productivity, enhance quality, improve safety and reduce their costs and their environmental impact.

Flow Control

Revenue: £793m

Supplies the global steel industry with consumable ceramic products, systems, robotics, digital services and technical products for the continuous casting process

Advanced Refractories

Revenue: £568m

Supplies specialist refractory products designed to enable steel-making equipment, such as Electric Arc Furnaces and Basic Oxygen Furnaces, to hold the molten metal

Sensors & Probes

Revenue: £39m

Provides a range of products that enhance the control and monitoring of our customers' production processes

What we do for our Steel customers

We supply refractory products, flow control systems and process measurement solutions to our Steel Division customers

We combine these with robotics and mechatronic installations to increase their efficiency, lower their costs and improve their safety and consistency

Our solutions address the key challenges of our customers in the steel industry, such as maintaining steel quality and reducing energy usage during the casting process

Our products and their applications preserve the purity of the steel as it moves through the production process, from initial refining to the cast steel slab, bar or ingot

Revenue £1,400m

At a glance continued

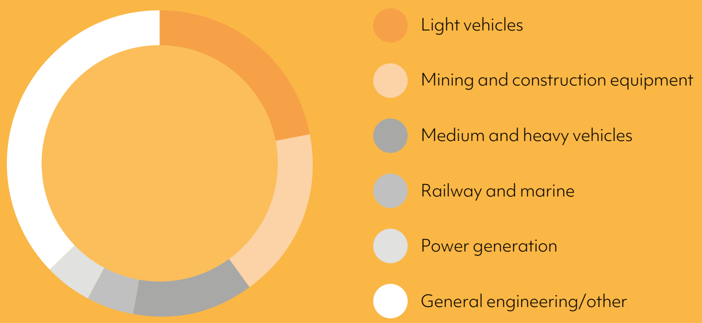
OUR DIVISIONS

Foundry

Vesuvius, operating under the Foseco brand, is a world leader in the supply of consumable products, technical advice and application support to the global foundry industry, improving casting quality and foundry efficiency. Our primary customers are ferrous and non-ferrous foundries serving various end-markets, from large bespoke castings to high-volume automotive pieces.

Diversified end-markets

Product demand in the Foundry Division is driven by higher sophistication, demanding higher quality metal and more complex casting across increasingly diversified end-markets



What we do for our Foundry customers

We provide customisable products and process technology to foundries that improve the quality of their castings

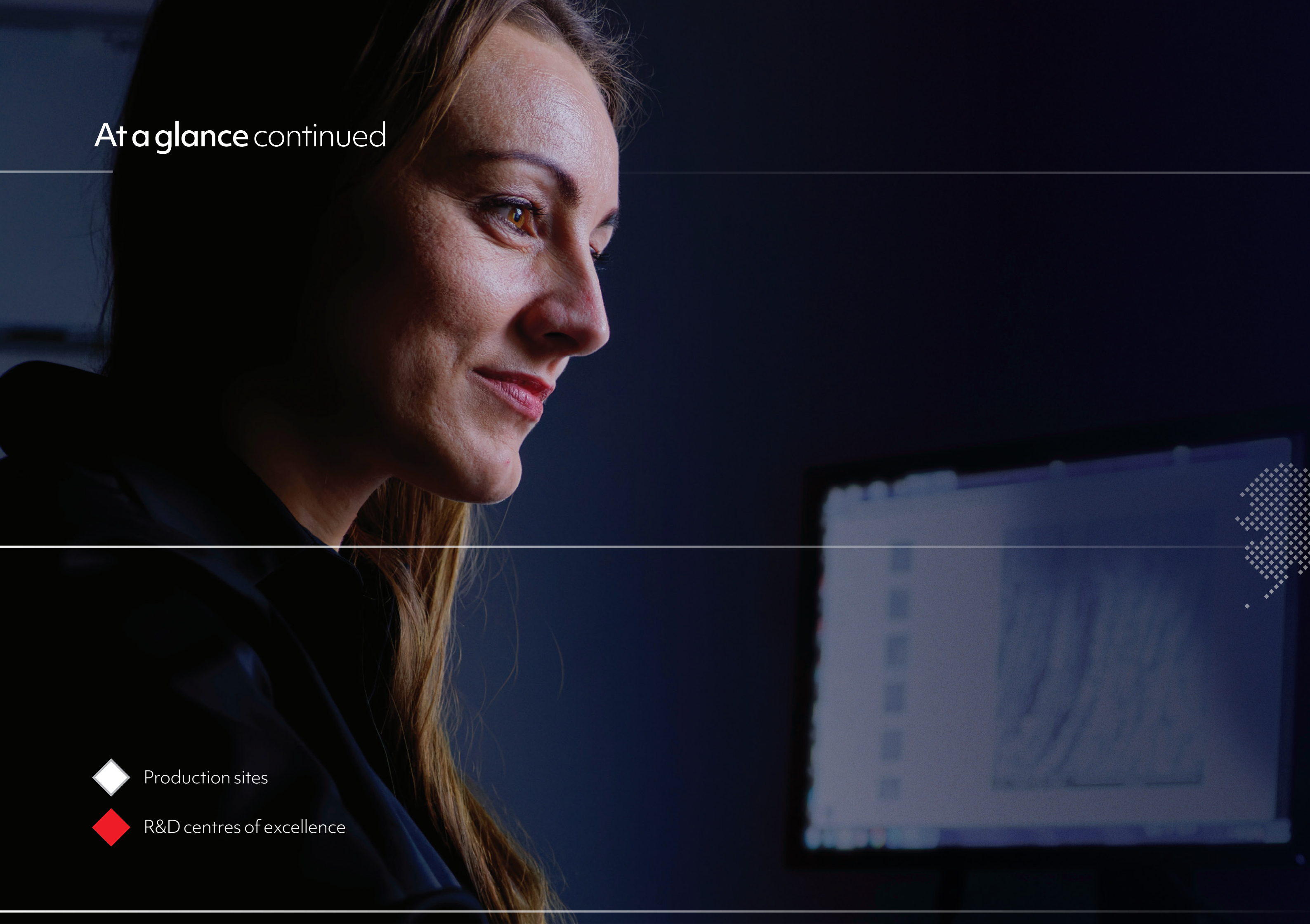
We combine this with technical advice, application engineering and computer modelling to improve process outcomes

Our solutions address our foundry customers' key challenges of casting quality and production efficiency

Our products and solutions clean the molten metal, improve the solidification of that metal, and reduce wastage in the final casting

Revenue £530m

At a glance continued



Production sites

R&D centres of excellence

Our global presence positions us well to take advantage of developing steel and foundry market dynamics

Our local manufacturing, local expertise and global knowledge of steel manufacturing processes gives us a special relationship with our customers.

6	40	68	6	55
Continents	Countries	Sales offices	R&D centres of excellence	Production sites

Breakdown by region

Americas
3,295 employees

20% Foundry
80% Steel

£695m
Revenue

EMEA
4,209 employees

32% Foundry
68% Steel

£670m
Revenue

Asia-Pacific
3,872 employees

32% Foundry
68% Steel

£566m
Revenue

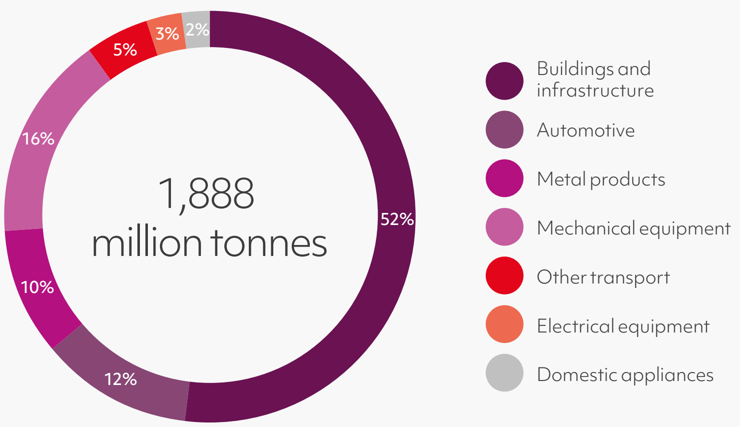
Our market environment: positive growth trends

Steel manufacturing is our principal market, and demand for steel is growing due to population expansion in emerging markets and infrastructure investment globally

Steel is the world's most important engineering and construction material

Steel is principally used for construction, infrastructure, automotive manufacture and domestic goods.

Amount of steel used in the world in 2023

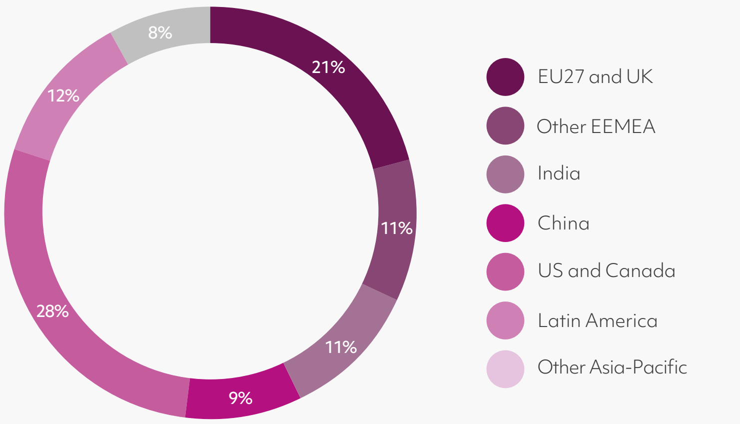


Source: World Steel Association.

We have global exposure with under half our revenue generated from the mature markets of North America and Europe. We have a strong and growing position in India and other emerging markets.

China represents only 9% of our revenue due to our focus on steel manufactured using high-tech processes, but we are well placed to respond to an expected growth in high-tech steel in China in the coming years.

Our global exposure



Source: Company analysis.

Developments in steel markets

Positive growth in steel markets outside China

We believe steel markets are now at an inflection point. Over the past ten years most of the growth of the steel market has been concentrated in China where Vesuvius realises only around 10% of its sales.

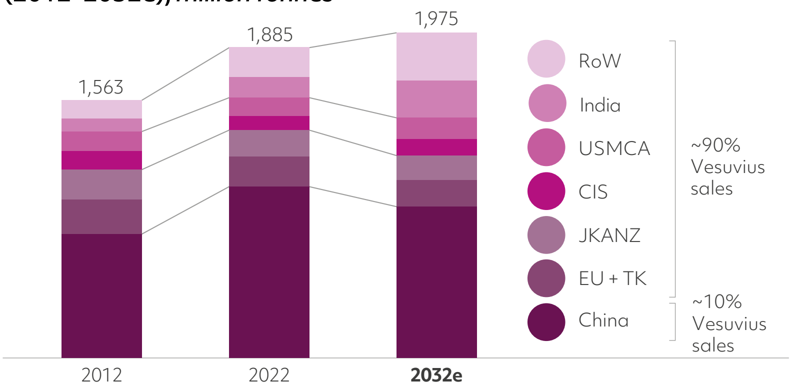
We believe the market dynamics of the next ten years will be very different, due to the fast development of India and, to a lesser extent, of South East Asia, Middle East, Africa and Latin America.

The decarbonisation of western economies, which will require very significant incremental amounts of steel, will also support steel consumption in the world outside China. The Inflation Reduction Act in the US could increase annual US steel consumption by close to 5%.

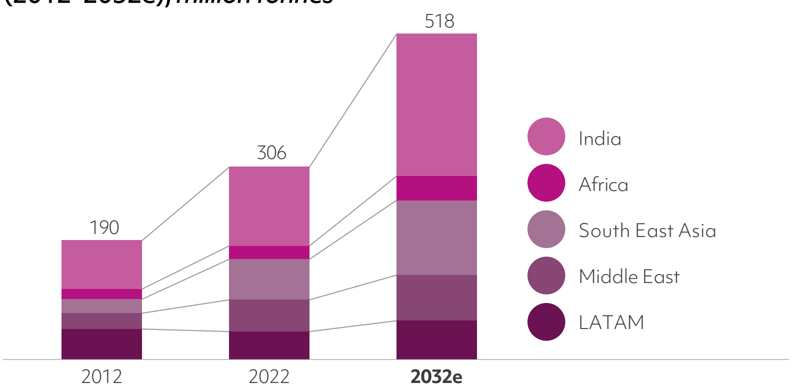
Based on estimates from the World Steel Association and Laplace Conseil, we believe that steel production outside China will increase by at least 200 million tonnes, or around 25%, over the next ten years, half of it in India. This estimate may be conservative with ArcelorMittal estimating demand for an additional 300 million tonnes of steel (outside China) over the next ten years.

Vesuvius' recent production capacity expansions in India, Eastern Europe and Mexico will position the Group well to benefit from these changes in the steel market.

Expected evolution of global steel production (2012–2032e), *million tonnes*



Expected growth in steel production in emerging markets (2012–2032e), *million tonnes*



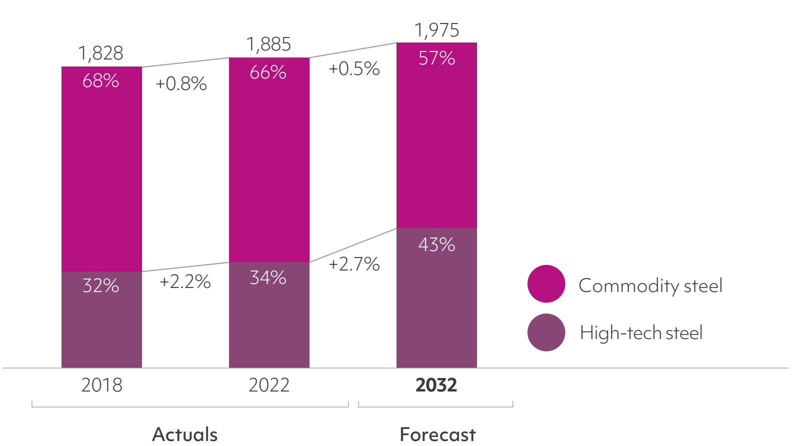
Source: World Steel Association (Yearbook 2022 published March 2023) and Laplace Conseil (analysis conducted in October 2023, including inputs from World Bank, IMF, IEA, OECD & other international associates, company data and announcements).

High-tech steel is expected to grow faster than the market

Our Flow Control Business Unit will also benefit from the progressive evolution of the steel sector, not only in China but worldwide, towards more technology intensive types of steel, either because this steel is being produced through sophisticated processes like thin slab casting or because it is destined for highly demanding end-markets like automotive, engineering or energy.

It is estimated that the 'high-technology' steel sector, representing around 34% of the steel market today, could represent around 43% of the global steel market in ten years' time. Flow Control already realises 58% of its sales in this fastest growing part of the steel market.

High-technology steel production evolution, *million tonnes %*



Source: World Steel Association (Yearbook 2022 published March 2023) and Laplace Conseil (analysis conducted in October 2023, including inputs from World Bank, IMF, IEA, OECD Global Energy Monitor (Steel plant tracked March 2023) and other international associates, company data and announcements).

Our market environment: positive growth trends continued

The Foundry Division serves a wide range of growing end-markets including, machinery and general engineering, mining, agriculture and infrastructure

End uses of foundry castings

Products manufactured by the foundry casting market – made up of iron casting, steel casting and non-ferrous casting – are used across all engineering sectors.

	Foundry Sales (2023)	Example cast parts
Light vehicles	22%	– Engine components and exhaust systems (ICEs and hybrids) – Electric engine components (hybrids and EVs)
Mining and construction	18%	– Mining vehicle components and mining machinery – Structural support in infrastructure – Functional elements in construction , e.g. roofing, stairs, doors and window frames
Medium and heavy vehicles	13%	– Suspension, chassis and brake components
Railways and Marine	5%	– Wheels, axles, frames and chassis for trains – Hulls, decks, propellers, anchor and chains for ships – Engine components
Power generation	5%	– Wind turbines – materials in tower structure, gearbox housing – Structural and rotating components
General engineering/ other	37%	– Agricultural components, including cultivating and harvesting equipment – Structural components for industrial machines – Rotating components – gears and shafts used in machinery

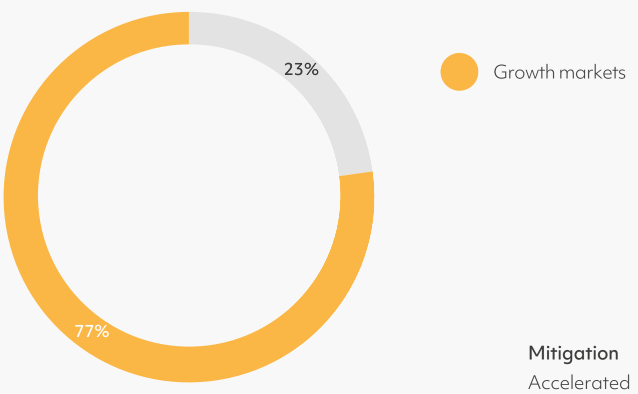
Foundry sales to end-markets

Foundry end-markets are expected to grow

More than three-quarters of the Foundry Division's sales are to markets that are forecast to see c.2% growth in average volumes per year over the next ten years.

Due to the gradual electrification of vehicles, the light vehicle market, which currently represents only 23% of the Foundry Division's sales, is expected to remain stable.

The Foundry Division's R&D strategy is focused on developing new technological products to accelerate its penetration of the growing aluminium casting sector for the automotive market, which is positively impacted by the electrification of vehicles, which we believe will enable the Division to continue to grow in the light vehicle sector.



77% of Vesuvius Foundry sales are in markets with forecast positive volume growth of 2% CAGR

23% of Vesuvius Foundry sales are in markets with flat volume growth (due to electrification)

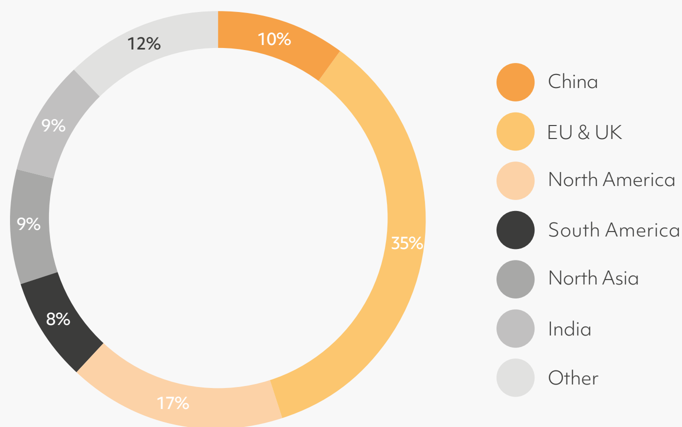
Mitigation

Accelerated penetration of non-ferrous castings for automotive with new technological products

Foundry's Global exposure

Ferrous sales in developed markets represent the core of the Foundry Division's business. We are witnessing the transition of ferrous casting activity from Western Europe towards emerging markets. We expect this strong growth to continue and we are focused on expanding our business in these developing markets. We are well positioned to respond to this transition from our network of existing manufacturing facilities.

Our global exposure



Foundry's customers

The Foundry market is highly fragmented with three main customer segments. The Foundry Division has more than 3,000 customers with no one customer representing more than 3% of Foundry's revenue.

Vesuvius segmentation and commentary

The captive

- Controlled by OEMs, who produce in-house where there is a technological edge vs. outsourcing

The specialist

- Focused on a limited number of markets (mining, automotive, windmill)

The jobbing

- Produce a range of products on request
- Process and artisanal capabilities

Large run/series (>1,000pcs/yr even up to >100kpcs/yr in Automotive)

Small runs/series (5-100spcs/yr)

The captive	The specialist	The jobbing
(20%) 2023 sales	(53%) 2023 sales	(27%) 2023 sales

End-markets

The captive	The specialist	The jobbing
Mainly consists of mining, agriculture and light vehicle foundries	**Typically light vehicle and truck tier 2 suppliers who produce a small range of castings for various end users**	**Small accounts with one-off production runs, active across all sectors**

Chairman's statement

"Our technological leadership continues to deliver innovative solutions and underpins our confidence in the future."

Carl-Peter Forster
Chairman

Dear Shareholders,

2023 was a year of successes for Vesuvius despite facing a number of global challenges. Against a backdrop of continuing macroeconomic uncertainty, we delivered a strong performance and emerged from 2023 having reinforced our technology-based strategy for continued growth. This performance was in large part due to the decisive actions of the Group's management team and senior leadership, as well as the hard work and commitment from our employees across the globe.

Our value proposition

Having joined the Board over a year ago, it is clear to me that our performance in 2023 is a direct result of the value that Vesuvius is able to provide to its customers. We outlined our strategy for continuing this partnership in our Capital Markets Day in November. The foundation of our business model is our R&D strategy, generating the new, high-technology consumables that deliver value to our Steel and Foundry customers, support our superior pricing capability and enable us to achieve market share gains. Through our solutions-driven offering, our customers can drive efficiency and productivity improvements in their processes, and make their operations safer and more sustainable. Our proprietary refractory solutions have set industry benchmarks, enabling our customers to produce cleaner, stronger, and higher quality steel and castings.

Our relentless focus on improving safety standards is central to Vesuvius, and we continue to invest in developing cutting-edge technology to minimise risks both for our own employees in our operations as well as our customers' employees in theirs. Our innovative focus on using robots to automate elements of the steel-making process which were previously done manually, minimises the need for our customers' employees to operate in hazardous environments.

Our commitment to support customers in their mission to improve product quality is a fundamental part of our solutions driven approach. Alongside this, we maintain a critical focus on the quality of our own products and our own operations. This underpins the reliability that our customers demand of us, as they use our products in critical and demanding processes, where quality cannot be compromised. 2023 has seen a renewed focus within Vesuvius on continuing to strengthen the quality of our solutions and consumables.

People

The strategic progress and financial performance we delivered in 2023 is founded on the dedication and professionalism of our employees across the Group. The level of technological innovation we generate could not happen without our exceptional teams of R&D professionals and industry experts, nor could we maintain the depth of our customer relationships without the contribution of our operations, sales and procurement teams. People are at the heart of Vesuvius, and we continue to focus on how we can invest in our teams to deliver our commercial ambitions.

Members of the Board had a busy year in 2023, visiting sites in Brazil, China, Germany, India, the Netherlands and the United States. It is during these visits that the Directors can speak first-hand with our people, hold 'town hall' meetings, listen to their questions and feedback, and take the temperature of the organisation. The optimism I had about the quality of the staff across Vesuvius has been borne out in my first year as Chairman, as I have travelled to sites and had the opportunity to hear the views and opinions of our excellent teams around the globe.

Safety

The number one priority at Vesuvius is to provide our employees with a safe place to work. Only the highest levels of safety performance can be accepted, and we are proud of the steps we have taken over the years to ensure safety is at the core of everything we do. Although we are pleased that the Lost Time Injury Frequency Rate reduced significantly this year, we are aware that there is more work to be done, particularly in relation to the management of contractors, where we had two serious injuries on our sites in 2023.

Progress on our Sustainability objectives

The Group has set clear internal operational targets around sustainability performance, particularly in relation to our CO_2 emissions and energy consumption. We continue to make good progress in the reduction of our carbon footprint and are proud that our latest Sustainalytics score was upgraded for the third year in a row, putting the Group in the top quintile versus our peers.

We have continued to focus on developing products across our portfolio which deliver improved environmental performance, and play a key role in the value that we create for our customers. In my site visits around the business I have seen how our people are engaged in delivering on our global sustainability objectives, together with focusing on local initiatives that benefit the communities in which they work.

We continue to make steady progress towards reaching our target of a net zero carbon footprint by 2050 at the latest. Achieving this ambition will require capital investment, and the development and adoption of new production technologies. However, we have clear priorities, targets and milestones identified as we progress on this journey and are dedicated to achieving this important goal.

The Board and governance

In 2023, we had a number of changes to the Board. We welcomed Carla Bailo, Mark Collis and Robert MacLeod and saw Jane Hinkley and Guy Young leave the Board.

Having served nine years on the Board, Douglas Hurt, Senior Independent Director, will be stepping down at this year's AGM, and we are pleased that Eva Lindqvist has agreed to join the Board as our new Senior Independent Director. She will be standing for election at the AGM. Eva is an engineer with more than 35 years' experience in global industrial and service businesses, and I know she will be a valuable addition to the Board.

On behalf of the Board, I would like to thank Douglas Hurt for his dedicated service, wise counsel and exceptional support over the years.

As in previous years, the Board conducted an evaluation of its performance in 2023, full details of which are set out in the Nomination Committee report. This process has again enabled us to reflect positively on the Board's role in adding value to the business as it pursues its strategic and operational objectives.

Dividend

The Vesuvius dividend policy aims to deliver long-term dividend growth, via a progressive dividend, provided this is supported by cash flow and underlying earnings, and is justified in the context of our capital expenditure requirements and the prevailing market outlook.

The Board has recommended a final dividend of 16.2 pence, bringing the total dividend for the year to 23.0 pence per share, which is a 3.4% year-on-year increase on the total dividend for 2022 of 22.25 pence per share. This represents a dividend cover of 2.0x compared to adjusted EPS for 2023.

If approved at the Annual General Meeting, this final dividend will be paid on 31 May 2024 to shareholders on the register at 19 April 2024.

On 4 December 2023, we launched a share buyback of up to £50m, which is expected to take 9–12 months to complete. This is part of our commitment to return cash to shareholders where it is not required for additional investment, while maintaining a strong and prudent balance sheet. During 2023, shares with a value of £3.1m were acquired (at an average price of 464 pence per share) and cancelled by the Company.

Annual General Meeting

The Annual General Meeting will be held on 15 May 2024. The Notice of Meeting and explanatory notes containing details of the resolutions to be put to the meeting accompany this Annual Report and are available on our website: www.vesuvius.com.

Looking ahead

Vesuvius has a clear strategy for growth and is well placed to deliver superior returns to our shareholders. In the months and years ahead, we will focus on delivering our strategic ambitions. We will continue to prioritise safety, drive innovation through our dedicated R&D capabilities, and deliver market-leading, technologically advanced products and solutions. We will drive efficiency in our operations and maintain a robust financial framework to support investment in the business, and where appropriate, acquisitions. The year ahead will no doubt present challenges, but I am confident we have the people, products and expertise to navigate these, and continue on our path of creating value for shareholders and delivering long-term sustainable growth.

On behalf of the Board, I would like to thank our shareholders, employees and customers for their continued support, and I look forward to reporting on further successes in the coming year.

Carl-Peter Forster
Chairman
28 February 2024

Chief Executive's strategic review

"Resilient results despite a challenging trading environment. Top line and profitability growth initiatives fully on track."

Patrick André
Chief Executive

Our ambitions

In November 2023, we presented our strategy and medium-term targets to investors at our Capital Markets Event. We highlighted favourable medium-term trends in our end-markets, and, through our market-leading investment in research and development, demonstrated our ability to gain market share while pricing for the value we generate for our customers. We also set out a cost reduction programme to achieve £30m of annually recurring cost savings in 2026. This programme will cover all our activities worldwide and will focus on operational improvement, lean initiatives, automation and digitalisation as well as further optimisation of our manufacturing footprint. We remain very optimistic about the future of Vesuvius, with ambitious plans for the next three years.

Our performance in 2023

In 2023, we delivered very resilient results and profitability despite a difficult market environment, and we continued to make good progress in the implementation of our strategic top line and profitability growth initiatives.

Our steel markets, after some limited improvement during H1 2023 from the very low level of H2 2022, weakened again during H2 2023. This was particularly pronounced in Europe (EU+UK) where steel production declined 7.3% in 2023 as compared with the previous year, 5% below the worst year of the pandemic in 2020. Steel markets were also particularly difficult in South America, where production declined 5.8% as compared with the previous year. India was, in 2023, for the second year in a row, the only major region in the world to exhibit a strong growth of 11.8%. Steel production in China was stable, but Chinese net steel exports increased very significantly during the year, putting pressure on all steel producers outside China, with the exception of those in the US who were insulated by efficient trade protections. Overall, steel production in the world excluding China, Russia, Iran and Ukraine declined by 0.7% in 2023, after a decline of 3.9% in 2022.

Our foundry markets, with the exception of India, also remained weak in 2023, particularly in Europe (specifically in and around Germany), in China and in South America. Weakness in non-automotive sectors more than offset a limited recovery in the automotive sector. Destocking of the excess casting inventories accumulated during the pandemic also had a negative impact on our end-markets.

Our Strategic Targets

Background

Positive medium-term market dynamics

There are positive growth trends in both the steel and foundry markets. A positive inflection in the volume growth of the steel market outside China is widely expected and this will change the trend seen over the past 10–15 years of market decline outside China.

This change is evidenced by new investment in steel plant capacity by the world's major steel makers. While the near-term outlook can sometimes be uncertain, we expect to have a tailwind of growing markets in the medium term.

We will focus on leveraging our technological differentiation to outperform growing end-markets.

The core of our strategy is creating technologically differentiated products and solutions through market-leading R&D investment, and then commercialising this benefit.

This is validated by the success we have achieved to date. Revenue from our Steel business grew 30% in the five years between 2017 and 2022 despite our addressable market decreasing by 18% over the same period.

We aim to:

1

Achieve a Return on Sales of at least 12.5%, by 2026

This will be delivered through revenue growth supported by market share gains and pricing improvements from our differentiated products, plus a further cost saving programme to deliver £30m of savings in 2026, driven by the benefits of automation and digitalisation.

2

Generate strong and recurring free cash flow of at least £400m between 2024 and 2026

This is possible due to our asset-light business model, our disciplined approach to capital investment and a focus on optimising working capital.

The resulting cash generated will be returned to shareholders unless required for acquisitions, which we undertake on a highly selective basis.

3

Achieve £30m of annually recurring costs savings by the end of 2026

This programme will cover all our activities worldwide and will focus on operational improvement, lean initiatives, automation and digitalisation as well as further optimisation of our manufacturing footprint.

Our capital allocation priorities

Organic investment

- Consistent and targeted R&D expenditure of c.2% of revenue per annum
- Capex expected to return to sustaining levels in 2025

Shareholder returns

- Long-term dividend growth via a progressive dividend
- Focus on maintaining a prudent balance sheet (c.1.0-2.0x net debt/EBITDA)
- Surplus capital available for additional shareholder returns

Inorganic investment

- Highly selective acquisition filter, with strategic factors focused on geographic or technology complementarity
- Very stringent financial hurdles for investment

Chief Executive's strategic review continued

Robust results and profitability thanks to positive pricing performance in all Business Units and market share gains in Flow Control and Foundry

Both the Steel and Foundry Divisions achieved positive pricing performance in 2023, sharing the value we create for our customers through our technology leading products and solutions and fully compensating for increases in our cost base from the continuing inflationary environment.

At the same time, both the Flow Control and the Foundry Business Units continued to gain market share in most regions, with the exception of Europe (EU+UK) for Flow Control where the Business Unit was negatively impacted by destocking at certain key customers and where we applied strict credit limit rules limiting our sales to customers at heightened risk of insolvency.

This ability to simultaneously improve market share and prices in both Flow Control and Foundry was again made possible by the technological differentiation of our products and solutions, driven by our market-leading investment in research and development.

In the Advanced Refractories Business Unit however, we lost market share in 2023, particularly in Europe, as we gave priority to pricing.

Thanks to this overall positive pricing performance and to our market share gains in Flow Control and Foundry, we delivered resilient results in 2023 despite the very challenging market environment. Our revenue reached £1,930m (versus £2,047m in 2022), our trading profit reached £200m (versus £227m in 2022) resulting in a return on sales of 10.4% (versus 11.1% in 2022), demonstrating again the positive impact of our cost competitiveness and technology strategy.

Successful implementation of our growth generating investment programme in Flow Control and Asia

The growth-generating investment programme we initiated in 2021 continues apace and will support the progression of our results and profitability in the years to come. The expansion of our VISO, slide-gate and mould flux production capacity in Flow Control will be fully operational by mid-2024 and will support the Business Unit's expansion in India, South East Asia, EEMEA and North America. In China, our new Foundry flux production line is now fully operational and will enable the Business Unit to accelerate its penetration of the fast-growing aluminium foundry market in the country. In Advanced Refractories, the expansion of our basic monolithics, AlSi monolithics and precast capacity at our new flagship plant in Vizag, India will be completed by the end of 2024 and will support the profitable growth of the Business Unit in India and South East Asia.

Strong free cash flow generation

Thanks to our stringent cash management discipline and positive progress in the management of our trade working capital, our cash conversion ratio reached 93% in 2023. This enabled us to maintain a very low debt leverage ratio of 0.9x, despite our capital expenditure being temporarily higher than the long-term average, to increase our dividend and to launch a £50m share buyback programme at the end of 2023.

Our free cash flow generation is expected to improve further from 2025, when our strategic expansion programme will be complete and capex should return to a more normalised level.

Continued progress in the productivity of R&D and new product development

We again increased our investment in research and development in 2023, spending £37.4m, an uplift of 3.7% over 2022 (on a constant currency basis). This was fully expensed in our profit and loss statement. Our two main focus areas remain: innovation in materials science, with an objective to continuously improve the performance of our consumables; and, the development of mechatronics solutions to enable our customers to substitute the operators who manipulate our consumables, with robots and by doing so improve the safety, reliability, cost and quality performance.

We successfully launched 21 new products in 2023. Our New Product Sales ratio, defined as the percentage of our sales realised with products which didn't exist five years ago, reached 17.6%, up from 16.4% in 2022.

Thanks to the continuous efforts we are putting into R&D, we now have a full pipeline of products under development which will be progressively introduced to the market over the next three years to support our ambition to grow our top line and profitability.

Best ever safety performance

We achieved our best ever safety results in 2023 with a Lost Time Incident Frequency Rate of 0.6 vs 1.08 in 2022, which now positions us amongst the 'best in class' companies worldwide. This is the result of many years of effort to integrate safety as the number one priority in our company culture. Our ultimate goal remains for us to be a zero-accident company and we will intensify our efforts to continue progressing rapidly towards this objective.

Our journey to net zero

In 2023, we continued to implement our action plan to decarbonise our activities. In particular, we reinforced our energy savings initiatives and continued our programme to switch our electricity consumption worldwide to non-carbon emitting sources. Thanks to these efforts, we reduced our carbon intensity by 20.2% vs our 2019 reference year (18.5% reduction in 2022), achieving our 2025 objective two years ahead of schedule and setting us on track to achieve our next intermediate target of a 50% reduction by 2035.

Cyber update

On 6 February 2023, we announced that we had suffered a major cyber security incident. Thanks to the protective measures the Group had implemented in prior years, there was no disruption of supply to customers, and the overall cost of the incident was limited to £3.5m. We have analysed the event in detail and derived the necessary learnings. This has enabled us to improve our protection further to help minimise both the risk and severity of any subsequent incidents.

On track to achieve our mid-term growth and profitability objectives

Despite the short-term uncertainties in our steel and foundry end-markets, we remain confident in their mid- to long-term growth potential, and in particular growth in the steel market outside China, which should be a tailwind for Vesuvius.

The strength of our technology-based business model should also enable us to continue to simultaneously outperform our underlying markets in Flow Control and Foundry and maintain positive pricing performance for all our Business Units in the years to come. This, coupled with our relentless drive to optimise our cost base, as illustrated by the launch of our new cost optimisation programme, positions us well to achieve our objectives of a 12.5% return on sales by 2026 and cash flow generation of £400m over the next three years.

Patrick André
Chief Executive
28 February 2024

Investment proposition

Why invest in Vesuvius? Strategic framework How we will achieve this

Principal reasons to invest

We offer a compelling investment proposition with exciting potential for profit and cash generation

Vesuvius operates in growing markets

We believe that the steel market is inflecting to growth in the world outside China, where we earn more than 90% of our revenue. At the same time, there is a global move toward technical steel products and consumption, where our Flow Control sales are strongly weighted. Our Foundry markets are also expected to grow.

We have a global presence

Our worldwide footprint, particularly in the world's fastest growing markets, enables us to deliver on safety, quality, sustainability and value across all of the world's steel-making and foundry casting regions.

Vesuvius has a technology-based strategy

We spend c.2% of our annual revenue on R&D, allowing us to maintain strong technological differentiation in our products. Our investment in R&D is measured by our percentage of New Product Sales, and we aim to realise 20% of our sales annually from products which didn't exist five years ago.

Superior technology drives financial outperformance

We expect to outperform underlying markets by on average 2% per annum, using our technology leadership to gain market share, optimise pricing, and share the value we generate for our customers. Refractories only represent c.3% of the production costs of our customers.

We have a strong sustainability strategy

We aim to help customers reduce their environmental impact in addition to delivering on our own challenging targets for safety, carbon intensity reduction, gender diversity and other measures.

Vesuvius has strong and recurring free cash flow

Our business model delivers consistent cash flow due to our low capital intensity, high level of recurring revenue, and the underpin of working capital discipline. This cash flow will be available for further investment or return to shareholders.

Our business model

Our markets

Positive growth trends in steel and foundry markets

Our resources

Decentralised, entrepreneurial, non-matrix organisation

55
55 production sites on 6 continents

6
R&D centres of excellence

13,500
people in our skilled and motivated workforce

Our Values

Courage
Ownership
Respect
Energy

Financial capital

We use the cash generated by our business to invest in innovation, people, operating assets, technology and sales to generate further growth

Global supply network

We work closely with a wide range of suppliers to establish reliable and well-developed sustainable supply chains to secure high-quality raw materials

What we are doing

1 Technological leadership and product differentiation through investment in R&D

Our network of talented scientists and technicians create differentiated products and solutions, maintaining our technology leadership

Link to page 22

2 Customer service

Our customer intimacy and deep knowledge of their processes and requirements give our engineers an unparalleled ability to deliver on customer needs

Link to page 23

3 Efficient operations

Our continuous focus on improvements in our manufacturing base, production processes and IT and support functions maintains the efficiency of our operations

Link to page 23

4 Investment in growth regions

Our global footprint enables us to capitalise on shifting dynamics in the global steel market

Link to page 23

Underpinned by a strong sustainability strategy

Link to page 34

Creating value

Safety
Better environments and outcomes for Vesuvius staff and customers

Quality
Optimised products driving better steel, and better castings

Efficiency
Cheaper casting and steel through reduction of input costs

Sustainability
Less energy usage and fewer CO_2 emissions in our processes and our customers' processes

Rewarding careers
We encourage and reward high performance to create an environment where all can realise their individual potential

Return for investors
Optimised pricing and market share gains driving improved profitability

Steel

Flow Control
Sensors & Probes
Advanced Refractories

Link to page 4

Foundry

Link to page 6

To achieve

Outperform our underlying markets by ~ 2%

>12.5%
Return on sales in 2026

£30m
Recurring annual cost savings by 2026

£400m
free cash flow between 2024 and 2026

Our drivers for profitable growth

Why invest in Vesuvius? | Strategic framework | **How we will achieve this**

We have four strategic pillars which will help us achieve our financial targets. These are underpinned by our universal focus on safety, our investment in our people and our long-term sustainability strategy.

1 Technological leadership and product differentiation through investment in R&D

Leading R&D will underpin Vesuvius' growth in the next five years.

We have built up a global network of expert scientists, engineers and technicians, based across our six R&D centres of excellence, who combine product expertise with the provision of specialist support to our customers.

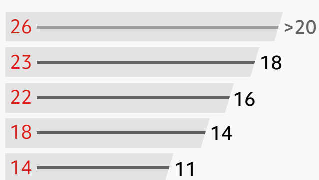
Our strategy of continual investment in R&D has resulted in a growing proportion of our sales being attributable to new products (those launched in the past five years). This is expected to exceed 20% by 2026.

c.250 scientists and technicians across 18 nationalities

R&D centres of excellence

New product sales ratio
%

2026 Target: >20%



Definition: new product sales (products launched in past five years) as a percentage of total sales. Source: Company analysis.

Optimised pricing and market share gains

Our strong technological leadership enables us to deliver pricing optimisation through a combination of (1) passing-through cost fluctuations and (2) value-sharing with customers.

The pass through of costs lowers our exposure to fluctuations in the raw material markets and reduces earnings volatility.

The trend towards more technically advanced steel and castings increases customers' demands for our differentiated products, providing further opportunities for us to share in the value that our solutions create.

Current product portfolio and profit analysis	Audit customer's process and product portfolio to estimate the current cost of ownership
New product performance evaluation	Develop and then trial a new solution to maximise value for the customer
Value-based pricing calculation	Optimise pricing based on superior value creation

Example:
Durasleeve* product (new VISO piece)

20% longer product life

Value creation to the customer of >20%

Agreed pricing on a value-sharing basis

* Trademark of the Vesuvius Group of companies, unregistered or registered in certain countries, used under licence.

2 Customer service

We provide on-site support to our customers, with Flow Control maintaining a continuous presence at our customers' sites.

This level of intimacy, together with our materials science, fluid and computer modelling expertise, enables us to provide high-quality, tailored solutions to our customers. These are supported where appropriate by industry leading mechatronics, to secure an ongoing revenue stream from our consumable products.

3 Efficient operations

We have identified an incremental £30m of annually recurring savings which we intend to realise in the next three years. The majority of these savings will be achieved through our lean and continuous improvement programmes, and through the automation and digitalisation of our manufacturing and administrative processes.

Lean and continuous improvement programmes

Automation and digitisation of manufacturing and administrative processes

c.75% benefit

Further optimisation of manufacturing footprint

c.25% benefit

4 Investment in growth regions

Our existing programme of growth capital expenditure will be completed in 2024, after which expenditure will return to more normalised levels.

In 2023, work continued on construction of our new flux plant in Vizag, India and on our new basic monolithics, AlSi-monolithics and precast manufacturing plant on the same site. These investments, together with capacity expansions in other manufacturing sites will serve future growth in our key markets of India and South East Asia.

Support to above-market growth in Flow Control

- Expansion of VISO, slide-gate and flux capacity worldwide

Global expansion in India and South East Asia

- Investing in state-of-the-art new capacity in the high-growth Indian market
- Expanding capacity at existing Kolkata site and developing new site in Vizag
- VISO capacity
- Flux plant
- Basic Mono, AISI Mono and precast lines
- Foundry filters line
- Space for further investment

Operating review

Steel Division

Revenue

£1,400m

Trading profit

£148m

Vesuvius comprises two Divisions, Steel and Foundry. The Steel Division operates as three Business Units, Flow Control, Advanced Refractories and Sensors & Probes.

Changes described are versus 2022 on an underlying basis, excluding the impact of FX, unless otherwise noted. There were no acquisitions or disposals in 2023 and hence no adjustments were required.

Vesuvius' Steel Division reported revenues of £1,400.0m in 2023, a decrease of 3.7%, reflecting positive revenue growth of 0.6% in the Flow Control business despite the difficult market conditions. This was due to good pricing performance and market share gains in most markets. Advanced Refractories' revenue declined 9.4% in 2023, due to the prioritisation of pricing over volume in EMEA and the Americas, more than offsetting market share gains in Asia.

Revenue from Sensors & Probes was broadly flat due to market share gains offsetting market decline.

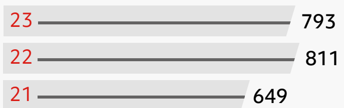
Steel Division trading profit reduced by 9.6% to £147.6m, due to the negative drop through impact of reduced volumes in the Division, partially compensated by a positive pricing performance enabling the Division's return on sales to contract only 70bps to 10.5%.

Steel Division	2023 (£m)	2022 (£m)	Change (%)	Underlying change (%)
Flow Control revenue	**793.0**	810.9	(2.2%)	0.6%
Advanced Refractories revenue	**567.9**	645.3	(12.0%)	(9.4%)
Sensors & Probes revenue	**39.1**	40.2	(2.8%)	(0.6%)
Total Steel Revenue	**1,400.0**	1,496.4	(6.4%)	(3.7%)
Total Steel Trading Profit	**147.6**	172.7	(14.6%)	(9.6%)
Total Steel Return on Sales	**10.5%**	11.5%	-100bps	-70bps

Flow Control

Revenue
£m

£793m



Pascal Genest
President, Flow Control

In 2023, revenue in the Group's Flow Control business increased by 0.6% year-on-year to £793.0m, driven by a strong pricing performance and overall market share gains, offset by market, destocking and customer-related volume declines.

In EMEA, revenue declined 6.2% compared to 2022, broadly in line with declines in steel production (in EMEA excluding Russia, Ukraine and Iran) of 5%. This comprised an out-performance in EEMEA (excluding Iran, Russia and Ukraine) where the steel market was broadly flat and where we gained market share, offset by volume declines higher than the steel market evolution in the EU+UK reflecting a combination of the weak market, destocking by our European customers and voluntary reduction of our sales to some customers at risk of insolvency.

Flow Control Revenue	2023 (£m)	2022 (£m)	Change (%)	Underlying change (%)
Americas	**317.8**	321.4	(1.1%)	1.3%
Europe, Middle East and Africa (EMEA)	**252.7**	275.4	(8.2%)	(6.2%)
Asia-Pacific	**222.4**	214.1	3.9%	8.7%
Total Flow Control Revenue	**793.0**	810.9	(2.2%)	0.6%

In the Americas, our underlying revenue grew 1.3% reflecting out-performance of the market in the US (volumes +1.1% against a market +0.2%) and in South America (stable sales volumes versus a declining market), and resilient pricing. This good performance was partly offset by challenges in Mexico, where a major customer in which we had a very strong market share ceased operations at the end of 2022.

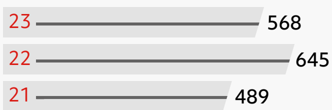
In Asia Pacific, revenue grew 8.7%, driven by exceptionally strong sales volume growth in both India and China, materially exceeding market volume growth in these two countries. We also outperformed the market in South East Asia, with modest volume growth versus market volume declines of -6.5%.

Operating review continued

Advanced Refractories

Revenue
£m

£568m



Richard Sykes
President, Advanced Refractories

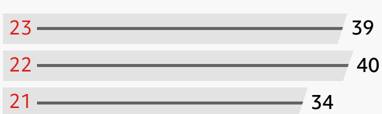
Advanced Refractories reported revenue of £567.9m in 2023, a decrease of 9.4%, principally reflecting volume declines, with overall stable pricing. Volume decline was higher than the underlying steel market in both the Americas and EMEA due to market share losses associated with priority having been given to pricing, and destocking in EMEA. Market share started to recover in EMEA in the second half. In Asia Pacific however, revenue grew 1.5% driven by double-digit volume increases in India and China, materially ahead of the market, partially offset by more difficult trading conditions in South East Asia.

Advanced Refractories Revenue	2023 (£m)	2022 (£m)	Change (%)	Underlying change (%)
Americas	**212.1**	244.5	(13.3%)	(11.5%)
Europe, Middle East and Africa (EMEA)	**191.5**	230.9	(17.0%)	(15.1%)
Asia-Pacific	**164.3**	169.9	(3.3%)	1.5%
Total Advanced Refractories Revenue	**567.9**	645.3	(12.0%)	(9.4%)

Steel Sensors & Probes

Revenue
£m

£39m



Davide Guarnieri
President, Steel Sensors & Probes

Revenue in Steel Sensors & Probes was £39.1m in 2023, broadly flat year-on-year, reflecting market share gains offsetting a declining market. We expect our sales volume in the coming years to continue to outperform the underlying steel market due in particular to an increased penetration in Asia where we have been performing several successful customer trials.

Steel Sensors & Probes Revenue	2023 (£m)	2022 (£m)	Change (%)	Underlying change (%)
Americas	**28.2**	29.1	(2.9%)	0.5%
Europe, Middle East and Africa (EMEA)	**10.2**	10.7	(5.0%)	(6.0%)
Asia-Pacific	**0.6**	0.4	77.8%	85.0%
Total Steel Sensors & Probes Revenue	**39.1**	40.2	(2.8%)	(0.6%)

Foundry Division

Revenue

£530m

Trading profit

£53m

Karena Cancilleri
President, Foundry

Vesuvius' Foundry Division reported revenues of £529.8m in 2023, a decrease of 1.5%, reflecting revenues contracting in EMEA and the Americas while expanding in Asia-Pacific. After a positive start to the year, trading was difficult in the second half due to significant market weakness in the northern part of EMEA (historically an important market area for our Foundry Division), in South America and in China. This market weakness was partially but not entirely compensated for by market share gains in all regions and a positive pricing performance. Foundry revenues in the Americas fell 5.8% year on year, driven by contraction in South America partially offset by modest growth in North America.

Foundry revenue	2023 (£m)	2022 (£m)	Change (%)	Underlying change (%)
Americas	136.4	145.5	(6.2%)	(5.8%)
Europe, Middle East and Africa (EMEA)	215.1	224.7	(4.3%)	(3.0%)
Asia-Pacific	178.3	180.8	(1.4%)	4.2%
Total Foundry Revenue	**529.8**	551.0	(3.8%)	(1.5%)
Total Foundry Trading Profit	**52.8**	54.5	(3.1%)	2.5%
Total Foundry Return on Sales	**10.0%**	9.9%	+10bps	+40bps

In EMEA, underlying revenue decreased by 3.0%, driven by a slowdown in Germany and more generally Northern Europe, as well as broader regional destocking. Performance in Asia was largely positive with revenue up 4.2%, reflecting very strong growth in India and market share gains in China, progressively increasing the relative importance of this region in the Foundry Division. This trend should continue in the coming years.

For the third year in succession, the Foundry Division delivered an increase in its return-on-sales. Trading profit increased 2.5% (on an underlying basis) to £52.8m and return-on-sales increased by 40bps to 10%. This improvement trend should accelerate when end-markets recover, especially in Northern Europe and South America.

Financial Key Performance Indicators

Financial KPIs[1]

Strategic Value alignment	KPI	Purpose	Link to remuneration
Return for Investors p21	**Underlying revenue growth** % 23 -3 22 18 21 18	Provides an important indicator of organic (like-for-like) growth of Group businesses between reporting periods. This measure eliminates the impact of exchange rates, acquisitions, disposals and significant business closures	
	Return on sales % 23 10.4 22 11.1 21 8.7	Reflects the operating profit margin achieved	
	Headline EPS p 23 46.7 22 56.5 21 35.3	Used to assess the underlying earnings performance of the Group as a whole	**Annual Incentive Plan and Vesuvius Share Plan** – Read more about these on p123-128
	Return on invested capital % 23 8.9 22 10.7 21 7.5	Used to assess the financial performance of the Group	**Annual Incentive Plan and Vesuvius Share Plan** – Read more about these on p123-128
	Free cash flow £m 23 128 22 123 21 -0.3	Used to assess the underlying cash generation of the Group	
	Average working capital to sales % 23 23.4 22 23.8 21 20.9	One of the factors driving the generation of free cash flow is the average working capital to sales ratio, which indicates the level of working capital used in the business	**Annual Incentive Plan** – Read more about this on p123, 126 and 127
Efficiency & Sustainability p21	**Total R&D spend** £m 23 37 22 36 21 31	At constant 2023 currency	
	New product sales % 23 18 22 16 21 15	Sales of products launched within the last five years as a % of total revenue	

1. For definitions of alternative performance measures, refer to Note 35 of the Group Financial Statements.

Details of the Group's **Non-financial KPIs** can be found in the **Non-financial and Sustainability Information Statement** on page 35.

Financial review

"Strong commercial performance counteracted challenging markets."

2023 performance overview

2023 was a robust year in terms of trading profit and return on sales, despite the depressed underlying markets, and we have continued to generate significant free cash flow. This has enabled the Board to recommend an attractive final dividend to our shareholders and initiate a share buy-back, while maintaining investment in strategic areas.

Revenue for the year decreased by 5.7%, of which 2.6% related to FX headwinds and 3.1% underlying performance. Underlying revenue was driven by a decline in volume (-5.5% partially offset by positive pricing of +2.3%). On a reported basis, the Steel and Foundry Division revenue decreased by 6.4% and 3.8% respectively in the year.

We achieved a trading profit of £200.4m, down 11.8% on a reported basis of which 6.7% was underlying and 5.1% related to FX headwinds. Within the underlying profit changes, there was a £48.4m decline due to the drop-through from volume declines, partially offset by a positive contribution of £32.1m from net pricing, with the remainder due to the impact of the February 2023 cyber attack (£3.5m cost) and other non-recurring one-off items (£5.5m benefit), which largely arose in H2. Return on sales of 10.4% was down 40bps on an underlying basis. The reduction in trading profit and Return on Sales is primarily due to the drop-through impact of volume declines.

The pattern of trading in the year was relatively strong in H1, while trading in H2 was somewhat weaker, reflecting both seasonality and weaker market conditions, notably in Europe.

The net impact of average 2023 exchange rates compared to 2022 averages has been a headwind of £12.5m at a trading profit level, in particular, due to the depreciation of the Turkish Lira, Indian Rupee, Chinese Renminbi and the Argentine Peso versus Sterling. Translated at FX rates as at 28 February 2024, FY23 revenue would be c. £1,875m and trading profit would be c. £191m.

Investment in R&D is central to our strategy of delivering market-leading product technology and services to customers. In 2023 we spent £37.4m on R&D activities (2022: £35.9m), which represents 1.9% of our revenue (2022: 1.8%).

Net Interest cost for FY23 was broadly flat year on year at £11.6m (2022: £11.4m), reflecting both an increase in net interest expense and interest income due to the higher interest rate environment and some small deposits held in high inflation-rate countries.

Profit from joint ventures and associates was broadly flat year on year at £0.9m (2022: £1.2m).

Headline profit before tax ('PBT') was £189.7m, down 12.6% versus last year on a reported basis. Including amortisation (£10.3m), PBT of £179.4m was 13.2% lower than last year.

Basis of preparation

All references in this financial review are to headline performance unless stated otherwise. See Note 35.1 to the Group Financial Statements for the definition of headline performance.

We also report key metrics on an underlying basis, where we adjust to ensure appropriate comparability between periods, irrespective of currency fluctuations and any business acquisitions and disposals.

This is done by:

- Restating the previous period's results at the same foreign exchange (FX) rates used in the current period
- Removing the results of disposed businesses in both the current and prior years
- Removing the results of acquired businesses in both the current and prior years

Therefore, for 2023, we have:

- Retranslated 2022 results at the FX rates used in calculating the 2023 results
- No adjustments have been required for acquisitions or disposals

Mark Collis
Chief Financial Officer

Financial review continued

Revenue

	2023	2022			% change	
£m	Reported	Reported	Currency	Underlying	Reported	Underlying
Steel	**1,400.0**	1,496.4	(42.0)	1,454.5	(6.4%)	(3.7%)
Foundry	**529.8**	551.0	(13.3)	537.7	(3.8%)	(1.5%)
Total Group	**1,929.8**	2,047.4	(55.3)	1,992.1	(5.7%)	(3.1%)

Trading profit

	2023	2022			% change	
£m	Reported	Reported	Currency	Underlying	Reported	Underlying
Steel	**147.6**	172.7	(9.6)	163.2	(14.6%)	(9.6%)
Foundry	**52.8**	54.5	(3.0)	51.5	(3.1%)	2.5%
Total Group	**200.4**	227.2	(12.5)	214.7	(11.8%)	(6.7%)

Return on sales

	2023	2022			% change	
£m	Reported	Reported	Currency	Underlying	Reported	Underlying
Steel	**10.5%**	11.5%		11.2%	(100bps)	(70bps)
Foundry	**10.0%**	9.9%		9.6%	+10bps	+40bps
Total Group	**10.4%**	11.1%		10.8%	(70bps)	(40bps)

A key measure of tax performance is the Headline Effective Tax Rate ('ETR'), which is calculated on the income tax associated with headline performance, divided by the headline profit before tax and before the Group's share of post-tax profit of joint ventures. The Group's headline ETR, based on the income tax costs associated with headline performance of £51.9m (2022: £57.2m), was 27.5% (2022: 26.5%).

The Group's total income tax costs for the period include a credit within separately reported items of £3.1m (2022: £39.1m) which primarily relates to deferred tax on intangible assets.

A tax charge reflected in the Group Statement of Comprehensive Income in the year amounted to £2.0m (2022: £8.2m charge) which primarily relates to tax on net actuarial gains and losses on pensions.

We expect the Group's effective tax rate on headline profit before tax and before the share of post-tax profits from joint ventures to be around 27.5%, dependent on profit mix, in 2024.

Non-controlling interests principally comprise the minority holdings in Indian subsidiaries for the Steel and Foundry businesses. This increased to £12.1m in 2023 (2022: £7.4m) reflecting the strong growth in profit in those subsidiaries.

Headline EPS from continuing operations at 46.7p was 11.9% lower on an underlying basis than 2022, reflecting both the lower profit and the higher level of non-controlling interests.

Dividend

The Board has recommended a final dividend of 16.2 pence per share to be paid, subject to shareholder approval, on 31 May 2024 to shareholders on the register at 19 April 2024. When added to the 2023 interim dividend of 6.8 pence per share paid on 15 September 2023, this represents a full-year dividend of 23.0 pence per share. The last date for receipt of elections from shareholders for the Vesuvius Dividend Reinvestment Plan will be 9 May 2024.

Cost-saving programme

We have initiated an efficiency programme to realise recurring savings of £30m per annum by 2026, of which c.£3m is expected to be delivered in 2024. We expect to achieve a run-rate of c.£10–15m savings by the end of 2024. The programme costs are expected to be c.£40m, estimated to be split £30m/£10m to capex and operating expense respectively, of which c.£6m of operating expense is expected to be incurred in 2024. Material restructuring costs will be excluded from underlying performance, allowing for a clear measure of our operating performance.

Cash flow and balance sheet

Our cash management performance was robust, achieving an 93% cash conversion (2022: 82%), thanks to a good operational performance and an inflow from trade working capital, partially offset by a continued investment in strategic capacity expansion. As a result, we have reduced our net debt position and maintained our leverage ratio of net debt to EBITDA at 0.9x at 31 December 2023.

We measure working capital both in terms of actual cash flow movements, and as a percentage of sales revenue. Trade working capital as a percentage of sales in 2023 improved to 23.4% (2022: 23.8%), measured on a 12-month moving average basis. In absolute terms on a constant currency basis trade working capital decreased by £20.9m in 2023 to £420.3m. The reduction was principally due to a fall in inventory days (from 89.9 to 88.9, 12m average, December 2022 to 2023), broadly flat debtor days (78.0 to 77.6, 12m average, December 2022 to 2023) and flat creditor days (64.9 days, 12m average). The 12-month rolling average measurement masks the phasing in the year, with working capital peaking in H1 and then falling progressively in Q3 and Q4 as a percentage of revenue. We intend to continue to reduce our working capital intensity in 2024.

Free cash flow from continuing operations was £128.2m in 2023 (2022: £123.1m).

Capital expenditure

Cash capital expenditure in 2023 was £92.6m (2022: £89.2m) (£125.3m including capitalised leases) of which £93.2m was in the Steel Division (2022: £85.2m) and £32.1m in the Foundry Division (2022: £18.7m). Capital expenditure on revenue-generating customer installation assets, primarily in Steel, was approximately £9m (2022: £8m) and we spent c. £30m in 2023 on growth capex, largely focused on expansion in Flow Control worldwide and, more specifically, in Asia for all three Business Units. Total cash capex in 2024 is expected to be c.£100m, of which growth capex is expected to be c.£30–35m. Capital expenditure will then revert to more normalised levels from 2025 onwards.

The Group had committed borrowing facilities of £685.8m as of 31 December 2023 (2022: £721.9m), of which £333.4m was undrawn (2022: £322.5m).

Net debt

Net debt on 31 December 2023 was £237.5m, a £17.5m decrease from £255.0m on 31 December 2022, due to significant free cash flow partially offset by a return to shareholders of £63.8m by way of dividends and share buyback, by right of use asset additions of £31.2m and by a foreign exchange adjustment of £11.3m.

At the end of 2023, the net debt to EBITDA ratio was 0.9x (2022: 0.9x) and EBITDA to interest was 31.5x (2022: 29.8x). These ratios are monitored regularly to ensure that the Group has sufficient financing available to run the business and fund future growth.

The Group's debt facilities have two financial covenants: the ratios of net debt to EBITDA (maximum 3.25x limit) and EBITDA to interest (minimum 4x limit). Certain adjustments are made to the net debt calculations for bank covenant purposes, the most significant of which is to exclude the impact of IFRS 16.

Return on invested capital (ROIC)

Our ROIC for 2023 was 8.9% (2022: 10.7%). Excluding goodwill on our balance sheet from the acquisition of Foseco in 2008, ROIC for 2023 would be 14.3%. ROIC is our key measure of return from the Group's invested capital, calculated as trading profit less amortisation of acquired intangibles plus share of post-tax profit of joint ventures and associates for the previous 12 months after tax, divided by the average (being the average of the opening and closing balance sheet) invested capital (defined as: total assets excluding cash plus non-interest-bearing liabilities), at the average foreign exchange rate for the year).

Pensions

The Group has a limited number of historical defined benefit plans located mainly in the UK, USA, Germany and Belgium. The main plans in the UK and USA are closed to further benefits accrual. All of the liabilities in the UK were insured following a buy-in agreement with Pension Insurance Corporation plc ('PIC') in 2021. This buy-in agreement secured an insurance asset from PIC that matches the remaining pension liabilities of the UK Plan, with the result that the Company no longer bears any investment, longevity, interest rate or inflation risks in respect of the UK Plan.

The Group's net pension liability at 31 December 2023 was £46.3m (2022: £56.1m liability).

Financial Risk Factors

The Group's approach to risk management, including the mitigations in place for our principal risks, is detailed on pages 77 and 78. We consider the main financial risk faced by the Group to be a material business interruption incident leading to reduced revenue and profit. We also manage broad financial risks such as cost inflation, bank financing and capital market activity and to a lesser extent foreign exchange and interest rate movements (see Note 24 to the Group Financial Statements). We mitigate liquidity risk by financing using both the bank and private placement debt markets and we mitigate refinancing risk by seeking to avoid a concentration of debt maturities in any one calendar year.

Mark Collis
Chief Financial Officer
28 February 2024

Progress on our Sustainability roadmap

Every day we focus on improving the sustainability of our operations and help our customers improve the safety, energy efficiency, yield and reliability of their processes

Non-Financial and Sustainability Information Statement

This Non-Financial and Sustainability Information Statement provides information on the Group's activities and policies in respect of:

Environmental matters Our planet	p39-55
Climate-related reporting TCFD	p36-55
The Company's employees Our people	p58-63
Social matters Our communities	p64-67
Respect for human rights Our communities	p64
Anti-corruption and anti-bribery matters Our communities	p65

This statement also details, where relevant, the due diligence processes implemented by the Company in pursuance of these policies.

Further information, disclosed in other sections of the Strategic Report is incorporated into this statement by reference including:

Information on the Group's principal risks Details of the Group's principal risks relating to these non-financial and sustainability matters are detailed in the Group's schedule of principal risks and uncertainties.	p77-78
Risk, viability and going concern	p72-78
Details of the Group's business model	p20-21
Details of the Group's non-financial KPIs	p35

Vesuvius' sustainability strategy brings together all our environmental, social and governance initiatives into one coordinated programme. The strategy is built on four pillars: our planet, our customers, our people and our communities.

Our Sustainability key priorities

We have set out four key sustainability strategic priorities. Targets for three of these are embedded into our management incentive arrangements.

1

Become a zero-accident company

The number one priority at Vesuvius is to provide our employees with a safe place to work. We were pleased to see continued progress with the reduction of our Lost Time Injury Frequency Rate (LTIFR) in 2023, recording a rate of 0.6 per million hours worked in 2023 which was significantly lower than 2022 (1.1).

However, there were two serious incidents involving not directly supervised contractors in 2023, and the LTIFR for not directly supervised contractors and visitors increased to 1.6 in 2023 (versus 1.0 in 2022). The safety of contractors working on Vesuvius' sites remains a key area of focus for the Group.

2

Reach net zero CO_2e emissions by 2050 (Scope 1 and Scope 2)

Between 2019 and 2023, our overall CO_2e emission intensity metric (CO_2e emissions per metric tonne of product packed for shipment, Scope 1 and Scope 2, market-based) reduced by 45.5%, vs a target of 20% by 2025. However, this number is skewed by the Group's reduction in the production of dolime during 2023, as a result of the temporary closure of one of our rotary kilns. If the kiln had been operating normally throughout the year, the pro forma 2023 CO_2e emission intensity would have been 20.2% lower than in 2019.

We have made considerable progress in energy conservation, with our conservation plan now in its third cycle of improvement. During 2024, we will continue to focus on further improvements, including modernising and upgrading equipment to reduce our energy consumption, and replacing high CO_2e emission electricity (generated from coal) with greener electricity or other sources of energy.

3

Help our customers reduce their CO_2 emissions

We help our customers improve the performance of their casting operations, thereby increasing the energy efficiency of their entire process.

In 2023, 83% of ongoing new product development projects were dedicated to market-leading sustainable products.

4

Improve gender diversity at every level of the Company

Women now represent 20% of our Senior Leadership Group (2022: 20%) which is a level that we consider is still too low, but which represents a significant improvement as compared with the level of 15% in 2019.

Our ambition remains to reach 25% by the end of 2025, though we see this as a challenging target given the relatively low attractiveness of our industry to female entrants. To meet this challenge we are placing greater emphasis on developing an internal pipeline of female talent.

External reporting

We are signatories to the UN Global Compact and report annually on our sustainability activities, commitments and progress. We are very proud of our progress to date and of the recognition we have received from leading rating agencies.

Future reporting requirements

We are monitoring the introduction of ISSB standards in the UK and going forward our reporting will reflect changes in the regulatory landscape. We have also started work on ensuring we have systems in place to comply with the European Union's CSRD requirements, which will be applicable to Vesuvius plc in 2029 and applicable to a number of our European subsidiaries in 2026. In 2024, we intend to carry out a gap assessment between our 2023 sustainability disclosures and the CSRD requirements, and build adequate plans.

External reporting & recognition

We are signatories to the UN Global Compact and report annually on our sustainability activities, commitments and progress.

We are very proud of our progress to date, as exemplified by the external recognition of the following rating agencies:

MSCI	AA
ecovadis	2023 ecovadis Gold
CDP	A-

Vesuvius' Environmental Policy

We commit to:

- Minimise direct and indirect CO_2 and other greenhouse gas emissions, by reducing the energy intensity of our business and using cleaner energy sources
- Minimise the consumption of water and other resources
- Reduce waste at source and during production
- Increase the usage of recycled materials and promote the development of the circular economy
- Minimise any pollution or releases of substances which could adversely affect humans or the environment
- Avoid negative impacts on biodiversity

See the full policy on www.vesuvius.com for further details.

2023 Reporting parameters

During 2023, our production of dolime was considerably reduced, following an incident which incapacitated one of our rotary kilns in January. As dolime production is the largest contributor to the Group's CO_2 emissions, the change in product mix skews environmental performance comparisons with prior years and with the 2025 target. In this report, we have therefore reported some pro forma numbers (as if the dolime process had been operating normally) to preserve meaningful comparability.

Our sustainability strategy and objectives

Creating a better tomorrow for our planet, our customers, our people and our communities

We create innovative solutions that help our customers improve their safety and quality performance, reduce their environmental footprint, become more efficient in their processes, and reduce costs. We work in close partnership with the most advanced steel-makers to develop the refractory products for the green steel-making and casting processes of the future.

We aim to deliver sustainable, profitable growth to provide our shareholders with a superior return on their investment, whilst providing our employees with a safe workplace where they are recognised, developed and properly rewarded.

Our Sustainability initiative sets out the Group's formal objectives and targets for supporting our customers, our employees and our communities, and for protecting our planet for future generations. It is embedded in the Group's overall strategy and informs how we deliver on our strategic priorities.

The Board has identified nine significant non-financial KPIs for the business, covering the Group's main Sustainability objectives. These KPIs were defined when the sustainability strategy was launched in 2020. Most targets associated with the KPIs have a deadline in 2025. Focus on these KPIs has been maintained in the following years. In 2024, we will begin work on selecting the 2030 targets and KPIs.

Our planet

- To tackle climate change by reducing our CO_2e emissions and helping our customers reduce theirs with our products and services. We are committed to reaching a net zero carbon footprint at the latest by 2050
- To engage in the circular economy by reducing our waste, recovering more of our products after they have been used and increasing the usage of recycled materials

p39

Our customers

- To support our customers' efforts to improve safety on the shop floor, especially exposure to hot metal
- To help customers improve their operational performance and thereby reduce their environmental footprint, and especially their CO_2 emissions

p56

Our people

- To ensure the safety of our people and everyone else who accesses our sites. This is our first priority. We take safety very seriously and are constantly striving to improve
- To offer growth opportunities to all our employees through training and career progression to develop diverse, engaged and high-performing teams

p58

Our communities

- To support the communities in which we operate, with a focus on promoting and supporting women's education in scientific fields
- To ensure ethical business conduct both internally and with our trading partners
- To extend our sustainability commitment to our suppliers and encourage them to progress

p64

Our planet Our customers Our people Our communities

Progress on our Sustainability targets

The Group's non-financial KPIs cover the Group's main Sustainability objectives. We have set stretching targets for the Group's sustainability KPIs to reach within set time frames. These are set out in the table below.

Strategic Value alignment	KPI	Measure	Target	2023 progress vs plan[1]	2023 progress	Link to remuneration
Safety p21	Safety	Lost Time Injury Frequency Rate	<1	●●●○	0.60	**Vesuvius Share Plan** – Read more about this on p123–128
Sustainability p21	Energy intensity	By 2025, reduce energy intensity per metric tonne of product packed for shipment (vs 2019)	-10%	●●○○	-7.2%[1,2,3]	
	CO_2e emission intensity	By 2025, reduce Scope 1 and Scope 2 CO_2e emission intensity per metric tonne of product packed for shipment (vs 2019)	-20%	●●●○	-20.2%[1,2,3]	**Annual Incentive Plan and Vesuvius Share Plan** – Read more about these on p123–128
	Wastewater	By 2025, reduce wastewater per metric tonne of product packed for shipment (vs 2019)	-25%	●○○○	-11.6%[1,2,3]	
	Solid waste	By 2025, reduce solid waste (hazardous and sent to landfill) per metric tonne of product packed for shipment (vs 2019)	-25%	●●●○	-19.7%[1,2,3]	
	Recycled material	By 2025, increase the proportion of recycled materials from external sources used in production	7%	●○○○	5.7%[1,2,3]	
Rewarding careers p21	Gender diversity	By 2025, increase female representation in the Senior Leadership Group (approx. 150 top managers)	25%	●●○○	20%	**Annual Incentive Plan and Vesuvius Share Plan** – Read more about these on p123–128
	Compliance training	Increase the percentage of targeted staff who complete anti-bribery and corruption training annually	90%	●●●○	100%	
Quality p21	Supply chain	By the end of 2023, conduct sustainability assessments of our raw materials suppliers (as a percentage of Group raw material spend)	50%	●●●●	52%	

Progress key

●○○○ Behind plan ●●○○ On plan ●●●○ Ahead of schedule ●●●● Target achieved

During 2023, our production of dolime was considerably reduced, following an incident in January which incapacitated one of our rotary kilns. As dolime production is a major contributor to the Group's tonnage and CO_2 emissions, the change in product mix skews environmental performance comparisons both with prior years and with the 2025 target. The table below therefore contains pro forma performance figures as if the dolime process had been operating normally to preserve meaningful comparability. The actual figures are set out in a footnote to the table.

1. Re-baselined using pre-acquisition data for the business acquired from Universal Refractories, Inc. (Vesuvius Penn Corporation), and BMC (Yingkou YingWei Magnesium Co., Ltd).
2. Pro forma: performance as if the dolime process had been operating normally in 2023.
3. Actual Group performance for 2023, with actual dolime production: Energy intensity -14.6%, CO_2e emission intensity -45.5%, Wastewater -4.0%, Solid waste -13.4%, Recycled material 6.5%.

Details of the Group's **Financial KPIs** can be found on page 28.

Task Force on Climate-related Financial Disclosures

The disclosures included in this Annual Report are consistent with the Task Force on Climate-related Financial Disclosures (TCFD) Recommendations and Recommended Disclosures, and have been prepared taking into account the Guidance for all sectors. The disclosure is also in accordance with FCA Listing Rule requirements.

This section provides the relevant disclosures or otherwise provides cross-references, in the table below, for where the disclosures are located elsewhere in the Annual Report.

In preparing this TCFD disclosure we considered recent developments in global affairs and macro trends, such as:

- The acceleration of the growth of the electric vehicle market (and consequently the faster peak and decline of the hybrid vehicle market)
- The energy crisis and price gaps that appeared between regions, and at the same time, the rapid reduction of the cost per installed kWh of renewable energy and associated massive investments plans
- The development and implementation of policies in all regions aimed at accelerating the transition to renewable sources of energy and the decarbonisation of industry

We concluded that the underlying assumptions and drivers of our scenario analysis, and the risks and opportunities that we have identified, do not require any significant modification this year.

We are aware of a growing acceptance that the 1.5°C global warming ambition will not be met, which supports the assumption in our scenario plans that the most optimistic scenario is a 2°C increase in global warming.

Topic		Disclosure summary	Vesuvius disclosure	
Governance	Disclose the organisation's governance around climate-related risks and opportunities.	a Describe the Board's oversight of climate-related risks and opportunities.	*Sustainability: TCFD* *Risk, viability and going concern* *Directors' Remuneration Report*	p37 p72-78 p108-135
		b Describe management's role in assessing and managing climate-related risks and opportunities.	*Sustainability: TCFD* *Risk, viability and going concern*	p37-40 p72-78
Strategy	Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.	a Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.	*Sustainability: Our planet*	p39-43
		b Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning.	*Sustainability: Our planet* *Our external environment* *Sustainability: Our customers*	p39-53 p10-13 p56-57
		c Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	*Sustainability: Our planet*	p44-46
Risk management	Disclose how the organisation identifies, assesses and manages climate-related risks.	a Describe the organisation's processes for identifying and assessing climate-related risks.	*Sustainability: Our planet* *Risk, viability and going concern*	p39-43 p72-78
		b Describe the organisation's processes for managing climate-related risks.	*Sustainability: Our planet* *Risk, viability and going concern*	p39-43 p74
		c Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.	*Sustainability: Our planet* *Risk, viability and going concern*	p39-43 p72-78
Metrics and targets	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	a Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	*Sustainability*	p35 and 41
		b Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 GHG emissions, and the related risks.	*Sustainability: Our planet*	p50-53
		c Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	*Sustainability: Our planet*	p35 and p50-55

Sustainability governance structure

In 2023, the governance structure for the oversight of sustainability and climate change matters, and their associated areas of focus remained the same as in previous years.

Board oversight

The Board holds overall accountability and oversight for all matters related to sustainability and the management of all risks and opportunities, including the impact of climate change on the Group. In setting the Group's strategy it ensures that sustainability is embedded at the heart of the Group and is reflected in the operational plans of each Business Unit. The Board formally reviews all significant sustainability programmes.

The Board's oversight of the Group's response to climate change is integrated into both its monitoring of the Group's broader sustainability strategy and initiatives, and its approach to significant capital and other investments. The Board formally discusses the Group's Sustainability initiative at least twice per year.

It sets the Group's priorities and targets, and reviews the Group's performance and progress against them. It also monitors the Group's external ESG ratings.

The Board has undertaken a detailed assessment of the Group's climate-related risks and opportunities, including the Group's physical and transition risks. It has also considered the formulation of the three different climate-related scenarios constructed to assess the potential financial implications of climate change and assessed the impact of climate-related risks and opportunities on the Group's strategy.

The Group's Audit Committee supports the Board in ensuring climate-related issues are integrated into the Group's risk management process, and reviewing the Group's TCFD reporting and the assessment of performance against targets. As the Executive Director with key responsibility for the delivery of the Group's strategy, our Chief Executive, Patrick André, is ultimately responsible for the Sustainability initiative.

Our Sustainability governance

Chief Executive
Is ultimately responsible for the delivery of the Sustainability initiative

Board

- Holds accountability and oversight for all matters related to sustainability
- Oversees the definition of the sustainability strategy and initiatives
- Sets the main targets, reviews performance and progress

Audit Committee

- Supports the Board in ensuring climate-related issues are integrated into the Group's risk management process
- Reviews the Group's TCFD reporting and assessment of performance against targets

Remuneration Committee

- Supports the Sustainability objectives through the alignment of the Group's remuneration strategy

Group Executive Committee

Chief Executive, Chief Financial Officer, General Counsel and Company Secretary, Chief HR Officer, Business Unit Presidents

- Approves Group sustainability-related policies
- Receives reports from the VP Sustainability on the Sustainability initiative
- Is responsible for the progress of the Group against its sustainability objectives

BU Presidents

- Incorporate Group sustainability strategy into their BU strategy
- Communicate targets inside their organisations
- Allocate resources, define and implement plans

Sustainability Council

Group Executive Committee, Vice President Sustainability, Head of Communication and Employee Engagement, Head of Investor Relations, Head of Strategy, Vice Presidents Operations, three Regional Business Unit VPs

- Oversees the Group's sustainability activity
- Monitors progress on metrics and targets
- Assists the Group in assessing the implications of long-term climate-related risks and opportunities, elaborating strategy and setting priorities

VP Sustainability

- Leads the Group's sustainability activities, coordinating the work of the Sustainability Council
- Ensures the Group has a clear set of KPIs and collates data
- Organises Group-wide communication
- Leads external reporting and disclosures

Task Force on Climate-related Financial Disclosures continued

The Remuneration Committee supports the Group's Sustainability initiative and climate-change-related objectives, through the alignment of the Group's remuneration strategy. All Business Unit Presidents and each of the regional Business Unit Vice Presidents have a part of their annual incentive compensation tied to performance targets on CO_2e emissions reduction. In addition, the Executive Directors and other members of the Group Executive Committee participate in the Group's Long-Term Incentive Plan, with the vesting of 20% of each award based on three ESG measures, focused on:

- Reduction of the Lost Time Injury Frequency Rate;
- Reduction of the Group's Scope 1 and 2 CO_2e emissions; and
- Improvement in the gender representation in the Senior Leadership Group.

Management assessment and oversight

The Vesuvius Sustainability Council is chaired by the Chief Executive, and comprises the Group Executive Committee, VP Sustainability, regional Vice Presidents from each Business Unit, Head of Strategy, Head of Communication and Employee Engagement, Head of Investor Relations and Vice Presidents of the Operations. It meets on a quarterly basis and oversees the Group's sustainability activities, especially related to climate change, monitors progress against our targets, and assists the Board with identifying and assessing the implications of long-term climate-related risks and opportunities, elaborating sustainability strategy, and setting priorities. The Council reports to the Board twice per year.

The VP Sustainability leads the Group's sustainability activities, coordinating the work of the Sustainability Council including the Group's assessment of climate change risks and opportunities and formulation of climate-related scenarios. He is also responsible for the collation of data to assess the Group's performance against its sustainability targets and KPIs, producing quarterly performance reports, managing Group-wide communications, and leading external reporting and disclosures.

Responsibility for the progress of the Group against its sustainability objectives lies with the Group Executive Committee and, operationally, each Business Unit President. These BU Presidents, along with the Regional BU VPs, ensure the Group sustainability strategy is reflected in each BU's strategy, communicating the sustainability targets inside their organisations and implementing plans – including overseeing resources and capital allocation, and selecting R&D priorities – to achieve these targets and address the climate-related risks and opportunities.

The VP Sustainability is responsible for overseeing reporting on the Group's sustainability matters and metrics. Formal channels for reporting a range of data points are embedded in the organisation. Escalation mechanisms, routine reviews, and internal controls such as auditing and due diligence are in place to ensure transparency, consistency and completeness of information. For certain topics these are supported by independent third-party verification.

Our Sustainability Council and VP Sustainability ensure that we have a clear set of KPIs and targets to track the Group's progress.

Scope 1, 2 and 3 CO_2 and CO_2e emissions

Scope 1 covers emissions from fuels used in our factories and offices, fugitive emissions and non-fuel process emissions.

Scope 2 relates to the indirect emissions resulting from the generation of electricity, heat, steam and hot water we purchase to supply our offices and factories.

Scope 3 includes all other indirect emissions that occur in the Company's value chain.

Vesuvius materiality assessment

Our Sustainability initiative focuses on our most significant sustainability issues and opportunities. These are defined by our ongoing materiality assessment, which identifies and prioritises issues based on two dimensions: the impact or likely impact of Vesuvius on society and the environment, and the impact on Vesuvius' business, creating financial risks and opportunities for Vesuvius.

Our planet

Vesuvius recognises the urgency of tackling climate change, the finite nature of most natural resources, and the obligation we have to preserve the environment for future generations. By their very nature, refractory products help our customers to reduce heat loss and the energy consumption of their processes. We are committed to making a strong contribution to the reduction of their greenhouse gas emissions. We also want to grow our engagement in the circular economy by extending the lifetime of our products, recovering and recycling more of our products after they have been used, and increasing the proportion of recycled materials in our recipes. Environmental compliance at our sites, reduction in waste and increased recycling are key to Vesuvius' operations and can be a significant differentiator for our business

Tackling climate change

We are committed to reducing our environmental footprint by reaching net zero greenhouse gas emissions by 2050 at the latest and helping our customers reduce their emissions through improvements in the efficiency of their operations.

Supporting policy development

Vesuvius supports the Paris Agreement's central aim, to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C above pre-industrial levels, and pursuing efforts to limit the temperature increase even further to 1.5°C, via the implementation of its Roadmap to Net Zero.

As the world transitions to a low-carbon global economy, Vesuvius supports the call for policymakers to:

- Build a level global playing field, including carbon border adjustment mechanisms, and robust and predictable carbon pricing for companies. This will strengthen incentives to invest in sustainable technologies and to change behaviours
- Develop the necessary energy production and distribution infrastructure to provide access to abundant and affordable clean energy

Reducing our impact

Vesuvius actively participates in measures to tackle climate change by working to reduce the CO_2e emissions of all of our operations and the quantity of raw materials used, alongside helping our customers to reduce their own CO_2 footprint through the use of our products and services. Vesuvius also embraces society's expectations for greater transparency around environmental reporting.

Supporting our customers

According to estimates from the World Steel Association (WSA), the steel industry generates between 7% and 9% of global direct emissions from the use of fossil fuels, and it estimates that on average, 1.91 metric tonnes of CO_2 are emitted for every tonne of steel produced.

The iron and steel industries are taking action to address the decarbonisation challenge, and we are supporting them, working in partnership with them to develop more sustainable solutions.

With around 10kg of refractory material required per tonne of steel produced, the careful selection and use of energy-saving refractories can beneficially impact the net emission of CO_2 in the steel manufacturing process. In the foundry process, the amount of metal melted versus the amount sold as finished castings is the critical factor impacting a foundry's environmental efficiency. Vesuvius continuously works with its customers to increase this metal yield.

Climate-change-related risks and opportunities

The actions being taken by governments and societies around the world to mitigate climate change, and the changes in temperature and weather patterns resulting from it, present both opportunities and risks to Vesuvius. In its broadest context, we believe that the need for climate change initiatives will create ever greater opportunities for the Group to support our customers – to improve their efficiency and reduce their environmental impact.

Methodology

Each year the Group undertakes a robust assessment of the principal and emerging risks which could have a material impact on the Group; this assessment covers all of Vesuvius' operations. A number of sustainability risks are recorded in this analysis (see the Risk, viability and going concern section on pages 72-78 of our Annual Report).

In line with the recommendations of TCFD, Vesuvius also undertakes a review of the key climate-related opportunities and risks that we foresee impacting the Group over the short, medium and long term.

The Board has considered the significance of climate-related risks in relation to risks identified in the standard risk management process. Climate-related risks are reviewed every six months by the GEC, and subsequently by the Board, as part of the Group's standard risk management process, to ensure the register reflects any material changes in the operating environment and business strategy, and to ensure that the management of climate-related risks is integrated into our overall principal risk management framework.

The Business Units factor climate-change risks and opportunities into their business planning processes, assessing the long-term impacts on profitability of both the risks and opportunities.

Tackling climate change continued

Physical risks and business continuity

Thanks to significant restructuring carried out over the past six years, Vesuvius now operates in a resilient and optimised global footprint. None of our manufacturing sites contribute directly or indirectly to more than 10% of our revenue and a significant amount of redundancy for most product lines remains, providing backup in case of local disruption and ensuring continuity of supply for our customers.

Vesuvius operates in 55 manufacturing sites and six R&D centres of excellence located in 26 countries. From time to time our operations can be subject to physical damage driven by weather events, such as severe storms and flooding, water shortages or wildfires, whose frequency and intensity may be exacerbated by climate change. Such events may also impact the manufacturing capabilities of our customers and suppliers, and impact our supply chain logistics.

Sites are routinely audited by our insurers and our external risk specialist. Their reports are combined with water stress analyses (based on the Aqueduct water risk atlas) and our history of events, to create a physical and weather event risks map, indicating our manufacturing and R&D sites' susceptibility to physical risks arising from climate change.

In 2023, we continued updating our risk map based on professional risk engineering surveys. Thirty sites were identified as being high risk for at least one type of weather event (flooding, hailstorm, lightning, storms, tornadoes and wildfires), and four are located in areas of very high water stress. None of our sites were materially affected by any major weather event in 2023 (no disruption to customers and no insurance claims made).

We anticipate that the occurrence of adverse weather events will continue to increase, and we therefore manage our business to prepare for them and mitigate their impact when they do occur.

Local and product line business continuity plans are maintained by our manufacturing sites and are regularly reviewed. Vesuvius sites maintain and exercise emergency plans to deal with such events as part of their normal risk management and business continuity processes. Exercises and drills are organised covering IT disaster recovery, fire, explosion, weather and geophysical events, and our processes are improved based on the lessons learned.

The assessment of physical risks and business continuity has been focused primarily on our footprint. In coming years, we will seek to extend this assessment to our customer and supplier base.

Sites with the highest exposure to water stress or weather events

Country	Site	Water stress (very high)	Flood – water bodies	Flood – precipitation	Hailstorm	Lightning	Wind – tropical storms	Wind – extra tropical storms	Tornado	Wildfire
Australia	Port Kembla					●				●
Belgium	Ostend							●		
Brazil	Piedade				●	●				
	Resende		●	●		●				
	São Paulo				●	●				
China	Anshan	●								
	Changshu		●							
	Wuhan				●					
	Yingkou BMC			●						
	Yingkou BRC			●						
Czech	Trinec		●							
India	Kolkata		●	●			●			
	Mehsana	●								
	Puducherry	●								
	Pune	●								
	Visag (VP, VS)						●			
Indonesia	Jakarta Timur		●			●	●			
Italy	Muggio				●					
Japan	Toyokawa						●	●		
Malaysia	Pelubhan Klang		●	●		●	●			
Mexico	Monterrey		●							
	Ramos Arzipe		●							
Netherlands	Hengelo		●							
Poland	Skawina		●							
South Africa	Johannesburg		●		●	●				
Taiwan	Ping Tung					●	●			
UK	Tamworth		●							
USA	Champaign					●			●	
	Charleston								●	
	Chicago Heights					●			●	
	Conneaut		●			●			●	
	Coraopolis		●			●				
	Wampum		●			●				
	Wurtland					●				

Highest exposure to weather events based on risk evaluations by insurance and Aqueduct water risk atlas.

Climate-related risks and opportunities analysis

The fight against climate change continues to require higher-technology steel and larger, more complex castings. Wind and solar energy production capacity are both considerably more steel-intensive than fossil fuel power stations, and these are both set to grow considerably. Allied to this, the steel-making process is itself decarbonising thanks to efforts to improve the performance of existing assets, and the shift from blast furnaces to electric arc furnaces.

Our products are useful for low-carbon applications as well as the more traditional ones. No alternative to iron and steel, with the ability to offer the same range of properties and applications at comparable scales and costs, is envisaged in the foreseeable future. The technology transition required to decarbonise the iron and steel industry will not render our products obsolete. More than 70% of our revenue in steel is generated at the ladle and caster stages of the steelmaking process, which will be unaffected by the changes. Other steps of the iron and steel-making process will continue to require refractory materials.

Transition risks

We believe that the main climate change transition risks facing the Group relate to:

1

The potential for carbon taxing or emissions rights trading schemes to be introduced or increased, in Europe and the US, but not uniformly in other regions, without effective border adjustment mechanisms to accompany them; and

2

The rapid transition from iron to aluminium for light vehicle castings.

An increase in the cost of carbon emissions would affect our manufacturing costs. We are addressing this through our energy efficiency improvement initiatives and conversion to non-fossil fuels wherever possible. Long-lasting energy price increases and significant differences between Europe and other regions would further exacerbate this risk, affecting our customers' manufacturing footprint and our own.

A very rapid transition from iron to aluminium for light vehicle castings would affect our revenue in the iron castings market. We expect this to be compensated for by increased sales for aluminium castings, growing sales of products for thin-section automotive component iron castings and turbo-charger castings for hybrid vehicles.

Climate-change-related metrics

We routinely monitor a large number of metrics, both internal and external, to assess the ongoing validity of our assumptions and identified risks and opportunities, and monitor the progress of actions. Some of the main metrics are listed in the table below:

External metrics	
– projected CAGR of the high-technology steel segment	+2.7% between 2022 and 2032 (vs 0.5% for commodity steel)
– projected CAGR of the wind turbine market	13% (between 2023 and 2030)
– projected CAGR of the electric vehicle market	24% (between 2020 and 2030)
– projected CAGR of the hybrid vehicle market	14% (between 2020 and 2030)
– projected CAGR of the internal combustion engine vehicle market	-4% (between 2020 and 2030)
– projected CAGR of the EAF market	3.6% (between 2022 and 2028)
Internal metrics	
– Steel sales into the EAF market	29% in 2023
– percentage of Flow Control sales from high-technology steel	58% in 2023
– percentage of Foundry sales into non-ferrous markets	19% in 2023
– percentage of sales realised with products which didn't exist five years ago	18% in 2023
– energy intensity (kWh per kg product packed for shipment)	7.2% reduction in 2023 vs 2019 baseline
– R&D spend	+8% p.a. from 2020 to 2023
– number of sites at high risk of water stress or at least one type of weather event	34 in 2023
– number of sites with negative or poor risk ratings from the insurance loss prevention risk evaluation	8 in 2023

Tackling climate change continued

Climate-related risks and opportunities analysis

Vesuvius considers the key climate-related opportunities and risks that we foresee impacting the Group over the following short-, medium- and long-term time horizons.

Short term (2025)

Our current strategic plans operate within this time frame. Most of the intermediate sustainability targets approved by the Board were set with 2025 as a deadline. This horizon encompasses our capital expenditure cycle, allowing time to decide, implement and measure the progress of actions.

Medium term (2035)

This is the most likely horizon for the regulatory frameworks (such as the EU Emissions Trading System and Carbon Border Adjustment Mechanism) currently being defined in many regions to reach their full effect. We anticipate that the major adjustments to customers' footprints and technology investments will be in full swing by then.

Long term (2050)

This deadline has been retained by the UN and many policy-making bodies to set decarbonisation goals. We are committed to reaching net zero by 2050 at the latest.

The opportunities we have identified are integrated into the Group's business strategy and are being pursued by the relevant Business Units. See page 1-23 in our Strategic Report.

Very high (>£25m)	Moderate (£5–10m)
Major (£15–25m)	Minor (£1–5m)
High (£10–15m)	Insignificant (£0–1m)

Opportunities

Opportunity	Description	Impact	Potential annual impact on trading profit in the short, medium and long term: Short term 2025	Medium term 2035	Long term 2050
Products and services					
Ability to diversify business activities	Commercialise refractory solutions for low-CO_2 emitting processes in the production of aluminium to replace carbon-based products	Increased revenue and trading profit	Minor	Minor to moderate	Minor to major
	Commercialise refractory solutions for hydrogen-based Direct Reduction Iron production and steel to replace traditional refractory products		Insignificant	Insignificant to minor	Insignificant to high
Markets					
Access to new markets	Accelerated growth of the wind turbine market leading to increased sales to foundries serving this market	Increased revenue and trading profit	Minor	Minor	Minor to high
	Accelerated growth of the aluminium castings market for electric vehicles and light-weighting leading to increased sales to foundries serving this market		Minor	Minor	Moderate to high
	Accelerated growth of ferrous castings for hybrid vehicles (turbo-chargers) and thin-section castings for internal combustion engines leading to increased sales to foundries serving this market		Insignificant to minor	Insignificant to minor	Insignificant
	Accelerated growth of the high-technology steel segment		Minor	Minor to high	High to very high

Impact categories (trading profit)

We have assessed our risks and sorted them according to the following classification, which used the same thresholds as for the assessment of principal risks:

Very high (>£25m)	Moderate (£5–10m)
Major (£15–25m)	Minor (£1–5m)
High (£10–15m)	Insignificant (£0–1m)

Risks

Risks	Description	Impact	Mitigating actions being undertaken	Potential annual impact on trading profit in the short, medium and long term: Short term 2025	Medium term 2035	Long term 2050
Physical risks						
Increased frequency and severity of extreme weather events (heatwaves, rain and river flooding, cyclones, snow)	Physical damage to Vesuvius locations and people Business disruption due to natural disasters	Increased cost due to physical damage Reduced revenue from business interruption	Mitigating actions for severe weather events and the associated risks are included in the business continuity plans of plants, and insurance is purchased	Minor	Minor	Minor
Transition risks – Policy and legal						
Carbon taxing/ emissions rights trading/border adjustment mechanisms introduced or extended	Increase in manufacturing costs	Increased operating costs (main risk in Europe)	Capex to improve energy efficiency and conversion to non-fossil fuels to eliminate CO_2 emissions. Relocation of manufacturing to reflect movements in customer base	Minor	Insignificant to moderate	Insignificant to high
Transition risks – Market						
Rapid growth of aluminium casting processes for light vehicle castings at the expense of traditional ferrous and other non-ferrous processes (due to conversion to electric vehicles)	Shift from castings using a high level of consumables to low consumable processes creates risk of revenue loss for the Foundry Division	Reduced revenue from shrinking market as some traditional castings will disappear or be converted to alternative processes	In ferrous, push to develop sales of Feedex and coatings for thin-section automotive components, and products for turbo-charger casting. Invest in R&D, marketing and sales force. In non-ferrous, develop products for HPDC and LPDC processes and increase penetration in markets with lower usage of refractories	Minor	Moderate to high	Moderate to major
Transition from internal combustion engines to electric vehicles will lead to the decline of sand and gravity castings	Reduced volume of aluminium power train components	Reduced revenue from shrinking market of consumables for sand and gravity castings	Adapt product portfolio, focusing on HPDC and LPDC	Minor	Minor to moderate	Moderate
Transition from Blast Furnaces – Basic Oxygen Furnaces converted to Direct Reduction Iron or Electric Arc Furnaces (EAF) for iron and steel making	Share of EAF in total steel production increases	Reduced size of market where Vesuvius is strongest, leading to weaker positions in the steel market	Adjust R&D and product development priorities. Redeploy sales force, focusing on EAF market	Insignificant	Minor to moderate	Minor to moderate

Tackling climate change continued

Climate change scenario analysis

Vesuvius has undertaken scenario analysis to seek to quantify the likely impact of climate change on the business and to test the resilience of the Group's strategy to the changes that lie ahead.

We considered three scenarios, modelling the potential financial impact of 2°C, 3°C and 4°C temperature increases on our business.

Best case scenario

In formulating our scenarios, we took as our 'best case' a 2°C scenario. This was based on the premise that despite the tremendous acceleration of public awareness, regulation, technology development and capital allocation in recent years, we doubt that there is sufficient time for the 1.5°C target to be achieved. We therefore identified our most optimistic scenario as 2°C.

Our assumption is that any further acceleration which would allow the planet to get back onto a 1.5°C course would reinforce the main characteristics and accelerate the timeline of our 2°C scenario, without fundamentally changing its features.

From assumptions to strategy

The scenarios take as their starting point the regulatory and macroeconomic assumptions underpinned by the International Energy Agency's WEO 2020 Stated Policies Scenario and Sustainable Development Scenario.

Supplementing this we have identified, for each scenario, the areas of our business in which changes may occur, such as:

- The evolution of end-markets;
- Our customer footprint;
- The pace and breadth of technology transition in iron and steel making;
- The pace of conversion from fossil fuels to clean electricity and hydrogen; and
- The evolution of the aluminium market.

We then evaluated the potential magnitude of the risks and opportunities in each scenario, and analysed the implications for Vesuvius. We considered our strategic response in terms of:

- Our manufacturing and commercial footprint;
- Our portfolio of products and services;
- The conversion of our manufacturing processes to clean energy; and
- The prospects for our aluminium casting business.

With this approach, the impacts on all key areas of the business were covered (sales, R&D, manufacturing and procurement).

The outcomes of the scenario analyses have been taken into account in formulating plans for achieving the Group's strategy.

Three long-term scenarios

4°C warming scenario
'Good intentions hampered by fear of economic war'

Incomplete policy and fiscal packages distort competition, slowing down technology development and leading to geographic shifts in steel supply

3°C warming scenario
'Closed doors'

Regional/national self-interest drives economic policy, competition wins over cooperation, regulatory framework and technologies evolve differently

2°C warming scenario
'Global accord'

High cooperation and commitment to limit emissions facilitates technology development and the transition to a low-carbon world

	4°C warming scenario – 'Good intentions hampered by fear of economic war'	3°C warming scenario – 'Closed doors'	2°C warming scenario – 'Global accord'
1 **Regulatory and macroeconomic environment**	The European Union and United States implement carbon pricing mechanisms (taxation or cap on trade), but no Carbon Border Adjustment Mechanism or Tariffs (or insufficient to prevent the transfer of manufacturing away from these regions)	The European Union and United States implement carbon pricing mechanisms (taxation or cap on trade), and Carbon Border Adjustment Mechanisms or Tariffs to protect their industries from delocalisation	All major economies implement carbon pricing mechanisms. The cost of CO_2 increases in all regions at a comparable pace
2 **Conversion of power generation from fossil fuels to clean electricity and hydrogen**	– Fast growth of non-CO_2 emitting electricity sources (nuclear and renewable) in Europe – The cost of fossil fuels increases significantly in Europe – Energy prices differ greatly between Europe and the rest of the world over a long period of time – Coal reduces progressively, but does not disappear. Natural gas continues to grow outside Europe – Hydrogen does not become available on a wide scale and economically competitive until well after 2040	– Fast growth of non-CO_2 emitting energy sources (nuclear and renewable) in Europe – The cost of fossil fuels increases significantly in Europe. Coal reduces progressively, but does not disappear, natural gas continues to grow outside Europe – Energy prices in Europe and the rest of the world realign progressively – Hydrogen becomes available on a wide scale in the USA and Europe and economically competitive between 2030 and 2040	– Fast growth of non-CO_2 emitting energy sources (nuclear and renewable) in all regions – The cost of fossil fuels increases significantly (taxation), coal as a source of energy disappears, natural gas starts to reduce – Energy prices in Europe and the rest of the world realign progressively – Hydrogen becomes available on a wide scale and economically competitive between 2030 and 2040 – Fast electrification of the automotive industry – Fast growth of hydrogen-fuelled heavy vehicles
3 **Technology transition – iron and steel-making**	– The transition in blast furnaces to clean processes (e.g. Direct Reduction Iron (DRI), hydrogen, Carbon Capture and Storage (CCS), Carbon Capture, Utilisation and Storage (CCUS)) does not happen on a large scale – US steel producers convert blast furnaces to DRI and Electric Arc Furnaces (EAF) to benefit from the low cost and high availability of natural gas	– European iron-making transitions to clean processes (e.g. hydrogen, DRI, CCS, CCUS). The speed of the transition is dictated by the availability of green hydrogen in large quantities – Some US blast furnaces are converted to hydrogen, others to DRI & EAF – Chinese steel plants convert to clean iron and steel-making processes, albeit at a slower pace – Little or no transition outside China, the EU and USA	– Fast transition of iron making to clean processes in all regions; blast furnaces are revamped ahead of their normal schedule – European and Chinese integrated steel-making grows primarily in hydrogen-based iron production, implementing CCS and CCUS technologies as well – DRI and EAF grow in the US (benefiting from the availability of low-cost shale gas), and Europe – Customers also invest to increase the performance of furnaces, including downstream of casting
4 **High-technology steel market**	High-technology steel market grows at 0.9% per year	High-technology steel market grows at 1.2% per year (light-weighting and material efficiency efforts by downstream industries accelerate shift from lower to higher performance grades)	High-technology steel market grows at 1.6% per year (light-weighting and material efficiency efforts by downstream industries accelerate shift from lower to higher performance grades)
5 **Aluminium market**	Aluminium market grows at 3% per year, especially High Pressure Die Casting (HPDC) and Low Pressure Die Casting (LPDC) processes	Aluminium market grows at 5% per year (driven by the demand for transportation, construction and packaging) until 2030. Growth of HPDC/LPDC at a higher pace in the US and EU markets. Moderate development of secondary aluminium casting	Aluminium market grows at 7% per year (driven by the demand for transportation, construction and packaging) until 2025. Growth of HPDC/LPDC at a higher pace in the US and EU markets. Rapid development of secondary aluminium casting
Potential financial impact by 2035 (profit before tax)	**-£5m to £0m**	**£5m to £10m**	**£15m to £20m**

Tackling climate change continued

Key factors impacting Vesuvius' three climate change scenarios

1

Regulatory and macroeconomic drivers differentiate our scenarios

Firstly, effective border adjustment mechanisms to accompany carbon taxation, or cap and trade systems in regions with ambitious emissions reduction objectives, will greatly support the implementation of technologies required to decarbonise steel-making (including the development of hydrogen as the reducing agent). Conversely, the absence or ineffective implementation of border adjustments would lead to significant delocalisation of the steel industry and a displacement of CO_2 emissions to other countries rather than a significant reduction on a worldwide scale. The energy crisis which started in late 2021 and was particularly acute in Europe, has resulted in additional costs and loss of competitiveness for the European steel industry. In the short term, this was addressed by the temporary stoppage of steel plants. If the energy cost gap with other regions remains over several years, this could result in the permanent closure of steel plants and delocalisation of production to other regions. This shift in our customer footprint would lead to the need to adapt our own manufacturing footprint.

Secondly, public policy will significantly affect the relative cost and availability of non-CO_2 emitting energy sources vs fossil fuels and their associated infrastructures. These will greatly influence the pace of deployment of selected technologies and industries (electric vehicles, carbon-free hydrogen and decarbonised steel-making). Infrastructure, construction and other downstream markets will also be incentivised to reduce steel consumption, accelerating the shift towards high-technology steel. Rising energy costs, as experienced since the end of 2021, will positively affect the growth rate of investment in renewable energies and penetration of electric vehicles in the automotive markets.

Finally, the level of international cooperation to encourage and support less developed economies to engage in the technology transition will also affect our customer manufacturing footprint. Regulatory and macroeconomic drivers may affect our climate change scenarios in the short, medium and long term.

2

The future of steel

All three scenarios assume that the strong connection between world GDP and world steel output will continue, supported by urbanisation and rising living standards, as there is no significant substitute for steel. The fight against climate change is expected to have a far-reaching impact on many different industries translating into the accelerated growth of the high-technology steel segment in which Vesuvius has a key presence. For example, solar and wind power plants, where investment is growing fast, are far more steel intensive per kWh of installed capacity than their fossil fuel equivalents. Likewise, hydrogen transportation, another area of rapid growth, also requires considerable amounts of special grades of steel for new pipelines and ships. With evolutions occurring over many years, this driver will have a stronger impact over the medium and long term than the short term.

3

Technology transition

Our scenarios consider the pace and extent of the technology transition in iron and steel-making. The Blast Furnace – Basic Oxygen Furnace (BF-BOF) route for steel making is significantly more CO_2 intensive than the Electric Arc Furnace (EAF) route. However, EAFs cannot always be used to produce all higher quality steel grades and they rely on the availability of scrap steel (itself a function of the level of economic development). Going forward, quality levels produced by EAFs will continue to improve.

Various technologies to decarbonise the BF-BOF route are being developed, including solutions which seek to capture the carbon as it is emitted and either store it or use the carbon in other processes. Alternatively the BF-BOF route may be replaced by a combination of DRI and EAF.

Hydrogen-based DRI associated with EAFs has the potential to be nearly carbon-free if carbon-free electricity and hydrogen are available. We anticipate that there will be a gradual reduction in steel production via the BF-BOF route and growth in the EAF route. The extent and pace of this change will depend on technologies coming to maturity, the availability of infrastructure (carbon-free electricity and hydrogen), and regulatory frameworks.

These technologies will require many years to mature and be deployed on a large scale. This driver is therefore expected not to have any impact over the short term, and to reach its maximum impact in the long term.

Conclusion on strategic resilience

Sustainability has always been at the heart of Vesuvius' business and the Group's analysis concludes that the opportunities for the Group manifested by the global pressure to mitigate climate change outweigh the risks. Our technology helps our customers improve their process efficiency and their environmental footprint.

We estimate the financial impact of the opportunities and risks on the Group will be most adverse under a 4°C scenario and most positive under a 2°C scenario. Under all three scenarios, we expect to benefit from the continuing growth in the production of steel in line with GDP, along with the accelerating shift towards higher performance iron and steel castings, as we support customers to maximise the efficiency and quality of their production. With our technological expertise, strong customer relationships and broad manufacturing footprint, we expect to play a key role in supporting our customers' efforts to decarbonise their operations.

We also believe there is a low downside for Vesuvius in all three scenarios as more than 70% of our business in steel is in the steel casting part of the operation which, as a stand-alone process, is low CO_2 emitting (1% to 3% of a steel plant's CO_2 emissions), and which we do not expect to be affected by technology shifts that the decarbonisation of iron and steel-making will require.

Whilst the electrification of light vehicles and ongoing light-weighting efforts are expected to translate into a shrinking of the market for certain iron castings, it is anticipated that this will be more than compensated for by the growth in other markets such as wind turbines and aluminium castings.

We do not anticipate that climate change will lead to any significant changes in our access to capital or require the impairment of assets on a material scale.

Roadmap to Net Zero

We have set intermediate targets in our journey to reach net zero CO_2e emissions by 2050 (Scope 1 and Scope 2), in line with the Paris Agreement and the UK's commitment in the Climate Change Act 2008 (2050 Target Amendment) Order 2019. These emissions encompass the seven GHGs listed by the Intergovernmental Panel on Climate Change in the Kyoto Protocol (CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3).

Our preferred metrics to monitor progress with our journey to net zero are energy and CO_2e emission intensity (energy consumption and CO_2e emissions per tonne of product packed for shipment). These reflect the progress made in our operations better than absolute metrics. Managing this energy intensity not only has environmental benefits, it is also part of our long-term strategy to enhance our cost competitiveness.

Our targets

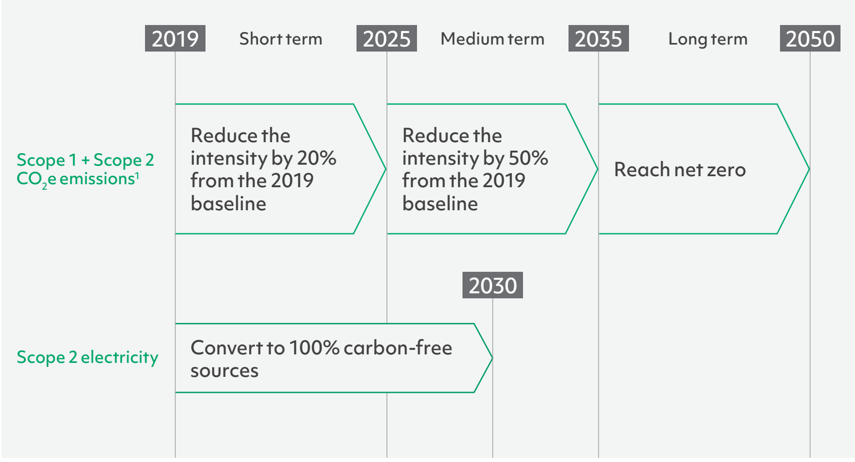
Our targets cover 100% of Vesuvius' operations. They are aligned with the Science Based Targets initiative (SBTi) requirements for a well below 2°C global warming scenario and are consistent with the Paris Agreement.

- 10% improvement in the Group's energy intensity between 2019 and 2025
- 20% reduction in CO_2e emission intensity normalised per metric tonne of product packed for shipment (Scope 1 and Scope 2) by 2025 (vs 2019 baseline)
- 100% carbon-free electricity by 2030
- A reduction in total Scope 1 and Scope 2 CO_2e emission intensity of 50% by 2035 (vs 2019 baseline)
- Zero Scope 1 and Scope 2 emissions by 2050

We aim to achieve our decarbonisation goals without the use of any carbon offsets (or only to address residual emissions).

The Group Energy CO_2e emissions reduction targets have been cascaded to all Business Units, which have built action plans accordingly. Portions of the Group Executive Committee's Long-Term Incentive Plan and senior management annual variable compensation are linked to the achievement of CO_2e emissions reduction targets.

Our journey to net zero



Our plan

Our roadmap to net zero is based on five key areas of focus:

1. Modernising and upgrading installed equipment to reduce our energy consumption
2. Investing to renew equipment to the best available technologies and converting to less CO_2e intensive energy sources
3. When possible, replacing high CO_2e emission electricity (generated from coal or natural gas) with greener electricity or other sources of energy
4. Reducing our energy wastage, recovering heat to feed processes and hot water
5. Generating clean energy

Assumptions and sensitivities

Some significant assumptions underpin our net zero plan, including:

- The availability of the necessary technologies, at an affordable level and at a scale appropriate for our industry, especially for the firing of refractory ceramics and carbon capture
- The development of additional production capacity and distribution infrastructure for renewable energy and hydrogen, and their cost competitiveness
- Adequate policy support to foster innovation and ensure the cost of CO_2 emissions will increase the attractiveness of carbon-free processes
- No significant change to our business model and product portfolio

The achievement of our CO_2e emissions targets will also be sensitive to:

- The growth of revenue, organically, and from acquisitions, and divestitures
- Product mix evolution (especially driven by dolime volume, which is the most CO_2 intensive product line)
- Macroeconomic conditions and the capex cycle impacting plant loading (and thereby the energy efficiency of continuous processes)

1. Re-baselined using pre-acquisition data for the business acquired from Universal Refractories, and BMC from 2019 onwards.

Tackling climate change continued

Our Progress – Key Group initiatives for energy conservation and for increasing energy efficiency

Since 2019, we have undertaken a number of major projects to significantly reduce the Scope 1 CO_2e emissions of the Group by addressing some of its most CO_2e intensive installations.

We closed the Skawina brick plant, eliminated dirty coke oven gas as a fuel in Wuhan, replacing it with a new natural gas-fired tunnel kiln, transferred the Tyler plant activity to Monterrey, and replaced the burner system of the Olifantsfontein rotary kiln. We also took advantage of the closure of our Chinese plant at Kuatang and the relocation of its activity to replace all drying ovens and kilns with new ones, with an energy efficiency improvement target of 20%.

In 2022, the Board approved major capacity expansion capital expenditure projects totalling more than £20m. Available technologies and their impacts in terms of energy efficiency and CO_2e emissions were systematically considered for these projects, and the most efficient technologies for the purpose selected.

Progress in 2023

1 Carbon-free energy sources

The Group supports the transition towards renewable energy sources and cleaner carbon-free technology when possible. Our energy strategy includes an ongoing effort to convert to carbon-free electricity contracts whenever practical and economically manageable, investment in solar panels, and the conversion of processes to electricity as soon as the technology is cost-effective.

In 2023, nine sites converted to carbon-free electricity contracts, taking the total number to 45, representing 74% of our manufacturing sites and R&D centres of excellence.

In 2023, 71% of the grid electricity consumed in our sites was generated from renewable sources, and 75% using processes that did not emit CO_2e (renewable and nuclear).

In 2023, two of our plants became carbon-free and capital expenditure projects for solar panels with a value of £0.9m were approved. Nine sites are equipped with photovoltaic solar panels and 20 sites are investigating solar panel projects.

2 Capital commitments and internal CO_2 pricing

We include an environmental impact analysis in the evaluation of each of our capital expenditure projects as these are the key decisions that drive long-term future sustainability performance, and CO_2 emissions in particular.

An internal price for CO_2 emissions (Scope 1 and Scope 2) is included in the calculation of payback for all investments reaching the threshold for approval by the BU Presidents or Chief Executive.

Vesuvius views this shadow pricing mechanism as a key tool to ensure that the environmental impact of long-term investment decisions is understood. It seeks to ensure that the best available technology is adopted, even in locations where no external cost for carbon is in place or foreseen.

The internal price of CO_2 was introduced in 2020. It is reviewed annually by the Sustainability Council and is applicable across all Business Units in all regions.

The price is adjusted, taking into consideration both the previous year's price and the evolution of the European Union Emissions Trading System (EU-ETS) carbon pricing. In 2020, it was initially set at €30 per tonne of CO_2. It was raised to €90 per tonne in 2021. The Sustainability Council decided to maintain the internal price of CO_2 emissions at €90 per tonne of CO_2 for 2023.

3 Improving our energy efficiency

All Vesuvius plants have targets to reduce energy intensity. We have implemented a structured approach across the Company. We collect and analyse data from the sites, identify gaps and opportunities and eventually target our engineering projects. We select the processes and sites that are the most energy intensive or have the greatest impact, and coordinate the projects centrally. We also share best practices across locations. For example, in one of the most energy-consuming sites, we will improve our process by installing additional nozzles in the spray towers, building on the experience from another Vesuvius site. Many additional initiatives are managed locally.

In 2023, we strengthened the resources available to oversee our energy efficiency improvement programmes across all locations. We rolled out plans to install meters on all energy-intensive equipment (32 sites are fully equipped) and undertook comparison studies across locations.

We are encouraging sites to carry out energy audits and pursue ISO 50001 certification. 13 sites carried out energy audits in 2023, and more than 30 have planned audits in 2024 and 2025. One site has already obtained ISO 50001 certification. This combination of initiatives allows us to better identify and analyse opportunities and target investments on projects with the largest impact.

More than 4,400 employees have received training on energy conservation and greenhouse gas emissions reduction.

In 2023, as a result of thermal processes optimisation and the installation of retrofit solutions, we have reduced energy consumption per year by around 11 GWh and CO_2e emissions by 2,720 tonnes versus 2022.

New capital expenditure worth c.£6m, dedicated to 123 projects with energy efficiency and CO_2 emissions reduction as one of their prime objectives, were approved in 2023.

Next steps to achieve our Net Zero Plan

Our plan to reach Net Zero

Our plan to reach Net Zero covers 100% of our operations. We aim to achieve our decarbonisation goals without the use of any carbon offsets (or only to address residual emissions).

Short term (2025)

A wide variety of projects have been initiated and more are being considered, to help us deliver our energy efficiency and CO_2e emissions reduction targets, including:

- Optimisation of process parameters
- Introduction of new refractory furniture
- Retrofitting of ovens and kilns
- Replacement of older and less efficient units
- Upgrades of compressors
- Replacement of light sources with LED lights
- Replacement of diesel-powered forklift trucks with electric forklift trucks
- Installation of heat recovery systems in ovens and kilns
- Burner setting optimisation and loading and cycle optimisation
- Continued conversion of electricity supplies to carbon-free sources
- Installation of solar panels

We endeavour to use the best available technologies to reduce CO_2 emissions in all our major capital expenditure projects.

Medium term (2035)

We anticipate that further emissions reduction will be possible through further energy efficiency measures (continuation of the short-term actions).

Technological developments currently in preparation with our partners will allow us to reduce GHG emissions even further. Projects have been launched across a range of activities including:

- Electrification of high-temperature manufacturing processes that currently rely on natural gas or LPG. The first investments to replace natural gas-powered ovens with electric ovens were in preparation at the end of 2023
- The use of a combination of natural gas and renewable energy such as carbon-free hydrogen to fire refractory materials. We have already started R&D trials with a blend of hydrogen and natural gas
- The use of bio-fuels instead of natural gas. The first trials to convert industrial installations are planned for 2024

We estimate the incremental capital commitment required by our decarbonisation roadmap until 2035 will be approximately £70m (approx. £7m per year). We do not expect the useful economic lives of our existing assets to be materially affected by our plans until 2035. Precise capital expenditure project lists have been defined for the 2025 horizon. We will continue using the internal price of carbon to assess the relative benefit and prioritise projects.

We also anticipate that changes in our product portfolio towards less energy-intensive products (such as resin-bonded and unshaped refractories) will continue.

Long term (2050)

Beyond 2035, the short term and medium term programmes will continue to deliver opportunities.

We are regularly monitoring the emergence and readiness of new technologies, through our network of suppliers of capital goods, universities and trade associations. In the longer term (2050), various technologies are promising candidates for the near zero emissions curing and firing of refractory products (electricity, carbon-free hydrogen, synthetic gas, biomass). We currently foresee that carbon capture solutions will be available for our industrial application during the 2035-2050 period, though most will probably not be available sooner. We are progressively adapting our product and process R&D programmes to explore such opportunities.

Capital expenditure requirements and the useful economic lives of our existing assets will depend on the evolution of technologies currently in development.

Tackling climate change continued

Our energy consumption and Scope 1 and Scope 2 CO_2e emissions

While Vesuvius' products differ significantly in the energy intensity of their manufacture, most of our manufacturing processes are not energy intensive nor do they produce significant quantities of waste and emissions. Dolime production, which uses coal to calcine dolomite, is our major emitter of CO_2. Dolime and the next six of our 39 main manufacturing processes account for 58% of our energy consumption and 62% of our location-based CO_2e emissions. These continue to be a clear focus for our investment to reduce CO_2e emissions.

In January 2023, an incident incapacitated one of our dolime rotary kilns, which resulted in it being out of service for the remainder of the year. As a consequence, the tonnage of dolime produced by the Group in 2023 was considerably lower than in prior years and the Group's product mix was very different. The Group's absolute energy consumption, CO_2e emissions, energy intensity and CO_2e emission intensity reduction were therefore affected by the lower output of dolime as well as performance improvement.

The Group's progress in reducing our CO_2e emission intensity was adversely affected in 2023 by lower volumes resulting in lower fill rates for continuous processes and lower energy efficiency. Between 2019 and 2023 the Group achieved an overall reduction in energy intensity (normalised to per metric tonne of product packed for shipment) of 14.6%. The pro forma energy intensity reduction, assuming the Group had produced dolime at the normal rate, was 7.2% vs a target of 10% by 2025.

During the same period, our overall CO_2e emission intensity metric (CO_2e emissions per metric tonne of product packed for shipment, Scope 1 and Scope 2, market-based) reduced by 45.5%. This includes a 38.4% reduction in Energy CO_2e intensity, and a 68.1% reduction in Process CO_2e intensity, per metric tonne of product packed for shipment. Excluding dolime, the CO_2e emission intensity reduction between 2019 and 2023 was 33.2%. If the dolime installation had been operating normally throughout the year, the pro forma 2023 CO_2e emission intensity would have been 20.2% lower than in 2019, vs a target of 20% by 2025.

Scope 1 covers emissions from fuels used in our factories and offices, fugitive emissions and non-fuel process emissions.

Scope 2 relates to the indirect emissions resulting from the generation of electricity, heat, steam and hot water we purchase to supply our offices and factories.

Scope 3 covers all other direct CO_2 and CO_2e emissions that occur in the Company's value chain.

The conversion by many of our sites to carbon-free electricity contracts has helped our CO_2e emissions reduce at a faster pace than our energy efficiency improvements.

Vesuvius' total energy costs in 2023 were £48.5m, c.2.5% of revenue (£54.6m in 2022, c.2.8% of revenue). South Africa is the only country where we exceed the threshold to be submitted to a carbon tax or an emissions trading scheme. The carbon tax cost in 2023 was c.£0.2m (£0.2m in 2022), based on emissions in the prior year.

Scope 1, Scope 2 and Scope 3 emissions (market-based) [1,2]

In 2023, Vesuvius' total Scope 1, Scope 2 and Scope 3 CO_2e emissions were 1,589,332 metric tonnes.

	2023		2022		2021		2020		2019	
Metric tonnes CO_2e	Metric tonnes[1]	%[1]	Metric tonnes[1]	%[1]	Metric tonnes	%	Metric tonnes	%	Metric tonnes	%
Scope 1 Process CO_2e emissions	**29,637**	**1.9%**	91,276	5.5%	101,121	5.1%	88,516	5.3%	106,737	6.0%
Scope 1 Energy CO_2e emissions	**139,241**	**8.8%**	191,396	11.5%	208,192	10.4%	182,660	10.9%	214,845	12.1%
Scope 1 Fugitive emissions	**1,037**	**0.1%**	2,207	0.1%	1,398	0.1%	1,080	0.1%	992	0.1%
Scope 1 CO_2e emissions	**169,914**	**10.7%**	284,879	17.2%	310,710	15.5%	272,257	16.2%	322,573	18.2%
Scope 2 CO_2e emissions (market-based)	**37,961**	**2.4%**	55,861	3.4%	83,175	4.2%	92,360	5.5%	108,631	6.1%
Scope 3 CO_2e emissions	**1,381,457**	**86.9%**	1,318,207	79.5%	1,605,873	80.3%	1,311,807	78.3%	1,341,498	75.7%
Total	**1,589,332**	**100%**	1,658,947	100%	1,999,759	100%	1,676,424	100%	1,772,702	100%

1. The business of Universal Refractories Inc (Vesuvius Penn Corporation) which was acquired in 2021, is included in 2022 and onwards. BMC (Yingkou YingWei Magnesium Co., Ltd), which was acquired in late 2022 is included in 2023 and onwards.
2. The numbers are collated from entities within the Group's Operational Control Boundary.

Vesuvius plc long-term energy consumption and energy intensity (aggregate of Scope 1 and Scope 2)[1,2,3]

	2023 Pro forma v 2019[2]	Actual 2023 v 2019	2023 Pro forma[2]	2023[1]	2022[1]	2021[1]	2020[1]	2019[1]
Total energy consumption (million kWh)				**896**	1,085	1,189	1,056	1,205
Energy consumption per metric tonne of product packed for shipment (kWh/MT)	**-7.2%**	**-14.6%**	**1,145**	**1,054**	1,161	1,118	1,173	1,234

Notes:
1. Re-baselined using pre-acquisition data for the business acquired from Universal Refractories, Inc. (Vesuvius Penn Corporation), and BMC (Yingkou YingWei Magnesium Co., Ltd).
2. Pro forma: performance as if the dolime process had been operating normally throughout 2023 and re-baselined using pre-acquisition data for the business acquired from Universal Refractories, Inc. (Vesuvius Penn Corporation) and BMC (Yingkou YingWei Magnesium Co., Ltd) from 2019 onwards.
3. The numbers are collated from entities within the Group's Operational Control Boundary.

Greenhouse Gas (GHG) reporting

We have reported to the extent reasonably practicable on all the emission sources required under Part 7 of the Accounting Regulations which fall within our Group Financial Statements.

Statutory reporting is location-based according to the GHG Protocol.

All sites report their energy consumption and GHG emissions on a quarterly basis. Performance and variation are analysed, and improvement plans built accordingly.

2019 was selected as the baseline for all energy and GHG emissions data and targets, absolute and relative, as this was the last year of normal trading prior to the COVID-19 pandemic. Progress is measured against the 2019 performance.

The Group also meets all its obligations in relation to the Producer Responsibility Packaging Waste regulations and the Energy Saving Opportunity Scheme by which the UK implemented the EU Energy Efficiency Directive.

Vesuvius plc statement of verification

carbon footprint standard
CO_2e Reduced Organisation

Scope 1, Scope 2 and Scope 3 carbon footprint reporting and supporting evidence contained herein for the period 1 January 2019 to 31 December 2023 covering GHG emissions as CO_2e in metric tonnes , CO_2e intensity in metric tonnes of CO_2e per metric tonne of product packed for shipment, energy consumption in kWh and energy intensity in kWh of energy per metric tonne of product packed for shipment, Location based and Market based, were verified by Carbon Footprint Ltd in accordance with the ISO 14064 Part 3 (2019): Greenhouse Gases: Specification with guidance for the verification and validation of greenhouse gas statements.

A copy of the limited assurance statement can be found on our website: www.vesuvius.com.

Tackling climate change continued

Fuel consumption, emissions and normalised emissions for the main fuels consumed across the Group (location-based (Operational Control Boundary) statutory reporting)

In 2023, the Group's normalised energy consumption decreased by 12.7% to 1,054 kWh per metric tonne (2022: 1,207). Location-based emissions decreased by 27.4% to 0.310 metric tonnes of CO_2e per metric tonne of product packed for shipment (2022: 0.426) and market-based emissions decreased by 35.5% to 0.245 metric tonnes of CO_2e per metric tonne of product packed for shipment (2022: 0.380).

A significant reduction in CO_2e resulted from reductions in the production of dolime following the incident in January 2023, which incapacitated one of our rotary kilns. The remaining decreases were primarily driven by changes in production volumes and product mix. Natural gas use decreased by 8%, electricity consumption by 4% and coal (a CO_2 intensive fuel) consumption by 67%, to 8,900 metric tonnes (2022: 27,231 metric tonnes).

During 2023, the Group also consumed 287 cubic metres of diesel (-1.8% on 2022: 292) primarily in the operation of forklift trucks on its sites, and 165 cubic metres of fuel oil, an increase of 0.2% (2022: 164.8). In total, 482 cubic metres of oil was used as fuel in 2023 (5.5% up on 2022: 457).

Global GHG emissions and energy consumption Location-based statutory reporting (Operational Control Boundary)[1,2,3,4,5,6]

Emissions and energy sources	UK and Offshore CO_2e '000 metric tonnes 2023	Global CO_2e '000 metric tonnes 2023[2]	Proportion relating to the UK and Offshore Area	UK and Offshore CO_2e '000 metric tonnes 2022	Global CO_2e '000 metric tonnes 2022[2]	Proportion relating to the UK and Offshore Area	UK and Offshore energy used '000 kWh 2023	Global energy used '000 kWh 2023[2]	Proportion relating to the UK and Offshore Area	UK and Offshore energy used '000 kWh 2022	Global energy used '000 kWh 2022[2]	Proportion relating to the UK and Offshore Area
Combustion of fuel and operation of facilities including fugitive emissions (Scope 1)	2.150	170	1.3%	2.266	285	0.8%	11,343	699,011	1.6%	11,839	877,757	1.3%
Electricity, heat, steam and cooling purchased for own use (Scope 2)	0.385	93	0.4%	0.554	98	0.6%	1,905	196,612	1.0%	2,740	205,859	1.3%
Total GHG emissions and energy	2.535	263	1.0%	2.819	383	0.7%	13,248	895,622	1.5%	14,578	1,083,616	1.3%
Change	-10.1%	-31.3%					-9.1%	-17.3%				

Vesuvius' chosen intensity measurement (location-based statutory reporting)[1,2]	Metric tonnes CO_2e per metric tonne of product packed for shipment: UK and Offshore 2023	Global 2023[2]	UK and Offshore 2022	Global 2022[2]	kWh of energy per metric tonne of product packed for shipment: UK and Offshore 2023	Global 2023[2]	UK and Offshore 2022	Global 2022[2]
Emissions and energy reported above normalised to metric tonnes CO_2e per metric tonne of product packed for shipment	3.505	0.310	4.090	0.426	18,315	1,054	21,150	1,207
Change	-14.3%	-27.4%			-13.4%	-12.7%		

	Metric tonnes of CO_2e per £m revenue: UK and Offshore 2023	Global 2023	UK and Offshore 2022	Global 2022
Total GHG emissions as metric tonnes CO_2e per £m revenue (location-based)	20.6	136.3	22.2	192.1
Change	-7.0%	-29.0%		

1. Location-based Statutory Reporting of Global GHG emissions (metric tonnes of CO_2e) and energy consumption ('000 kWh). The numbers are collated from entities within the Group's Operational Control Boundary.
2. The business of Universal Refractories Inc (Vesuvius Penn Corporation) which was acquired in 2021, is included in 2022 and onwards. BMC (Yingkou YingWei Magnesium Co., Ltd), which was acquired in late 2022 is included in 2023 and onwards.
3. In reporting GHG emissions, we have used the GHG Protocol Corporate Accounting and Reporting Standard (revised edition) methodology to identify our location-based GHG inventory of Scope 1 (direct) and Scope 2 (indirect) CO_2e. We report in metric tonnes of CO_2 equivalent (CO_2 e). We have used emission factors from the UK Government's (Defra) and the IEA GHG Conversion Factors for Company Reporting 2023 in the calculation of our GHG emissions.
4. Our energy-related greenhouse gas (GHG) emissions, reported as carbon dioxide equivalents (CO_2e), include direct emissions of the three main GHGs (carbon dioxide (CO_2), methane (CH_4) and nitrous oxide N_2O).
5. Process related emissions of the following in CO_2 equivalent and in metric tonnes are not significant: Direct methane CH_4 emissions and Direct nitrous oxide N_2O emissions.
6. Emissions of the following in CO_2 equivalent and in metric tonnes are not significant: Direct sulphur hexafluoride (SF_6) emissions; Direct HFC emissions; and Direct PFC emissions.

Scope 3 emissions

Vesuvius' Scope 3 CO_2e emissions, mainly upstream, contribute to a greater part of our total CO_2e emissions than our Scope 1 and Scope 2 emissions. Our products are used by customers whose processes emit significant amounts of CO_2. They serve to contain and protect liquid metal and manage its flow, but do not participate in the heating operations or chemical reactions that lead to CO_2 emissions. Emissions associated with the processing or use of our products are hence very limited. More specifically:

- Some products require drying or pre-heating prior to use by our customers. Emissions generated during these operations are included in the Processing of sold products category
- Refractory materials do not require energy during their use; having undergone high temperature processes during their manufacturing, they are inert and do not release any greenhouse gases during their use.
- Some non-refractory products contain chemicals, which will be partially burnt during usage by our customers. Emissions due to the combustion of chemicals are included in the Use of sold products category.

Since 2021, we have undertaken a focused evaluation of emissions associated with raw materials, using publicly available average CO_2 emissions factors. We have also collected information on energy source, CO_2 emissions data and reduction plans from our raw materials suppliers as part of our Request for Quotation process.

In 2023, we concentrated on the four raw material categories that account for an estimated half of our Scope 3 emissions from acquired products and services. We provided our suppliers with training and evaluation tools to help them assess their Scope 1 and Scope 2 emissions. In China our workshop on 'Sustainability and CO_2 emissions' had 55 attendees representing 35 suppliers.

Suppliers representing 54% of our raw material spend have provided disclosures to date.

We have also started collecting CO_2 emissions data relating to transportation from our forwarders in all regions. In 2023, the CO_2 emissions data that we received from our forwarders covered 45% of our transportation spend (upstream and downstream), and we were able to evaluate CO_2 emissions covering a further 43% of our transportation spend using operational data and DEFRA conversion factors. The remainder of our CO_2 emissions from upstream and downstream transportation (12%) was estimated based on spend and DEFRA conversion factors.

Various initiatives have been launched to reduce our Scope 3 CO_2 emissions, including returnable packaging, the electrification of company fleet vehicles and arrangements for collective commuting.

Scope 3 emissions[1,2,3,4,5,6]

	2023[2]		2022[2]		2021		2020		2019	
Metric tonnes CO_2e	Metric tonnes	%	Metric tonnes	%	Metric tonnes	%	Metric tonnes	%	Metric tonnes	%
Purchased goods and services	**1,066,129**	**77%**	1,038,969	79%	1,342,387	84%	1,104,823	84%	1,127,065	84%
Capital goods	**39,992**	**3%**	33,369	3%	22,007	1%	19,818	2%	25,087	2%
Fuel- and energy-related activities (not included in Scope 1 or 2)	**37,088**	**3%**	45,551	3%	50,931	3%	36,845	3%	42,332	3%
Upstream transportation and distribution	**39,086**	**3%**	45,572	3%	39,887	2%	23,946	2%	26,104	2%
Waste generated in operations	**15,228**	**1%**	15,364	1%	14,428	1%	11,961	1%	3,632	0%
Business travel	**11,443**	**1%**	9,578	1%	5,128	0%	4,670	0%	10,724	1%
Employee commuting	**20,374**	**1%**	21,253	2%	21,653	1%	21,561	2%	22,303	2%
Upstream leased assets	**0**	**0%**	0	0%	0	0%	0	0%	0	0%
Downstream transportation and distribution	**80,896**	**6%**	38,899	3%	34,912	2%	23,529	2%	25,700	2%
Processing of sold products	**14,924**	**1%**	15,779	1%	14,078	1%	13,902	1%	14,371	1%
Use of sold products	**34,194**	**2%**	32,914	2%	37,460	2%	31,834	2%	39,645	3%
End-of-life treatment of sold products	**22,103**	**2%**	20,959	2%	23,002	1%	18,918	1%	4,535	0%
Downstream leased assets	**0**	**0%**	0	0%	0	0%	0	0%	0	0%
Franchises	**0**	**0%**	0	0%	0	0%	0	0%	0	0%
Investments	**0**	**0%**	0	0%	0	0%	0	0%	0	0%
Total Scope 3 CO_2e emissions	**1,381,457**	**100%**	1,318,207	100%	1,605,873	100%	1,311,807	100%	1,341,498	100%

1. In 2023, the GHG Protocol managed Quantis Scope 3 evaluator tool was withdrawn, so Vesuvius now utilises the Sustrax platform, which offers the possibility to evaluate Scope 3 emissions at a greater level of detail. The Sustrax tool relies on the UK Government DEFRA methodology, categories, and emission conversion factors. Wherever possible we used activity data which relies on information that is specific to the organisation, and therefore is much more accurate than the spend base method. Our Scope 3 emissions for the 2019 to 2022 period were re-evaluated using the improved new approach to ensure comparability over time.
2. The business of Universal Refractories Inc (Vesuvius Penn Corporation) which was acquired in 2021, is included in 2022 and onwards. BMC (Yingkou YingWei Magnesium Co., Ltd), which was acquired late 2022 is included in 2023 and onwards.
3. The numbers are collated from entities within the Group's Operational Control Boundary.
4. Conversion factors for GHG emissions and energy used the 2023 UK Government GHG Conversion Factors for Company Reporting. Conversion factors for GHG emissions for electricity globally used the IEA Emission Factors 2023.
5. Calculation of Scope 3 GHG emissions used the Carbon Footprint Limited Sustrax system for years 2019-2023.
6. Scope 3 2023 Upstream subtotal 1,229,340 Metric Tonnes (89%) Downstream subtotal Metric Tonnes 152,117 (11%).

Product responsibility – Growing our engagement in the circular economy

The drive to improve the sustainability performance of Vesuvius and the refractory industry's products was initiated many decades ago. Continuous improvements have led to considerable reductions in both the raw materials used and the quantity of product shipped to landfill. As the amount of refractory material consumed per tonne of steel cast levels off, the purpose and value of the use of refractory materials will move from delivering insulation to an even greater emphasis on helping to improve steel quality and process efficiency.

Product durability

Our first, and preferred, strategy to reduce the depletion of resources is the extension of product durability.

We are continuously working to extend the lifetime of our consumable products. Strategies include the development of advanced materials, the design of shapes that allow dual usage of products, and product repair and remanufacture. For mechanisms and equipment, we also offer wear monitoring and maintenance services to our customers to ensure their optimum performance and extend their lifetime.

Product recyclability

At the same time as reducing the quantity of raw materials required for each casting, technical solutions have emerged to enable the recycling of refractory materials after usage in the production of iron and steel. Whereas in the early 1970s nearly all refractory materials were disposed of after use, it is estimated that more than half are now recycled. In Europe, as little as 5% of refractory materials now go to landfill.

As part of our product end-of-life management programme, we are developing selected initiatives with customers, tailored to each product family, such as:

- Recovery and remanufacture of products after usage
- Recovery and recycling of refractory materials after usage
- Recycling of mechanisms as scrap steel
- Refurbishment of lasers and redeployment, or disassembly and recycling of components

Recovered and recycled materials

Vesuvius is determined to increase the usage of recovered and recycled materials in its product formulations.

Increasing the share of recovered and recycled materials in product formulations poses multiple challenges, in terms of availability, consistency of quality, competitiveness versus virgin materials whose prices fluctuate, regulatory frameworks for the transportation of end-of-life waste materials, and validations to ensure that product performance and reliability remain unaffected. 2023 performance was adversely affected by these factors, which remain a concern going forwards.

Recycled material usage[1,2]

	2023 Pro forma[3]	2023	2022	2021	2020	2019
Amount of recycled materials used in Vesuvius products (metric tonnes)		**65,497**	66,137	76,482	57,035	68,373
Amount of recovered materials that are not recycled used in Vesuvius products (metric tonnes)[4]		**0**	0	0	0	0
Percentage of recycled materials in Vesuvius products from total materials	**5.7%**	**6.5%**	5.8%	5.9%	5.3%	5.7%
Percentage of revenue from products including recycled materials		**20.7%**	20.4%	21.0%	19.6%	18.7%

1. Re-baselined using pre-acquisition data for the business acquired from Universal Refractories, Inc. (Vesuvius Penn Corporation) and BMC (Yingkou YingWei Magnesium Co., Ltd) from 2019 onwards.
2. The numbers are collated from entities within the Group's Operational Control Boundary.
3. Pro forma: performance as if the dolime process had been operating normally in 2023 (based on the average output and performance of 2019 to 2022).
4. All recovered materials undergo some processing before their usage in our products. Therefore, they are all included in the recycled materials category, and the recovered materials category is empty.

Reducing consumption

Material waste

The Board has set a target of a 25% reduction of our solid waste (hazardous and sent to landfill) per metric tonne of product packed for shipment by 2025 (vs the 2019 baseline).

Manufacturing sites have started building action plans covering both hazardous and non-hazardous waste to eliminate, reduce and recycle. A wide range of actions have been initiated to reduce the amount of waste, such as closed conveyor and dust extraction systems, process improvements to reduce scrap and process waste generation, re-engineering of product recipes to include internally recycled material, and identification of recycling opportunities in other industries for by-products.

In 2023, the ratio of solid waste (hazardous and sent to landfill) per metric tonne of product packed for shipment reduced by 13.4% vs 2019, (2022: reduced by 9.1%). The 2023 performance was notably affected by the partial interruption to dolime production in 2023. During the year a few sites also disposed of waste material that had been accumulated over a long period of time. Waste material quantities were reassigned to the year during which they were generated, and waste figures adjusted accordingly.

Water consumption

We aim to reduce both the amount of fresh water consumed in our manufacturing process and social water consumption. The main area of focus is the reduction of wastewater. Vesuvius works to reduce the consumption of water in its manufacturing operations by recycling and improving water management processes. No salt water or cooling water is abstracted, with no related outflow. Various technological solutions have been implemented to reduce our water consumption and wastewater. Most noteworthy, in the past five years: 30 sites have implemented measures to minimise water consumption in grinding, cleaning, degreasing, and rinsing processes; 18 sites have upgraded technology or equipment to significantly reduce water consumption; and ten sites have implemented rainwater harvesting systems.

In 2023, our overall fresh water consumption per tonne of product packed for shipment decreased by 0.6% vs our baseline of 2019. As with energy use, normalised consumption of water varies with product mix.

Five-year evolution of fresh water consumption

	% change 2023/2019	2023[1]	2022[1]	2021[1]	2020[1]	2019[1]
Water in m^3	**-13.6%**	**744,531**	683,485	755,366	756,522	861,556
Water in m^3 used per metric tonne of product packed for shipment	**-0.6%**	**0.876**	0.732	0.710	0.840	0.882
Water in m^3 used per £ million revenue	**-27.0%**	**386**	343	452	534	529

1. Re-baselined using pre-acquisition data for the business acquired from Universal Refractories, Inc. (Vesuvius Penn Corporation) and BMC (Yingkou YingWei Magnesium Co., Ltd) from 2019 onwards.

Wastewater

The Board has set a target for the Group to reduce the amount of wastewater per metric tonne of product packed for shipment by 25% by 2025 (vs the 2019 baseline).

We are focused on reducing water consumption and the volume of wastewater discharged. Thirty-one sites reclaim and reuse some water after usage and 30 sites have made investments in wastewater treatment installations. We have action plans in place to reduce our wastewater generation globally, including:

- Replacing wet scrubbing systems for particulate removal with dry filter systems
- Optimising cleaning processes
- Detecting and addressing water leakages above and underground, and implementing preventative maintenance programmes
- Optimising production schedules to reduce the need for cleaning between recipes

Environmental exceedances

Vesuvius is committed to addressing environmental exceedances and complying with local regulations. All exceedances are reported in a central database. Any significant exceedance or environmental incident is reported to the Group Executive Committee.

In 2023, Vesuvius recorded 70 mostly minor environmental incidents. Of these, two related to emissions to air, six to emissions to water and 62 to ground. Seven manufacturing sites were engaged in discussions with neighbours over environmental issues, mostly due to noise or smell. Five sites were engaged in discussions over minor environmental compliance issues with local authorities.

Total environmental releases across the Group in 2023 are estimated to have totalled 44.4 metric tonnes (including 30.9 metric tonnes of water-based materials) and 12.4 m^3 of hydrocarbons, with the balance being solids and powders (1.1 metric tonnes).

All 2023 reported releases to water and all but three to the ground were fully contained. One release to ground involving hydrocarbons required remedial work, the other two were water based and were also cleaned up.

Where incidents occur, they are managed via Vesuvius' site environmental response plans and reported through the Vesuvius incident reporting system. We comply with local reporting requirements in respect of such incidents. Two regulatory actions issued in 2021 against Vesuvius in Belgium remain open; action plans to address them are being implemented. No action was taken by any authority in relation to an environmental incident in 2023 which resulted in financial penalties against Vesuvius.

(Metric tonnes)	% change 2023/2019 Pro forma[1]	% change 2023/2019	2023 Pro forma[1,2]	2023[2]	2022[2]	2021[2]	2020[2]	2019[2]
Ratio of wastewater per tonne of product packed for shipment[3]	**-11.6%**	**-4.0%**	**0.242**	**0.263**	0.258	0.251	0.273	0.274

1. Pro forma: performance as if the dolime process had been operating normally in 2023 (based on the average output and performance of 2019 to 2022).
2. Re-baselined using pre-acquisition data for the business acquired from Universal Refractories, Inc. (Vesuvius Penn Corporation) and BMC (Yingkou YingWei Magnesium Co., Ltd) from 2019 onwards.
3. Some Vesuvius sites include social water in their wastewater reporting.

Supporting our customers' journey to net zero

Vesuvius is committed to growing its contribution to a sustainable world, through products and services that improve safety, maximise environmental performance, reduce greenhouse gas emissions and contribute to the circular economy

Sustainable solutions

Our products have the potential to help customers reduce and avoid greenhouse gas emissions when compared with their current practices, by amounts that far exceed the emissions required to manufacture and distribute them.

Our customers in the iron, steel and aluminium industries are embracing the challenge of dramatically reducing their CO_2 emissions. Many have pledged to reach net zero by 2050. They are investing heavily to transform their manufacturing technologies for the long term, working on a range of initiatives including the direct reduction of iron with carbon-free hydrogen and the replacement of carbon anodes in aluminium smelting. We contribute to their efforts through technology partnerships and developing new products for the next generation zero emissions aluminium, iron and steel-making processes. We help them to evaluate the CO_2 emissions reduction our products bring to their complete value chain.

Product sustainability benefits scorecard

Improves users' comfort, health and safety	Safety in manufacturing and transportation
	Safety during usage
	Exposure to health hazards
Limits our impact on natural resources	Product weight
	Product lifetime
	Recycled materials
Minimises energy consumption and emissions	Cradle to grave greenhouse gas emissions
	Reduced and avoided CO_2 emissions for the customer
	Volatile compounds emissions
Reduces waste, avoids landfill and increases recycling	Waste generation during manufacturing and usage
	Recyclability after usage

Product lifecycle assessments/ assessing our portfolio

We have created a Product Sustainability Benefits Scorecard to evaluate the sustainability benefit of our products over their full product life cycle (raw materials, manufacturing, transportation, use phase and end of life), rating our products against standard market products. By the end of 2023, we had assessed 97% of our revenue from consumable products using this internal scorecard. Of our 2023 sales, 18.2% were generated from products with superior sustainability characteristics (17.9% in 2022). 15.6% of 2023 sales were generated from products with superior performance in terms of customer CO_2 emissions. Our objective is to continue growing this share of our product portfolio year after year.

Sustainable R&D

Vesuvius invests significantly in new product development, working closely with customers through our network of account managers and service teams, and holding regular technical and R&D meetings, to offer optimised solutions for their specific needs. We have a unique combination of expertise covering a wide range of fields including metallurgy, refractory ceramics, robotics and mechatronics, and IT.

When designing new products, we look at our customers' current and future challenges, needs and expectations, combine this with information we have collected from our analysis of past issues, and seek to achieve both incremental improvements and breakthrough innovations in safety, robustness, reliability and performance, to steer the development of next-generation products and services.

Using the Product Sustainability Benefits Scorecard, we have undertaken a complete assessment of the pipeline of R&D and new product development projects, to check from the design stage that the projects are aligned with our sustainability ambitions and more specifically contributing to the fight against climate change by reducing CO_2 emissions. We use this information to adjust priorities and allocate resources. We consider products that have better sustainability characteristics than those already on the market, to be 'market-leading sustainable products'.

The challenge of decarbonising iron-making and aluminium smelting, requires the development and industrialisation of radically new technologies. We complement our internal efforts with partnerships with over a dozen research institutions, universities and strategic customers, working to develop the refractory solutions that will support these novel processes.

Product safety and quality

At the core of our business is the desire to help our customers improve their operational performance and efficiency. Customers rely on the quality of our products, and their structural integrity, to ensure the safety of their employees by controlling the flow of molten metal in their operations.

The reliability and performance of our products are critical to our customers in terms of safety on the shop floor, overall equipment effectiveness, labour productivity and metal yield, and their environmental impact (reducing energy consumption, CO_2 emissions and refractory material waste).

Many of our products allow our customers to achieve improved metallurgical properties in their products, for example, allowing the production of better wind turbine components or the light-weighting of vehicles.

Product safety and quality

New product development

Product safety is paramount to us. We have implemented a wide range of practices to optimise the safety and quality performance of our products in use, reduce failures and increase their lifetime.

We follow a strict stage-gate process for the development of new products, ensuring that safety performance objectives are defined from the initial stages and progressively completed up to the product launch. Key deliverables include risk assessments, preparation of user and maintenance documentation, manufacturing control plans, and Vesuvius and customer operator training. We undertake extensive testing through rigorous alpha and beta trials, with systematic trial reports to confirm that targeted performance and robustness objectives are met and to allow for fine-tuning before product launch. Safety data sheets are available for all consumable products.

The development of human-centred robotic solutions for steel shops reduces the ergonomic strain on our customers' operators together with their exposure to high temperatures.

Safety and quality in use – product feedback

Our constant performance monitoring develops deep and lasting relationships with our customers.

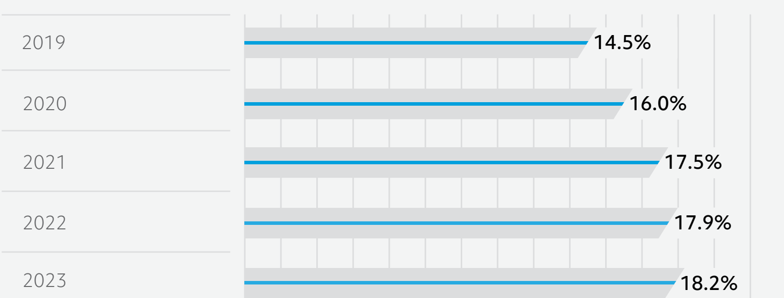
After product launch, whenever a safety-related incident (an injury or a dangerous occurrence) occurs at one of our customers that may have involved a Vesuvius product or service, it is systematically reported and investigated. Likewise, all quality and performance issues raised by the Vesuvius field teams or by customers are systematically reported, documented and classified, based on their nature and severity.

Issues and incidents are dealt with through a rigorous problem-solving methodology and in-depth investigation using the 8D practical problem-solving methodology. This ensures we identify root causes, implement corrective actions, and prevent them recurring. The outcome of the investigation, including root causes and corrective actions, is shared with the customer and lessons learned are incorporated into the design of following generations of products.

83%
of ongoing new product development projects were dedicated to market-leading sustainable products

Vesuvius' investment in sustainability

% of sales generated by market-leading sustainable products*



* Using Vesuvius' internal scorecard.

New sustainable products

The scope of work of the Group's central functions and processes R&D teams covers fundamental research, new product development projects, the evaluation of raw materials, and support to operations. In 2023, 83% of ongoing new product development projects were dedicated to market-leading sustainable products

Our people

We provide our employees with a safe workplace, where they are recognised, developed and properly rewarded

Health, safety and well-being at work

Safety is our top priority and our overriding commitment to health and safety is embedded throughout the organisation.

Our approach is to identify, eliminate, reduce or control all workplace risks, and an ongoing system of training, assessment and improvement is in place to focus on achieving this. We remain fundamentally committed to protecting the health and safety of employees, contractors, visitors, customers and any other persons affected by our activities.

We want to become a zero-accident company and are striving to become a best-in-class organisation for safety performance and leadership.

Our beliefs

1. Good Health and Safety is Good Business
2. Safety is everybody's responsibility
3. Working safely is a condition of employment
4. All work-related injuries and work-related ill-health are preventable

Health and safety governance

The Board has overall responsibility for health and safety-related matters and delegates authority for the management of the health and safety performance of the business to the Chief Executive. The Health and Safety Policy is signed by all members of the Group Executive Committee and the Business Unit Presidents are responsible for its deployment.

The Board receives regular information on every Lost Time Injury and key safety performance indicators. In addition, the Board carries out a biannual review of health and safety performance. Annual presentations of Business Unit strategy include health and safety.

Group safety audits

The Group operates a central safety auditing team of three auditors, each with more than ten years' experience, who report to the VP Sustainability. The team's main purpose is to verify the deployment and ongoing application of the Group's standards and policies in our locations, including our manufacturing sites, R&D facilities and the customer locations in which a significant number of our employees operate daily. Each audit also includes an assessment of the site's HSE leadership. During 2023, the team conducted 66 audits (2022: 65).

Following each audit, action plans are created by the site management teams to address any issues identified and work on completing these is assessed on a regular basis. The observations made during audits are used to improve the Group's training programmes and to enhance the Group's health and safety standards. The results of the Group HSE audits, as well as the progress of action plans addressing the most critical issues, are reported to the Board twice a year.

Sites are also encouraged to carry out self-assessments, based on the Group safety audit compliance checklist, to monitor their progress.

Safety audits and improvement opportunities

In 2023, 83% (2022: 82%) of our working population performed routine safety audits every month. This generated an average of nine (2022: nine) implemented safety improvement opportunities per person, resulting in an improvement in worker safety.

The audit programme involves employees at all levels – from the Group Executive Committee and safety specialists, through to local site management, employees and directly supervised contractors.

Vesuvius' Health & Safety Policy

We commit to:

- Abide by simple and non-negotiable standards
- Report transparently and thoroughly investigate any incident to learn, share, and avoid repeats
- Undertake risk assessments to identify hazards, prioritise any deficiencies and correct them in an appropriate way, as well as to develop appropriate safe work procedures
- Ensure every business facility follows the agreed health and safety plans, committing to: reduce the frequency and severity of injuries; improve workstation ergonomics; prevent exposure to hazardous substances; and minimise the risk of occupational diseases
- Increase awareness about health and safety issues and provide training for all new employees and contractors
- Ensure every business facility has an appointed Health and Safety Manager

See the full policy on www.vesuvius.com for further details.

2023 safety performance

Our Lost Time Injury Frequency Rate (LTIFR) of 0.6 per million hours worked in 2023 was significantly lower than 2022 (1.08), but we recognise that there is more work left to do. The LTIFR for not directly supervised contractors and visitors was 1.6 in 2023 (2022: 1.02), and this remains an area of focus for our efforts.

Fatalities and severe injuries

There were no work-related fatalities in 2023, but sadly one of our colleagues was killed in a road traffic accident whilst commuting. Vesuvius provided support to his family.

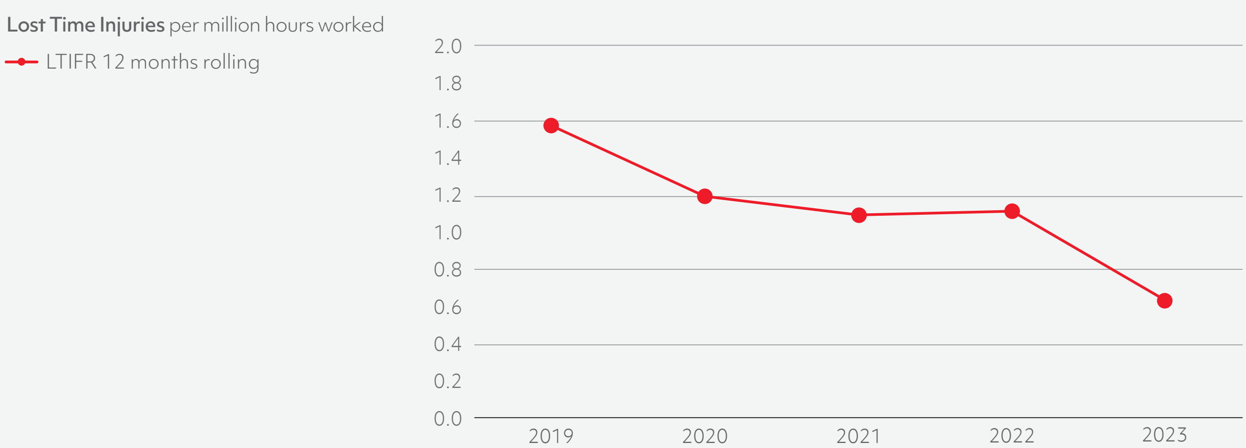
During 2023, there were a number of severe injuries, including an external contractor, who fell from a height resulting in leg and jaw fractures, and two incidents involving finger amputations. We are actively taking steps to learn from these severe injuries and to improve our systems and procedures to prevent any similar occurrences.

Lost time and medically treated injuries

Vesuvius operates a robust and comprehensive process for the timely reporting of incidents. In our internal standards, contractors who are not directly supervised are included, and we use more stringent definitions for Lost Time Injuries (LTIs) and 'severe accidents' than the definitions used by many regulatory bodies. All sites are required to report on all Recordable Injuries (aligned with the OSHA definition), to maintain the focus on safety.
As an illustration of the precautionary preventative approach taken by Vesuvius in accident investigation, all LTIs and Recordables require a full 8D report.

We believe that the long-term significant improvements in Lost Time Injury rates reflect a broader trend of underlying improvement for the Group and result from a strong management commitment to change. Shifting the focus to the globally recognised OSHA Recordables for medically treated injuries supports the continued downward pressure on frequency rates.

Lost Time Injuries



2023 Safety performance

Performance indicators	Employees and directly supervised contractors 2023	Not directly supervised contractors and visitors 2023	All employees, not directly supervised contractors and visitors 2023
Work-related Death	0	0	0
Severe Injuries	3	2	5
Lost Time Injuries (LTI)	15	2	17
LTI Frequency Rate (LTIFR) per million hours	0.6	1.6	0.6
Total Recordable Injuries (TRI)	91	4	95
Total Recordable Frequency Rate (TRFR) per million hours	3.4	3.2	3.4
Safety Audits (number)	135,805	0	135,805
Safety Audits per 20 employees per month	17	0	17

People and Culture

Our People and Culture strategy aims to build an outstanding business by ensuring we have the individuals, skills and capabilities critical to the delivery of our strategy.

It focuses on delivering value for our businesses, a positive employee experience and functional excellence, through our culture of diversity and innovation. Our long, mid and short-term plans are organised around two key areas:

- Building an Outstanding Business – with the critical skills and capabilities to win
- Developing Outstanding People – in diverse, engaged, and high performing teams

The underlying foundation for our People and Culture strategy is our strong culture of delivering results in a diverse, entrepreneurial, decentralised organisation, where everyone is empowered to take action, working with like-minded people in a non-matrix environment.

Vesuvius is for ambitious, self-motivated people who thrive on challenges and solving problems. It is for people who are never satisfied, always raise the bar and dare to make difficult decisions and win.

Our strength comes from our CORE Values: Courage, Ownership, Respect and Energy. These Values guide and inspire us, shaping our behaviours and decisions.

Our principles and approach

Vesuvius is a geographically and culturally diverse group, employing more than 11,000 people of more than 70 nationalities in 40 countries.

Our geographical diversity places us close to our customers around the globe. It also highlights the importance of maintaining and applying strong and consistent values and ethical principles in our worldwide approach to business.

Our employees' engagement with our values and culture is vital to our success and the sustainable delivery of the Group's strategy. We communicate openly and transparently within the organisation, through 'town hall' meetings, Board and senior management visits, management feedback, performance evaluation, measuring employee engagement and responding to the feedback we receive. Critically, there is ongoing and consistent communication of our CORE Values and the principles of our Code of Conduct. This is underpinned by engaging staff across the Group in both general and targeted training, to ensure a consistent understanding of our policies and procedures.

Our CORE Values

The Group's CORE Values are actively supporting the Group's priorities, encouraging consistent behaviours across the Group to sustain our business success in the future.

These Values, and the behaviours underpinning them, convey the mindset and attitudes we expect each employee to show every day. They are at the heart of the culture of the Group, promoting our image to external stakeholders, and underpinning the commercial promise we provide to our customers.

The Values are reinforced through our performance management systems and are celebrated each year through our Living the Values Awards which select regional and global winners for each Value.

Vesuvius' CORE Values

Courage

- I systematically say, decide and do what is right for Vesuvius including when it is difficult, unpopular, or not consensual
- I express my opinions openly during discussions, but I also defend Group decisions once they've been taken, even if they do not correspond to my initial position
- I proactively take leadership responsibility on difficult projects and topics that are important to the Group's performance, motivated by the perspective of success rather than paralysed by the risk of personal failure

Ownership

- I am personally accountable for the consequences of my actions and for the performance of the Group in my area of responsibility or oversight, without blaming external circumstances or the actions of others
- I demonstrate an entrepreneurial spirit, looking for and seizing business opportunities and I immediately address problems that come up as soon as I become aware of them
- I manage the Group's money and resources as though they were my own

Respect

- I demonstrate respect for other people's ideas and opinions even if I disagree with them
- I welcome open debate. I listen to others, and foster esteem and fairness with customers, suppliers, co-workers, shareholders and the communities where we operate
- I communicate my objectives clearly and take time to explain all decisions. I behave with the highest level of integrity. I promote diversity at all levels of the Company

Energy

- I work hard and professionally in pursuit of excellence
- I constantly raise the bar and challenge the status quo. For me, the sky is the limit
- I lead by example, inspiring and motivating my team to go the extra mile. I promote a positive and energising work environment
- I continuously deliver outstanding customer experience and innovative solutions
- I never underestimate competitors and permanently strive to reinforce the Group's leadership position

Code of Conduct

Our Code of Conduct sets out the standards of conduct expected, without exception, of everyone who works for Vesuvius in any of our worldwide operations.

The Code of Conduct emphasises our commitment to ethics and compliance with the law, and covers every aspect of our approach to business, from the way that we engage with customers, employees, the markets and other stakeholders, to the safety of our employees and workplaces.

Everyone within Vesuvius is individually accountable for upholding its requirements. We recognise that lasting business success is measured not only in our financial performance, but in the way we deal with our customers, business associates, suppliers, employees, investors and local communities.

The Code of Conduct is displayed prominently at all our sites and is published in our 29 major functional languages. It is available to view at: www.vesuvius.com.

We continue to enhance the policies that underpin the principles set out in the Code of Conduct. These assist employees to comply with our ethical standards and the legal requirements of the jurisdictions in which we conduct our business. They also give practical guidance on how this can be achieved.

The Code of Conduct covers eight key areas:

1. Health, safety and the environment
2. Trading, customers, products and services
3. Anti-bribery and corruption
4. Employees and human rights
5. Disclosure and investors
6. Government, society and local communities
7. Conflict of interests
8. Competitors

Diversity and inclusion

As an organisation, Vesuvius has a global, multicultural operational and customer base, which we wish to reflect inside our organisation with a multicultural, diverse community of excellent professionals from all backgrounds. This starts by focusing on broad diversity of gender and nationality, with an aim to ensure that all employees and job applicants are given equal opportunity and that our organisation is representative of all sections of society where we operate. Vesuvius operates in 40 countries around the world, employing people with more than 70 nationalities, making us a truly diverse business.

We regard this diversity as a critical aspect of our success and future growth, as it allows us to access the widest range of skills and experience. Each employee is respected and valued, and as a result they are all able to give their best.

All employees are given help, training and encouragement to develop their full potential and utilise their unique talents.

Overall responsibility for implementing the Group's Diversity and Equality Policy rests with the Executive Directors. The Nomination Committee monitors progress with meeting its objectives. At the end of 2023, the Senior Leadership Group (comprising c.150 senior managers) consisted of 24 nationalities located in 23 countries. 15% of our overall workforce were women, which was stable versus 2022.

Diversity – 31 December 2023

	Female	Male	Gender not available[1]	Total	Female	Male
Board	3	6		9	33%	67%
Group Executive Committee members	2	5		7	29%	71%
Leadership roles reporting to members of the GEC	12	36		48	25%	75%
Directors of subsidiaries included in consolidation[2]	21	76		97	22%	78%
Senior Managers[3]	**35**	**117**		**152**	**23%**	**77%**
Other employees	1,718	9,506		11,224	15%	85%
Vesuvius employees	**1,753**	**9,623**		**11,376**	**15%**	**85%**
Directly supervised contractors	43	165	1,927	2,135		
Vesuvius employees and directly supervised contractors				13,511		

1. The Group had 1,927 directly supervised contractors who were contracted through third parties and for whom the Group does not hold detailed employment records.
2. Of the 97 employees who are directors of Group subsidiaries but not members of the GEC or direct reports of the GEC, 22% are women. This disclosure is made to comply with regulatory requirements. It includes directors of dormant companies. Some individuals hold multiple directorships.
3. Senior Managers as defined for the purposes of Section 414C(8)(c) include directors of the Company's subsidiaries.

Vesuvius' Diversity and Equality Policy

- We are dedicated to encouraging a supportive and inclusive culture amongst our global workforce
- We aim to ensure that all employees and job applicants are given equal opportunity and that our organisation is representative of all sections of society where we operate. Each employee will be respected and valued and able to give their best as a result
- We are committed to providing equality and fairness to all in our employment and not providing less favourable reward, facilities or treatment on the grounds of age, disability, gender, marital or civil partner status, pregnancy or maternity, race, colour, nationality, ethnic or national origin, religion or belief, or sex, or gender reassignment, or sexual orientation
- We are opposed to all forms of unlawful and unfair discrimination

See the full policy on www.vesuvius.com for further details.

People and Culture continued

2023 Distribution of Vesuvius employees – full-time versus part-time

	Full-time employees	Full-time employees (%)	Part-time employees	Part-time employees (%)	Vesuvius employees total	Vesuvius employees total (%)
Permanent salaried	4,642	41%	53	<1%	4,695	41%
Permanent hourly	6,290	55%	16	<1%	6,306	55%
Total Permanent	**10,932**	**96%**	**69**	**1%**	**11,001**	**97%**
Temporary salaried	43	<1%	2	<1%	45	0%
Temporary hourly	327	3%	3	<1%	330	3%
Total Temporary	**370**	**3%**	**5**	**0%**	**375**	**3%**
Vesuvius employees	**11,302**	**99%**	**74**	**1%**	**11,376**	**100%**

Over the past three years we have made visible progress in gender diversity. Women now represent 20% of our Senior Leadership Group, a level that we consider is still too low, but which represents a significant improvement as compared with the level of 15% in 2019. Our ambition remains to reach 25% women in this tier by the end of 2025.

The Board has noted the recommendation of the Parker Review that each FTSE 350 company should set a percentage target, by December 2023, for senior management positions that will be occupied by ethnic minority executives in December 2027. The Company currently analyses management on the basis of nationality, which indicates a great deal of diversity in the senior management group, but not ethnicity. The Board has resolved that a survey of ethnicity should be conducted, but that no ethnicity target should be set at this time.

Copies of the Board Diversity Policy and Group Policy on Diversity and Equality are available to view on the Vesuvius website: www.vesuvius.com. Further information on the Group's approach to promoting diversity can be found on pages 105 and 106.

Employee engagement

Vesuvius recognises that companies with highly engaged employees deliver better business outcomes. They have lower absenteeism, lower employee turnover, fewer safety incidents, better product quality, and higher productivity, sales and profitability. At Vesuvius, we regard engagement as critical to our ongoing success and we work hard to listen to our people and act when issues impacting engagement are identified.

Employee engagement action plans

Engagement is a collective responsibility, particularly among our management community. We conduct an annual employee engagement survey, I-Engage, in partnership with Mercer, to measure our employees' attitudes to Vesuvius and their work. The survey generates reports of team responses to the survey. Managers then share the results openly with their teams and, working together, develop action plans to address issues.

In 2023, we maintained a very high participation level with 92% of all employees responding to 34 questions. Positive perceptions on safety continue to be a core strength, together with our overall employee experience, and understanding of our Company purpose and strategy, and of our approach to sustainability.

Internal communications

We continue to develop our internal communications programme to ensure we have a strong mix of channels to reach our diverse population. The Chief Executive regularly addresses the whole Group via Company-wide email and video, delivering strategic messages, and in 2023 held 13 interactive virtual sessions with the Senior Leadership Group to share business updates. Company news and announcements are regularly shared on the Group intranet and employee news app, whilst screen savers are used to support major communication campaigns. We also utilise posters and site 'town hall' meetings for on-site communications.

The Company Senior Leaders Conference, Spark, was held in Rome in September, with 150 delegates discussing Company strategy, our CORE Values, digital transformation and sustainability. Whenever possible, face-to-face communication is conducted at different levels of the organisation providing the necessary opportunities for interactive Q&A sessions with business leaders.

Employee consultation and industrial relations

Vesuvius supports freedom of association and the right to collective bargaining. In all of the countries in which we operate, the Group informs and consults local works councils and trade unions on matters concerning the Vesuvius business as required. These processes and procedures are regulated by local law and generate constructive dialogue between employee representatives and management, which provides benefit to our business. In 2023, 77% of permanent employees were represented by Collective Agreements that include working conditions such as local works councils, trade unions or other bodies.

In addition to local employee representation, the Group operates a European Works Council (EWC) with elected representatives from each of the EU countries in which Vesuvius has employees. Following the UK's departure from the EU, the previous EWC Agreement was terminated and on completion of the negotiation of a new EWC Agreement, the elected representatives met and constituted the EWC in November 2023.

Talent attraction and development

Mandatory online training courses – 2023 participation	% of targeted audience completing course
Anti-Bribery and Corruption (annual)	100%
Gifts, Hospitality and Entertainment (onboarding)	83%
Modern Slavery	83%
Anti-Tax Evasion	79%
Data Protection	81%
Cyber Security Awareness – 7 Basic Modules	88%

Talent management

The Group Executive Committee holds direct responsibility for the roles and development of our senior leaders, jointly reviewing capability needs and deciding on succession and cross-organisational moves for the leadership group. This illustrates the strong commitment at the highest level of our organisation to growing the Group using its Company-wide resources.

Leadership pipeline

Strengthening the leadership pipeline and facilitating people development throughout the organisation remain key areas of focus for Vesuvius. We continue to work hard to ensure that we have the right capability in every part of the organisation to drive our strategy and realise market opportunities. As a result, we have built high-calibre leadership teams, many of whom are relatively new to their roles and to Vesuvius. We empower our people to drive the business with an entrepreneurial spirit, and to develop a performance-oriented culture.

We aim to adopt a balance between external hires and internal promotions, fuelled by a strong process of backup and succession planning, especially for management positions.

Training and development

Our leaders take responsibility for managing and developing their teams. Our Learning Management System (LMS) provides a global hub for Vesuvius online training courses. Mandatory training courses are automatically assigned to new joiners and completion statistics are easily reportable. Targeted training courses can also be allocated to employees in specific roles, e.g. modern slavery training for specific people in purchasing.

Technical training

HeaTt training is aimed at the continuous technical development of Vesuvius employees. Courses range from entry to expert levels and are continuously updated to keep pace with developing technology and delivery methods, thereby guaranteeing that Vesuvius experts are at the forefront of technical innovation. They are a great way for our hugely experienced technical experts to pass on their knowledge to the next generation and ensure the sustainability of our know-how.

HeaTt module 2 Iron & Steel was launched on the LMS in October 2022, comprising 23 chapters of training material. The course is divided into three sections; the first explains the process of producing iron and steel, the second explains the different refractory products and the third section details how these products are applied in the iron and steel manufacturing processes. Module 2 encompasses products from Advanced Refractories, Flow Control, and Sensors & Probes. This module is open to every employee and was recommended for employees from the Iron and Steel division. In 2023, 46 people went through the whole three sections of this Module 2.

There are several online HeaTt M3 modules for Flow Control. They are organised by product line and are much more technical. Customer-facing and M&T employees are enrolled based on their technical needs. In 2023, people who completed the modules that were assigned to them spent over 3,845 hours in M3 training.

Compliance training

Compliance training gives our employees a clearer understanding of the scope of risks that exist as we conduct our business and gives context to how the Group expects each employee to respond to those risks.

The Board has set a target of at least 90% of targeted staff completing the annual Anti-Bribery and Corruption training. In 2023, 100% of the targeted staff completed this training.

Global reward

Reward and recognition are integral components of our employee value proposition, enabling us to attract, engage and retain key talent and highly qualified employees. We are committed to creating reward and performance management systems which are transparent and objective.

Our management Annual Incentive Plans are measured against both Vesuvius' financial targets and personal performance, an incentive structure consistent with that of our Executive Directors. The Vesuvius Share Plan for Executive Directors and Group Executive Committee members encourages robust decision-making based on long-term goals rather than short-term gains and works to align the interests of participants with those of shareholders.

In 2023, 99% of our salaried permanent employees undertook an annual performance review with their line management (2022: 98%).

Global mobility

Vesuvius operates worldwide. We believe that our companies should be managed and staffed by local personnel. However, we also provide selected groups of employees with a range of international assignments. These assignments are usually for a limited period, most often three years.

International assignees do not come from one or two countries alone. We have a truly international mix of nationalities in our mobile population. Individuals move not only within a region, but also between regions. Our mobility programme shows that our assignee population is as diverse as our Group.

Our communities

We seek to establish strong relationships with key stakeholders and support the communities in which we operate

A responsible company

Vesuvius is committed to making a positive contribution to society. As part of this, we focus on operating an ethical business with appropriate policies in place to ensure compliance with the regulations and laws in all our markets.

Governance and policies

Vesuvius' compliance policies underpin the principles set out in our Code of Conduct. They are the practical representation of our status as a good corporate citizen, and they assist employees to understand and comply with our ethical standards and the legal requirements of the jurisdictions in which we conduct our business. They also give practical guidance on how this can be achieved.

Human rights

The Group Human Rights and Labour Policy reflects the principles contained within the UN Universal Declaration of Human Rights, the International Labour Organization's Fundamental Conventions on Labour Standards and the UN Global Compact, to which the Group is a signatory. The Policy sets out the principles for our actions and behaviour in conducting our business and provides guidance to those working for us on how we approach human rights issues. These principles have been integrated into the work of our procurement teams as we assess our suppliers and their business practices. The policy was reviewed and updated in 2022.

Prevention of slavery and human awareness training on child labour, slavery and/or human trafficking

During 2023, we published our eighth transparency statement outlining the Group's approach to the prevention of slavery and human trafficking in our business and supply chain. A copy of our latest statement is available to view on our website: www.vesuvius.com.

Since the publication of our first statement we have conducted a risk assessment of our purchasing activities, seeking to identify, by location and industry, where the potential risks of modern slavery are highest. Our assessment identified the following four industries that pose a higher risk of modern slavery for Vesuvius:

1. Mining and extractive industries (raw materials)
2. Textiles (personal protective equipment (PPE) and work clothing)
3. Transport and packaging
4. Maintenance, cleaning, agricultural work, and food preparation (contracted workers)

As our spend with mining and extractive industry suppliers is far greater than the other three industries, and the number and diversity of suppliers is the greatest, we have been focusing our efforts on these industries. We have deepened our investigation of higher-risk raw materials, based on the studies carried out by Drive Sustainability and the Responsible Minerals Initiative on the responsible sourcing of materials in the automotive and electronics industries, with which our portfolio of raw materials shares many commonalities.

We provided webinar training on modern slavery to our key purchasing staff and continued to use an online e-learning module to upgrade the training given to all supplier-facing staff. It provides key guidance on the red flags associated with modern slavery to assist them in identifying these during supplier visits and accreditation. Since the launch of the modern slavery red flag training we have trained 100% of the targeted staff.

See the Group's Statement on the Prevention of Slavery and Human Trafficking

www.vesuvius.com/en/sustainability/our-policies/statement-on-modern-slavery.html

Vesuvius' Human Rights Policy

Our policy expressly prohibits forced, compulsory or child labour in any form and applies to both ourselves and those who wish to work with us.

Our other commitments include:

- **Health and Safety:** to work towards our goal of zero injuries in the workplace
- **Freedom of Association and right to collective bargaining:** to respect our workers' democratic rights to participate or not participate in trade unions, or other collective bargaining organisations, without fear of intimidation, pressure or reprisal.
- **Unlawful discrimination, harassment and abusive behaviours:** to ensure that each employee and potential employee is treated with fairness and dignity and that discriminatory practices, or unwelcome verbal or physical conduct are not tolerated
- **Remuneration:** to ensure that wages and benefits paid to employees shall meet legal or industry minimum standards
- **Discipline policies:** ensure proportionality of sanctions, with a range of potential disciplinary actions and procedural fairness

See the full policy on www.vesuvius.com for further details.

Business ethics/anti-bribery and corruption and working with third parties

Vesuvius' Code of Conduct affirms our commitment to competing vigorously, but honestly, and not seeking competitive advantage through unlawful means. We conduct ourselves ethically in all public affairs activities, in alignment with local laws and regulations. We do not engage in unfair competition, exchange commercially sensitive information with competitors, or acquire information regarding a competitor by inappropriate means. When received for business purposes, we safeguard third-party confidential information and use it only for the purpose for which it was provided.

We engage with selected third-party representatives and intermediaries in our business. We recognise that they can present an increased bribery and corruption risk. Our procedure on working with third parties clearly outlines our zero-tolerance approach to bribery and provides practical guidance for our employees in identifying concerns and how to report them.

Vesuvius engages with third-party sales agents, many of whom operate in countries where we do not have a physical presence. Our employees' use of, and interaction with, sales agents is supported by an ongoing training programme for those who have specific responsibility for these relationships.

As part of our communication around anti-bribery and ethics, employees are actively encouraged to consult on ethical issues. They have open access to the Compliance Director and Legal function who provide support on a regular basis.

During 2023, the Group continued the due diligence review of our third-party representatives and intermediaries. Following the prior years' enhanced reviews of sales agents, custom clearance agents, distributors and logistics providers, we conducted repeat due diligence. We also conducted due diligence on any new third parties introduced into the organisation.

Responsible sourcing

Vesuvius recognises the crucial role that its suppliers play in creating value in the products and services that Vesuvius ultimately provides to its customers. In addition to the consistent and timely supply of materials, products, and services which are of the highest quality, we expect our suppliers to operate in a manner that is appropriate, in terms of their ethical, legal, environmental and social responsibilities.

Principles

Overall, our objective is to encourage suppliers to implement a meaningful sustainability programme, embrace the UN Global Compact principles, evaluate and reduce our upstream CO_2 emissions and identify potential risks (and if necessary, address them) in our supply chain. The satisfaction of our customers' requirements, the safety and reliability of Vesuvius' products, and the efficiency of Vesuvius' internal processes are dependent on the reliability of its network of suppliers.

Vesuvius is committed to ensuring that we utilise high-quality raw materials, secured through reliable and well-developed raw material suppliers. The principles of sustainable procurement are prescribed within the Vesuvius Sustainable Procurement Policy and supported by supplementary processes.

Sustainable Procurement Policy

We operate a Sustainable Procurement Policy which outlines key criteria for suppliers. The policy uses the Group Procurement's 'Request for Quotation' (RFQ) process to engage a significant number of Vesuvius suppliers and is provided in conjunction with the Vesuvius Terms and Conditions of Purchase.

For suppliers to participate in the RFQ, they are obliged to accept and agree to the terms of the Sustainable Procurement Policy, as it forms an addendum to Vesuvius' standard contract clauses. Once accepted, it is the responsibility of the supplier to verify and monitor compliance against the policy – both for their operations and those of any sub-contractors. The full policy is available on the Vesuvius website.

Since its inception in 2021, 167 active vendors (74% of the targeted group participating in the RFQ process, 9% of the total number of active raw material suppliers), representing almost half of the raw material spend have formally pledged to comply with the policy.

Vesuvius' Sustainable Procurement Policy

The policy covers all suppliers of goods and/or services either used in our manufacturing processes and/or sold directly by us to customers, including Tolling and Resale suppliers. It applies to suppliers, their agents and their sub-contractors.

The major elements of the Sustainability Procurement Policy are:

- Employees and human rights
- Conflict minerals
- Ethical and compliant business practices
- Environment
- Quality
- Business continuity

See the full policy on www.vesuvius.com for further details.

A responsible company continued

Supplier sustainability assessments

As part of our sustainability agenda, Vesuvius has implemented a Supplier Sustainability Assessment programme, covering all suppliers of goods either used in our manufacturing processes and/or sold directly by us to customers, including Resale suppliers.

Vesuvius has partnered with an independent third-party service provider – EcoVadis – to rate our raw materials suppliers using a detailed set of criteria. These cover four themes and 21 criteria based on international standards: Labour and Human Rights; Ethics; Environment; and Sustainable Procurement.

In 2023, an additional eight (2022: 23) (Total to date: 126) employees from our Procurement teams received specific training on supplier sustainability assessments (100% of the target group).

The Board set a target to assess at least 50% of our raw material spend by the end of 2023. As the Group was on track to reach this target, the Sustainability Council set a new objective to assess at least 60% of our raw material spend by 2025. Selected criteria were chosen to select participating suppliers such as supplier size and risk metrics, including:

- Category of raw material
- Availability of alternative sources
- Share of supplier revenue with Vesuvius
- Grades in previous assessments
- New suppliers
- Supply chain incidents

Since its launch, 244 suppliers have joined the programme, representing 52% of the total raw material spend. Fewer than 1% of the suppliers assessed in 2023 did not reach Vesuvius' minimal EcoVadis score. We are requiring these suppliers to implement improvement actions within a three-year time frame. Progress will be monitored through routine evaluations and an annual reassessment. Across the crucial topics, the average total score of Vesuvius suppliers was 51.4, compared to an industry standard of 46.0.

Supplier CSR and Quality audits

Vesuvius conducts an annual Supplier Audit programme targeting their Corporate Social Responsibility (CSR) practices, product quality and security of supply. The programme is led by the Group's Purchasing and Quality teams. The goal of the audits is to verify that our suppliers abide by fundamental principles regarding the environment and social practices, and reduce the number of quality issues that may affect our raw materials.

As part of this, we carry out on-site inspections, share expectations with our suppliers, identify risks, and adapt our internal controls accordingly. We encourage our suppliers to improve their own processes and help them prioritise actions to achieve this. Commencing in 2022, a number of 'red flag' items have been included in our on-site verification questionnaire, especially addressing human rights issues, such as child or forced labour, for which immediate escalation and investigation is required in case any breach is detected.

In 2023, 157 (2022: 139) audits were conducted (100% on-site), 13 follow-ups and 144 regular audits (2022: 3/136). 100% of the planned audits were carried out. No cases of human rights breaches were detected as part of the supplier audit check. 5.7% of audited suppliers received grades below threshold (2022: 0.7%). Whenever suppliers fail to meet the required standards, either action is taken to support them to improve or our relationship with them is terminated.

Supplier sustainability assessment criteria

Environment	Labour and Human Rights	Ethics	Sustainable Procurement
Energy consumption and GHGs	Employee health & safety	Corruption	Supplier environmental practices
Water	Working conditions	Anti-competitive practices	Supplier social practices
Biodiversity	Social dialogue	Responsible information management	
Local and accidental pollution	Career management and training		
Materials, chemicals and waste	Child labour, forced labour and human trafficking		
Product use	Diversity, discrimination and harassment		
Product end-of-life	External stakeholder human rights		
Customer health and safety			
Environmental services and advocacy			

21 criteria based on international standards

Community engagement

Below are some examples of the many community programmes and activities our colleagues were involved in throughout 2023.

Supporting women and girls in STEM (Science, Technology, Engineering and Mathematics)

Vesuvius is focused on supporting women and girls to advance in engineering, technology, and other highly technical fields. In 2023, we continued the programmes that were started in 2022 as well as launching new initiatives.

– Vesuvius India sponsored ten female students from the College of Engineering, Pune. It also continued a three-year scholarship programme for nine women to pursue a bachelor's degree in engineering from the National Institute of Technology. In addition, Vesuvius India supported the Women's Club at the College of Engineering, which enabled students to access technical learning through online courses and participation in hackathons and leadership events

– In the USA, Vesuvius employees participated in conferences organised by the Association for Iron and Steel Technology, and the Society of Woman Engineers, to understand the challenges for women better, and to empower young female professionals to develop in the steel industry

– Vesuvius Vietnam partnered with the Material Technology Faculty of Ho Chi Minh University of Technology to host a Technical Day of Refractory Application in Steelmaking to inspire students and highlight career opportunities for women in this field

Charity initiatives

– Vesuvius sites in Brazil, Mexico, the USA and Poland organised the collection of food, Christmas gifts, money and other donations to support the poorest members of our communities

– Vesuvius sites in France, India and Poland participated in sports and other types of events to raise funds for health programmes and not-for-profit organisations

– Our colleagues in Germany and Ukraine collected donations for the victims of war and natural disasters

– In India, our colleagues supported the provision of medical aid for people infected with HIV and AIDS, those affected by drug abuse and children with cerebral palsy

Supporting education

– Our sites in Mexico and India supported the development of school infrastructure with equipment donations

– In Brazil and India we gave donations and scholarships to support the education of underprivileged children

– In the USA we sponsored the Carnegie Science Center

Family programmes

– Our sites in China, India, Poland and Mexico hosted family days and end-of-year celebrations, with food and entertainment for employees and their families

– A number of our sites also held occasional events for employees' children, including Sinterklaas in Belgium, activities and entertainment in our offices in Poland and factory visits organised on Children's Day in Brazil

– Competitions on safety and the environment were held for employees' children at our sites in Brazil, China, Egypt, Poland and the United Arab Emirates

– Scholarships are provided for the children of employees in Mexico

Cooperation with local authorities to develop Vesuvius employees

– In the United Arab Emirates, a Waste Management awareness session was held with the Waste Management Authority

– In the USA, a training session was held with the State Police Department on how to react and behave in case of dangerous situations with an active shooter

– At our sites in Germany, India and the USA, safety training and fire drill simulations were held with the local fire brigades

Joint activities with local authorities undertaken for the benefit of our communities

– In India, consultations about environmental programmes were held by the government

– Visits to Vesuvius' manufacturing sites were organised for the County Industrial Association in China and the local members of parliament in Australia and the UK

– In India, we also supported the clean up of a public beach

Our stakeholders and Section 172(1) Statement

Effective engagement with stakeholders is critical to the success of the Group

Vesuvius recognises that effective engagement with stakeholders is vital to the Group's success. Understanding the needs and priorities of key stakeholders, and building strong and positive relationships with them, lies at the heart of Vesuvius' business.

Section 172 of the Companies Act 2006 codifies this engagement, requiring the Board to promote the success of the Company over the long term for the benefit of members as a whole, whilst having regard to other key stakeholders' interests.

In performing its duties, the Board focuses on the sustainable success of the Group and the existence of a culture that supports this success. The Board recognises that, in seeking to maintain long-term profitability, the Group is reliant on the support of all of its stakeholders, including the Group's workforce, its customers, suppliers and the communities in which its businesses operate.

When taking key decisions the Board balances the competing interests of different stakeholders with an overriding focus on ensuring the long-term success of the Group. The Board confirms that it has acted in accordance with the Section 172 requirements throughout the year.

Examples of how the Board considered stakeholders' interests in some of the key decisions it took during 2023 are given below.

Capital Markets Day – Strategic Objectives

In November 2023, the Company held a Capital Markets Day to update investors on the Company's strategic progress and to outline the Company's near-term strategic objectives: to outperform the Group's underlying markets; reach a return on sales margin of at least 12.5% in 2026, with a further cost improvement target of £30m; and deliver strong cash generation with a cumulative free cash flow target of at least £400m between 2024 and 2026.

The Board considered the strategic messaging for the Capital Markets Day, reflecting on investors' views, and the catalysts to secure the sustainable success of the Group. In setting these challenging targets the Board was cognisant of the need to focus on the ongoing financial strength of the Group to the benefit of all stakeholders. It was recognised that further cost reductions, and investment in production automation, would need to be secured, to sustain this success.

Share Buyback

In December 2023, the Board approved a share buyback programme to purchase up to £50 million in value of the Company's shares, with the shares acquired to be cancelled to reduce the Company's share capital.

The decision to launch the share buyback was taken after a careful analysis of the strength of the Company's Balance Sheet, and the ongoing longer-term financial requirements of the business.

The Board considered the views of the Company's shareholders and the impact that the purchase would have on other investors, concluding that it would send a positive public signal that the Company was performing well and would benefit all of the Group's stakeholders.

A buyback was chosen over, for example, a tender offer or special dividend, reflecting the preference of shareholders and advice from brokers, as a structure that equally benefits all shareholders over a sustained period. Over the course of the programme, the buyback is expected to be modestly EPS accretive and as such will enhance TSR in the event that our trading valuation multiple is maintained. The impact of the buyback is recognised in the Company's budget and as such it is reflected in the Group's incentive targets.

Our stakeholders

Given the diversity of the Group, engagement with most stakeholders takes place locally or is managed by specialist Group functions. The Board maintains oversight of this engagement through its briefings on the dynamics of key relationships and stakeholder groups, and also engages directly as appropriate.

The Group's key stakeholder groups, reflecting those who have the biggest impact on the business, and our modes of engagement are outlined in the tables below.

Why this stakeholder is important to us	Our response and engagement	How the Board engaged in 2023
Our people With our decentralised management model, the dedication and professionalism of our people, their capacity to own their roles and their drive for results are the most significant contributors to Vesuvius' success. We focus on the health and safety of all our staff, and operate with a clear set of CORE Values that are embedded across the business. We engage with our people, encouraging and rewarding high performance to create an environment where all can realise their individual potential. **Issues that matter to them** – Health and safety – Diversity and inclusion – Remuneration and recognition – International mobility – Management support – Development and retention – Career opportunities – Sustainability performance	We have a fundamental focus on health and safety and the care of all employees There is continuing dialogue between employees and their managers, including the conduct of regular performance reviews We operate a competitive remuneration and benefits strategy, emphasising talent development with tailored career-stage programmes Living the Values and other award schemes celebrate individual achievements in the demonstration of our Values and processes Our global communication mechanisms include an intranet, global email communications and a Vesuvius news app, alongside forums such as local 'town hall' meetings The Group operates local works councils, recognises trade unions and has re-established its European Works Council Wide-ranging internal training is offered on key job-related issues, with programmes such as the Vesuvius University – HeaTt – and the Foseco University	At every Board meeting the Board received a report on the Group's performance against health and safety KPIs and reviewed, in detail, the circumstances of any Lost Time Injuries that had been reported The Board reviewed the specific HR objectives for each Business Unit and monitored the initiatives being implemented to develop, retain and motivate employees, and improve succession planning The Remuneration Committee was informed of global salary budgets and oversaw the Group's share compensation programmes The Nomination Committee monitored the Group's progress on diversity objectives and reviewed senior management development and succession planning Carla Bailo served as the designated Non-executive Director responsible for workforce engagement. She oversaw the Board's engagement activities, including the programme of site visits undertaken by Directors to meet Vesuvius employees 'on the ground' and to hear firsthand about their experiences The Board reviewed the results of the I-Engage survey and the follow-up actions proposed The Board reviewed the nature and volume of reports received by the confidential Speak Up helpline

Our stakeholders continued

Why this stakeholder is important to us	Our response and engagement	How the Board engaged in 2023
Customers Engaging with, and listening to, our customers helps us to understand their needs and identify opportunities and challenges. Collaborating with our customers enables us to drive value for them, using our expertise to improve the safety and efficiency of their manufacturing processes, enhancing their end-product quality and reducing their costs. **Issues that matter to them** – Health and safety – Production efficiency – Value generation – Product quality and performance – Innovation and provision of solutions – Environmental performance	Our business model focuses on collaboration with customers to provide customised solutions. We employ highly skilled technical experts who understand our customers' needs, and can identify opportunities and solutions for them We help our customers improve the safety, energy efficiency, yield and reliability of their processes We engage with customers on safety leadership and support their training requirements Our extensive R&D capability, deep product knowledge and long-standing steel and foundry process expertise enable us to partner with customers to innovate and adapt to their changing needs We maintain senior-level dialogue with all key customers, and establish customer relationships on a global basis as required, complemented by a broad local servicing capability We provide technical customer training, including operating the Foseco University, and participate in industry forums and events	The Chief Executive maintained a regular dialogue with a range of the Group's key customers, holding face-to-face meetings with nine of them The full Board visited a key customer in Brazil, as part of its off-site Board meeting The Board received a briefing on the Group's end-markets and the dynamics of the Group's relationships with its customers, including information on pricing discussions At every Board meeting, the Board reviewed information on the Group's performance against key manufacturing quality targets and was provided with updates on actions undertaken to rectify any significant quality issues or customer complaints The Board received updates on the steps being taken by the Group to respond to customers' ongoing requirements, and the research and development, marketing and new product launch strategies being actioned to respond to these
Suppliers and contractors Maintaining a flexible workforce through the use of contractors and cost-effective access to high-quality raw materials is vital to our success. Our suppliers and contractors are critical to our business. **Issues that matter to them** – Operational performance – Responsible procurement – Trust and ethics – Payment practices	Vesuvius conducts regular visits to key suppliers Senior-level relationships are built with all large suppliers All suppliers/brokers for major raw materials have regular interaction with the Global Purchasing Team Our purchasing and supplier-facing staff receive training on modern slavery to assist them in identifying any issues Dedicated category directors build long-term relationships and product expertise for key raw materials Vesuvius operates a Sustainable Procurement Policy which sets out the standards that suppliers must adopt in order to supply the Group. We conduct a rigorous and consistent supplier accreditation procedure to ensure compliance with these standards	The Board received a briefing on the Group's suppliers The Board received updates on the strategy for logistics and the sourcing of raw materials together with key concerns and performance issues The Board monitored the Group's compliance activities and approved the Group's annual Modern Slavery Statement

Why this stakeholder is important to us	Our response and engagement	How the Board engaged in 2023
Investors The support of our equity and debt investors, and continued access to funding, is vital to the performance of our business. We work to ensure that our investors and lenders have a clear understanding of our strategy, performance and objectives, recognising that supportive investors are more likely to provide the Company with funds for expansion. We engage with lenders to ensure that we have clear knowledge and awareness of market sensitivities and trends, and comply with our contractual obligations. **Issues that matter to them** – Shareholder value – Financial and operational performance – Strategy and business development – Dividend and gearing policy – Sustainability strategy and performance – Governance – Transparency and ethical behaviour	Vesuvius' Investor Relations strategy is managed by our Head of Investor Relations. She, along with the Chief Financial Officer and Chief Executive, hold regular meetings with key and prospective investors The Group Treasurer and CFO hold regular meetings with key personnel from banks and other lenders who provide the Group's debt funding. The Group Treasury function also maintains an ongoing dialogue with key relationship banks and other local banks in the countries in which Vesuvius operates The Group's Annual Report provides an overview of the Group's activities. Regular announcements and press releases are published to provide updates on the Group's performance and progress There is ongoing dialogue with the Company's analysts to address enquiries and promote the business In November 2023, the Group undertook a Capital Markets Day where key strategic messages were communicated to investors	The Chief Executive and Chief Financial Officer held meetings with key and prospective investors The Board received copies of key analysts' notes issued on the Company The Chairman met with shareholders and potential new investors as required Ahead of the 2023 AGM, the Chair of the Remuneration Committee contacted the Group's largest shareholders and governance agencies, to invite their feedback on proposed amendments to the Group's Remuneration Policy. Extensive dialogue took place and a number of meetings were held to discuss the proposals The Directors attended the AGM to meet with shareholders
Communities We are committed to maintaining positive relationships with the communities in which we operate. Our social responsibility activities complement our Values and we encourage our employees to engage with communities and groups local to our operations. **Issues that matter to them** – Career opportunities – Operational performance – Transparency and ethical behaviour – Environmental performance	We provide work experience and internships to local university students and school children We maintain contact with universities to identify local talent and our businesses attend careers fairs and provide student work placements and internships Many of our sites sponsor local charitable activities and participate in local volunteering initiatives We maintain clear oversight and control of the environmental impact of our production sites We have a clear strategy for carbon reduction in our manufacturing processes	The Board received biannual updates on the Group's sustainability activities
Environmental agencies and organisations Good environmental management is aligned with our focus on cost optimisation, operational excellence and long-term business sustainability. We engage with appropriate organisations to ensure that we are complying with regulatory requirements, and to publicise our performance. **Issues that matter to them** – Governance and transparency – Operational performance – Reporting on performance metrics – Environmental performance	Vesuvius is a signatory to the UN Global Compact We publish a full Sustainability Report online which can be accessed via Vesuvius' website We regularly engage with government agencies who visit our sites and carry out inspections We respond to environmental research as part of our customers' and suppliers' due diligence processes We engage with rating agencies and respond to environmental and social responsibility research and questionnaires	The Board monitored progress on the Group's Sustainability KPIs and reviewed longer-term plans on sustainability initiatives, including the journey to net zero The Board received biannual presentations from the VP Sustainability on the Group's progress against its sustainability targets and updates on its ESG ratings The Board and Audit Committee monitored the Group's progress with its TCFD compliance

Risk, viability and going concern

The Group undertakes a continuous process to review and understand existing and emerging risks which might impact the Group's long-term performance.

How we manage risk

The Board exercises oversight of the Group's principal risks and reviews the way in which the Group manages those risks. As part of this process the Board (i) understands which individuals within the business are responsible for managing each principal risk; and (ii) reviews and, where appropriate, updates, the Group's appetite for each principal risk and assesses the adequacy of the steps taken to mitigate them.

The Board takes overall responsibility for establishing and maintaining a system of risk management and internal control and for reviewing its effectiveness. The Group undertakes a continuous process to identify and review risk and this assessment undergoes a formal review at half-year and at year-end. The risks identified by the business are compiled centrally to deliver a coordinated picture of the Group's key risks. These risks are then reviewed by the Group Executive Committee.

An integral part of the Group's risk management process is for each Non-executive Director to contribute their view on the principal risks facing the Group, the risk appetite the Group should have for each of these risks and what emerging risks the Group might face in the future. These contributions are overlaid on the Group's assessment of risks to build a comprehensive analysis of existing and emerging risks. In this way, the Directors' views on each of the principal risks and on emerging risks in general, are independently gathered and integrated into management discussions and actions taken on risk.

The Group's risk process covers both financial and non-financial risks, and considers the risks associated with the impact of the Group's activities on employees, customers, suppliers, the environment, local communities and wider society.

The Directors undertake regular, individual site visits and they believe this direct engagement with employees is an effective way to hear firsthand about issues, concerns and potential risks. More details on the site visits undertaken in 2023 can be found on page 86.

During 2023, the Group conducted an externally facilitated review of its current and emerging risks. In person and remote interviews were held with a wide range of senior managers to ensure an appropriate breadth of response. A register of all material risks identified was prepared, alongside detail on emerging risk trends. This register was reviewed by the Group Executive Committee and the Audit Committee. It provided senior management and the Board with an additional level of detail with which to assess the appropriateness of the Group's principal risks and uncertainties, and enabled a more granular review of the processes and mitigations in place for these risks.

Changes to risk in 2023

We detail below changes during 2023 to the scale or nature of risks facing the Group. As in previous years, certain aspects of the Group's principal risks materialised, noting that in each case the business impact was limited by the mitigations already in place and by the Group's risk management processes. We also detail the emerging risks facing the Group to which we remain vigilant.

Geopolitical tension

Increasing geopolitical tensions during the year adversely impacted two of our principal risks: business interruption and the regulatory environment. The war in Ukraine continued to promote increased regulatory activity in the UK, EU and USA, which continued to impact the business and was closely monitored to ensure that we reflected these new developments in our business. Additionally, the conflict in the Middle East (including the recent impact on shipping in the Red Sea) increased the risk of an interruption to our supply chain. This impacted the cost and timing of certain inbound and outbound freight and we worked closely with our intermediaries and insurers to understand and minimise the impact on our business.

During the year we also paid close attention to wider geopolitical dynamics, as these could push certain of the countries in which we operate to adopt a more protectionist approach. We capture this in our principal risk of protectionism and globalisation.

Cyber

Cyber security remains a critical component of our business interruption risk. As previously disclosed, in February 2023, the Group was the subject of a cyber incident involving unauthorised access to our IT systems. We shut down our systems on a precautionary basis and our sites implemented their business continuity plans; as a result we incurred only a minimal level of business interruption.

In order to mitigate further the business interruption risk arising from this constantly evolving threat we have accelerated the implementation of our cyber security strategy and in 2023, we upgraded our third-party access solutions, further developed our network infrastructure and implemented additional layers of protection for our systems.

During the year we worked with leading cyber security experts to enhance our systems and expanded the scale and scope of our security verifications. We also conducted a range of additional tests and simulations to improve the control environment. We continued to work on cyber security awareness through ongoing employee training and conducted additional training during the year to ensure that the correct behaviours in terms of cyber risk are clearly understood.

Recruitment

Post pandemic challenges remain in many of our labour markets, including the ability to recruit high calibre individuals in a competitive environment, particularly for manufacturing roles. We also continue to see a reduction in the promotion of material science teaching within our developed markets; this may further reduce the availability of suitably qualified candidates going forward.

End-markets

The underlying strength of Vesuvius' end-markets was discussed extensively at our recent Capital Markets Day. Whilst short-term volatility in our markets is likely to continue, we believe that our end-markets of Steel and Foundry are structurally set to grow in the longer term. The Group is well placed to manage short-term impacts with its flexible manufacturing footprint, geographically diversified revenue streams and strong financial position.

Emerging risks

We are focused on the increased use of artificial intelligence as part of our wider strategy on digitalisation, to ensure we leverage the benefits to the fullest extent whilst minimising any adverse impact.

As detailed at our Capital Markets Day, we believe that future growth will come from outside our traditional developed markets. We will continue to focus on this emerging trend, investing in markets with high future growth and ensuring that we remain sufficiently dynamic and responsive to take advantage of future growth opportunities.

Consumers, employees and other stakeholders in many countries are increasingly focused on the impact of businesses on society and the environment. With this there is a growing regulatory demand on businesses for transparency in this area. Vesuvius already has a set of broad Environmental, Social and Governance (ESG) commitments and has long been focused on driving efficiency in our customers' processes, with our products now clearly seen as having environmental/climate benefits. However, the reporting obligations in this area and the increasing pressure on the need for external assurance in these areas, are expected to increase in both cost and complexity in the coming years.

Further information on the Group's ESG commitments can be found in the Non-Financial and Sustainability Information Statement on pages 32-67.

Finally, we committed at the end of 2023 to make annualised cost savings of £30m by 2026 and we will remain disciplined to ensure this saving is achieved. Part of this efficiency saving is enabled by the ongoing implementation of a new Enterprise Resource Planning (ERP) system in certain countries. The Group is aware of the challenges associated with an ERP implementation and will manage these closely to minimise the risk of business interruption and cost overruns and to ensure that the operational efficiencies envisaged are delivered on a timely basis.

All of these issues could represent disruptors to our business. We remain focused on each of them through our risk identification and management processes as well as on the management of any other new risks that emerge during 2024.

Principal risks

In 2023, the Board did not identify any new principal risks or any material changes to the Group's previously identified principal risks and uncertainties. These principal risks and uncertainties are set out on pages 77 and 78 and are those the Board considers to be most relevant in terms of their potential impact on the Group achieving its strategic objectives. Each principal risk could materially affect the Group, its businesses, future operations and financial condition, and could cause actual results to differ materially from expected or historical results. Principal risks are not the only ones that the Group faces or will face. Some risks are not yet known and some currently not deemed to be material could become so.

Cyber security

The processes and controls to manage the constantly evolving cyber security threat are a significant area of focus for the Group. Members of the GEC, Group IT and senior management meet regularly to manage operational cyber risks. These risks were thrown into sharp focus for the Group in 2023, as a result of the cyber attack we suffered in February.

The Board oversees the Group's control systems for managing cyber risk and together with the Audit Committee receives regular updates on the Group's activities in this respect.

Cyber risks are integrated within the Group's risk management processes and form part of its Business Continuity Plan (BCP). The Group also maintains a Disaster Recovery Plan to address any network, data centre or IT infrastructure issue. The Group's Incident Handling and Response Policy ensures we maintain appropriate visibility of all network infrastructure.

The Group takes a holistic approach to addressing cyber challenges, focusing on improving our IT infrastructure, including our OT environments, as well as our IT procedures and data governance. We run regular training programmes on cyber security and conduct regular cyber security risk assessments, including scenario analysis to mitigate the business impact of any downtime, and increase awareness of social engineering fraud and system access through poor security behaviour. We also perform in-house and externally conducted vulnerability/penetrative testing, comparing the results with industry benchmarks to improve our processes and undertake an ongoing external assessment of our cyber security resilience and maturity.

Risk, viability and going concern continued

Climate change

The Group's risk management processes consider the potential impact of climate-related risks. The Group does not regard climate change itself to represent a material stand-alone risk to the Group's operations.

Whilst a significant proportion of the Group's revenue is generated from steel manufacture and automotive castings, industries that are under transition as a result of the focus on improving environmental performance, we believe these changes will, overall, be positive for the Group. The Group's business strategy is based on helping our customers improve their manufacturing efficiency and the quality of their products, thereby reducing their climate impact. We also envisage benefits for the Group from the acceleration of the energy transition, as this will create continued demand for the high-quality steel produced using Vesuvius' products and solutions.

One of the Group's principal risks is Environmental, Social and Governance criteria. This captures our sustainability performance and our customers' sustainability transition and recognises the impact Vesuvius can have on reducing the environmental impact of our customers. The Group recognises that climate change could present uncertainty for the Group in terms of increased regulation and the evolution of the geographical distribution of our customer base. Further information about the Group's consideration of climate-related risks and opportunities can be found in the Our planet section of the Non-Financial and Sustainability Information Statement on pages 39-55.

Risk mitigation

Each principal risk is owned by specific members of senior management who actively manage the risk as well as contributing to the analysis of its likelihood and impact, and continually monitoring the process for mitigation. This analysis is reported to the Board. Risks are analysed in the context of our business structure which protects against certain of our principal risks with diverse currencies, a widespread customer base and local production matching the diversity of our markets. Additionally, we mitigate risk through employee training and our contractual terms. Our processes are not designed to eliminate risk, but to identify our principal risks and to reduce them to a reasonable level in the context of delivering the Group's strategy.

Business continuity and insurance

In partnership with risk management advisers and our insurers, we seek to identify the most effective means of reducing or eliminating insurable risks, through risk management and the placing of insurance cover.

Our insurer property loss control programme is based upon insurer loss modelling and focuses on insured losses. The insurer's loss control engineers undertake a series of on-site inspections focused on machinery breakdown, fire, natural catastrophe and other property damage and business interruption risks. These surveys yield a series of loss-reduction recommendations. The execution of these recommendations is agreed with site management and followed through to completion.

In parallel, Vesuvius' own loss management programme focuses on strategic sites and sites that are not routinely covered by the insurer programme. Assisted by an independent consultant, we undertake property loss control and business continuity surveys using Vesuvius' bespoke risk and exposure-based protocol. These reports yield further risk reduction recommendations, and improvement actions are agreed and completed by site management.

To support the Group's loss control activities, risk management workshops are conducted covering loss prevention, emergency planning, crisis management and business recovery. Business continuity planning is also conducted to ensure there is sufficient resilience in the Group's manufacturing network to address individual supply interruptions.

Internal control

The Group's internal control system is designed to manage, rather than eliminate, the risks facing the Group and safeguard its assets. No system of internal control can provide absolute assurance against material misstatement or loss. The Group's system is designed to provide the Directors with reasonable assurance that problems are identified on a timely basis and are dealt with appropriately.

The Audit Committee assists the Board in reviewing the effectiveness of the Group's system of internal control, including financial, operational and compliance controls, and risk management systems. The key features of the Group's system of internal control are set out in the table opposite.

Reviewing the effectiveness of risk management and internal control

The internal control system covers the Group as a whole and is monitored and supported by the Group's Internal Audit function, which conducts reviews of Vesuvius' businesses and reports objectively both on the adequacy and effectiveness of the system of internal control and on those businesses' compliance with Group policies and procedures. The Audit Committee receives reports from the Group Head of Internal Audit and reports to the Board on the results of its review.

The Group also conducts a self-certification exercise by which senior financial, operational and functional management certify the compliance, throughout the year, of the areas under their responsibility with the Group's policies and procedures and highlight any material issues that have occurred during the year.

As part of the Board's process for reviewing the effectiveness of the system of internal control, it delegates certain matters to the Audit Committee. Following the Audit Committee's review of internal financial controls and of the processes covering other controls, the Board annually evaluates the results of the internal control and risk management procedures conducted by senior management. Since the date of this evaluation, there have been no significant changes in internal controls or other matters identified which could significantly affect them.

In accordance with the provisions of the UK Corporate Governance Code, the Directors confirm that they have carried out a robust assessment of the principal and emerging risks facing the Company, including those that threaten its business model, future performance, solvency or liquidity. They have also reviewed the effectiveness of the Group's system of internal control and confirm that the necessary actions have been taken to remedy any control weaknesses identified during the year and to the date of this report.

Further detail regarding the Audit Committee's review of the effectiveness of the Group's risk management and internal control systems is contained in the Audit Committee Report on pages 93-101.

Key features of risk management and internal control

Strategy and financial reporting	Comprehensive strategic planning and forecasting process Annual budget approved by the Board Monthly operating financial information reported against budget Key trends and variances analysed and action taken as appropriate
Vesuvius GAAP	Accounting policies and procedures formulated and disseminated to all Group operations Covers the application of accounting standards, the maintenance of accounting records and key financial control procedures
Operational controls	Operating companies and corporate offices maintain internal controls and procedures appropriate to their structure and business environment Compliance with Group policies on items such as authorisation of capital expenditure, treasury transactions, the management of intellectual property and legal/regulatory issues Use of common accounting policies and procedures, and financial reporting software used in financial reporting and consolidation Significant financing and investment decisions reserved to the Board Monitoring by the Board of policy and control mechanisms for managing treasury risk Clearly delegated authority for capital expenditure, purchasing, customer contracts and hiring Health and safety audits Board review of product quality metrics
Risk assessment and management	Continuous process for identifying, evaluating and managing any significant risks Risk management process designed to identify the key risks facing each business Reports made to the Board on how those risks are managed Top-down risk identification undertaken at Group Executive Committee and Board meetings Board review of insurance and other measures used in managing risks across the Group The Board is notified of major issues and makes an annual assessment of whether risks have changed Ongoing assurance processes by the legal function and Internal Audit including the annual self-certification process Externally supported Speak Up whistleblowing line
Internal Audit	Reviews Vesuvius' businesses and reports on the adequacy and effectiveness of their systems of internal control and compliance with Group policies and procedures Agrees action plans for the resolution of any improvement actions identified by their audits, and monitors with local management and the Business Unit Presidents, progress through until completion Reports to the Audit Committee on the results of each audit and provides regular updates on high-priority action items The Audit Committee discusses the key risks identified by Internal Audit

Risk, viability and going concern continued

Viability Statement

In accordance with the UK Corporate Governance Code, the Directors have assessed the viability of the Group over a three-year period to 31 December 2026, taking into account the Group's current position and the potential impact of the principal risks and uncertainties. The Directors have determined that three years is an appropriate period over which to provide the Viability Statement because this is the Company's planning cycle and it is sufficiently funded by financing facilities with average maturity terms of approximately four years. The projected cash flows for the next three years have been based on the latest Board-approved budgets and Capital Markets Day financial projections.

In making this statement, the Directors have carried out a robust assessment of the principal risks that may threaten the business model, future performance, solvency and liquidity of the Group. This is embodied in the annual review of a three-year business plan which includes a review of sensitivity to 'business as usual' risks, such as profit growth and working capital variances, severe but plausible events and the impact these could have on the Group's debt covenants and available liquidity. The results take account of the availability and likely effectiveness of the mitigating actions that could be taken to avoid or reduce the impact or occurrence of the underlying risks. Whilst the review has considered all the principal risks identified by the Group, the following were selected for enhanced stress testing: an unexpected global supply chain disruption leading to increased lead times and business interruption due to the unplanned closure of a key production facility. The Group's prudent balance sheet management, flexible cost base able to react quickly to end-market conditions, access to long-term capital at reasonable cost and geographically diversified international businesses leave it well placed to manage these principal risks.

In performing the stress testing, certain assumptions were made, including that supply chain disruption would lead to a need for increased inventory levels over multiple years; and the loss of a production facility would, after the recovery of production capacity, result in certain sustained customer losses. Any loan facility requiring refinancing was considered to be renewed ahead of its maturity date. The Group's committed syndicated bank facility of £385.0m, of which £333.4m was undrawn at the end of 2023, matures in August 2026 (see note 24.2(d) to the Group Financial Statements). Under the enhanced stress testing, a potential breach of a covenant would only occur in the event of an unforeseen reduction in revenue of greater than 27%, without consideration of any remedial factors such as capital expenditure reduction. Accordingly, the Directors confirm that they have a reasonable expectation that the Group will be able to continue in operation and meet its liabilities as they fall due over the three-year period to 31 December 2026. Furthermore, the Board believes that the Group continues to be well positioned for success in the longer term because of our exposure to long-term growing end-markets; our market-leading position that is supported by ongoing investment in innovation and R&D; our strong degree of customer intimacy with around a third of our employees working at customer facilities; and the focus we have on building quality teams with clear organisational responsibility.

Going concern statement

The Group's available committed liquidity stood at £488m at year-end 2023, down from £494m at year-end 2022. The Directors have prepared cash flow forecasts for the Group for the period to 30 June 2025. These forecasts reflect an assessment of current and future end-market conditions, which are expected to be challenging in 2024 and to recover thereafter, (as set out in the 'outlook' statement in the Chief Executive's Strategic Review in this document), and their impact on the Group's future trading performance.

The Directors have also considered a severe but plausible downside scenario, based on an assumed volume decline and loss of profitability over the period. This downside scenario assumes:

- A reduction in trading profit by 35%, equating to £70m in both 2024 and 2025 relative to 2023. This is through an assumed decline in revenue of 4% and a reduction in the return on sales margin by 3.3%, from 10.4% to 7.1%; and
- Working capital as a percentage of sales deteriorating by 0.6% compared to 2023.

The Group has two covenants; net debt/EBITDA (under 3.25x) and an interest cover requirement of at least 4.0x. In this downside scenario, the forecasts show that the Group's maximum net debt/EBITDA (pre-IFRS 16 in line with the covenant calculation) does not exceed 1.6x, compared to a leverage covenant of 3.25x, and the minimum interest cover reached is 18x compared to a covenant minimum of 4x.

The forecasts show that the Group will be able to operate within the current committed debt facilities and show continued compliance with the Company's financial covenants. On the basis of the exercise described above and the Group's available committed debt facilities, the Directors consider that the Group and the Company have adequate resources to continue in operational existence for a period of at least 12 months from the date of signing of these financial statements and that there is no material uncertainty in respect of going concern. Accordingly, they continue to adopt a going concern basis in preparing the financial statements of the Group and the Company.

Viability process

Identify	Assess	Model	Report
Viability time horizon and risk analysis framework	Principal risks and stress scenarios	Viability against risk scenarios, examining probabilities and impacts	See Viability Statement

Principal risks and uncertainties

Risk	Potential impact	Mitigation
End-market risks Vesuvius suffers an unplanned drop in demand, revenue and/or margin because of market volatility beyond its control. Strategic Value alignment	Unplanned drop in demand and/or revenue due to reduced production by our customers Margin reduction Customer failure leading to increased bad debts Loss of market share to competition Cost pressures at customers leading to use of cheaper solutions	Geographic diversification of revenues Product innovation and service offerings securing long-term revenue streams and maintaining performance differential Increase in service and product lines by the development of the Technical Services offering R&D includes assessment of emerging technologies Manufacturing capacity rationalisation and flexible cost base Diversified customer base: no customer is greater than 10% of revenue Robust credit and working capital control to mitigate the risk of default by counterparties
Protectionism and globalisation The Vesuvius business model cannot adapt or respond quickly enough to threats from protectionism and globalisation. Strategic Value alignment	Restricted access to market due to enforced preference of local suppliers Increased barriers to entry for new businesses or expansion Increased costs from import duties, taxation or tariffs Loss of market share	Highly diversified manufacturing footprint with manufacturing sites located in 26 countries Strong local management with delegated authority to run their businesses and manage customer relationships Cost flexibility Tax risk management and control framework together with a strong control of inter-company trading
Product quality failure Vesuvius staff/contractors are injured at work or customers, staff or third parties suffer physical injury or financial loss because of failures in Vesuvius products. Strategic Value alignment	Injury to staff and contractors Product or application failures lead to adverse financial impact or loss of reputation as technology leader Incident at customer plant causes manufacturing downtime or damage to infrastructure Customer claims from product quality issues	Quality management programmes including stringent quality control standards, monitoring and reporting Experienced technical staff knowledgeable in the application of our products and technology Targeted global insurance programme Experienced internal legal function overseeing third-party contracting
Complex and changing regulatory environment Vesuvius experiences a contracting customer base or increased transaction and administrative costs due to compliance with changing regulatory requirements. Strategic Value alignment	Revenue reduction from reduced end-market access Disruption of supply chain and route to market Increased internal control processes Increased frequency of regulatory investigations Reputational damage Trade restrictions	Compliance programmes and training across the Group Independent Internal Audit function Experienced internal legal function including dedicated compliance specialists Global procurement category management of strategic raw materials
Failure to secure innovation Vesuvius fails to achieve continuous improvement in its products, systems and services. Strategic Value alignment	Product substitution by customers Increased competitive pressure through lack of differentiation of Vesuvius offering Commoditisation of product portfolio through lack of development Lack of response to changing customer needs Loss of intellectual property protection	Enduring and significant investment in R&D, with market-leading research A shared strategy for innovation throughout the Group, deployed via our R&D centres Stage-gate process from innovation to commercialisation to foster innovation and increase alignment with strategy Programme of manufacturing and process excellence Quality programme, focused on quality and consistency Stringent intellectual property registration and defence

Strategic Value alignment

Safety
Better environments and outcomes for Vesuvius staff and customers

Quality
Optimised products driving better steel, and better castings

Efficiency
Cheaper casting and steel through reduction of input costs

Sustainability
Less energy usage and fewer CO_2 emissions in our processes and our customers' processes

Rewarding careers
We encourage and reward high performance to create an environment where all can realise their individual potential

Return for investors
Optimised pricing and market share gains driving improved profitability

See more about **Our business model** on p20 and 21

Principal risks and uncertainties continued

Risk	Potential impact	Mitigation
Business interruption Vesuvius loses production capacity or experiences supply chain disruption due to physical site damage (accident, fire, natural disaster, terrorism), or other events such as industrial action, cyber attack or global health crises. Strategic Value alignment	Loss/closure of a major plant temporarily or permanently impairing our ability to serve our customers Damage to or restriction in our ability to use assets Denial of access to critical systems or control processes Disruption of manufacturing processes Inability to source critical raw materials Loss of data, leading to confidentiality, regulatory and reputational issues	Diversified manufacturing footprint Disaster recovery planning Business continuity planning with strategic maintenance of excess capacity Physical and IT access controls, security systems and training Cyber risks integrated into wider risk management structure Well-established global insurance programme Group-wide safety management programmes Dual sourcing strategy and development of substitutes
People, culture and performance Vesuvius is unable to attract and retain the right calibre of staff, fails to instil an appropriate culture or fails to embed the right systems to drive personal performance in pursuit of the Group's long-term growth. Strategic Value alignment	Organisational culture of high performance is not achieved Staff turnover in growing economies and regions Stagnation of ideas and development opportunities Loss of expertise and critical business knowledge Reduced management pipeline for succession to senior positions	Internal focus on talent development and training, with tailored career-stage programmes and clear performance management strategies Contacts with universities to identify and develop talent Career path planning and global opportunities for high-potential staff Internal programmes for the structured transfer of technical and other knowledge Clearly defined Values underpin business culture Group focus on enhancing gender diversity
Health and safety Vesuvius staff or contractors are injured at work or suffer mental health issues because of failures in Vesuvius' operations, equipment, policies or processes. Strategic Value alignment	Injury to staff and contractors Health and safety breaches Lack of staff availability and operational downtime Inability to attract and retain the necessary workforce Reputational damage	Active safety programmes, with ongoing wide-ranging monitoring and safety training Independent safety audit team Quality management programmes including stringent manufacturing process control standards, monitoring and reporting
Environmental, Social and Governance criteria Vesuvius fails to capitalise on the opportunity to help its customers significantly reduce their carbon emissions as environmental pressure grows on the steel industry or Vesuvius fails to meet the expectations of its various stakeholders including employees and investors. Strategic Value alignment	Loss of opportunity to grow sales Loss of opportunity to increase margin Loss of stakeholder confidence including investors Reputational damage	Development and implementation of a new Sustainability initiative, which includes stretching targets focused on reducing the Group's energy usage, CO_2 emissions and waste, and increasing recycled materials R&D focus on products that assist customers to reduce carbon emissions and improve their own sustainability measures Skilled technical sales force to develop efficient solutions for our customers Globally disseminated Code of Conduct sets out standards of conduct expected and Anti-bribery and Corruption Policy adopted with zero tolerance regarding bribery and corruption Internal Speak Up mechanisms to allow reporting of concerns Extensive use of due diligence to assess existing and potential business partners and customers

The Strategic Report set out on pages 1-78 contains a fair review of our businesses, strategy and business model, and the associated principal risks and uncertainties. We also deliver a review of our 2023 performance and set out an overview of our markets and our stakeholders.

Details of our principles, and our people and community engagement, together with our focus on safety, are also contained in the Strategic Report.

Approved by the Board on 28 February 2024 and signed on its behalf by

Patrick André
Chief Executive

Governance

Board of Directors

Carl-Peter Forster

Chairman

Appointed to the Board 1 November 2022, and as Chairman on 1 December 2022

One year on the Board

- Extensive board experience as Chairman and Chief Executive within international listed companies
- Proven strategic and operational skills gained in complex multinational industrial goods and engineering businesses
- Global commercial and engineering experience, including expertise in operational excellence and lean manufacturing

Current external appointments

Carl-Peter is Chairman of Chemring Group plc and Senior Independent Director at Babcock International Group plc. He is also Chairman of StoreDot, Director of The Mobility House AG, Gordon Murray Group Ltd, Envisics Ltd, Lead Equities Fund Management GmbH and associated companies and serves as a Director on the advisory board of Kinexon GmbH.

Career experience

Carl-Peter has spent the majority of his career holding senior leadership positions in some of the world's largest automotive manufacturers, including BMW, General Motors and Tata Motors (including Jaguar Land Rover). Since he stepped down from Tata Motors in 2011, he has served as a director on a wide variety of public and private company boards, including IMI plc from 2012–2021, Rexam plc from 2014-2016 and Geely Automotive Holdings, Hong Kong, as well as Volvo Cars Group from 2013-2019. Until recently he also served on the board of LeddarTech, Inc.

Patrick André

Chief Executive

Appointed to the Board 1 September 2017

Six years on the Board

- Global career serving the steel industry
- Strong background in strategic development and implementation
- Customer focus and proven record of delivery, with strong commercial acumen
- Drive and energy in promoting his strategic vision

Current external appointments

None.

Career experience

Patrick joined the Group as President of the Vesuvius Flow Control Business Unit in 2016, until his appointment as Chief Executive in September 2017.

Before joining the Group, Patrick served as Executive Vice President Strategic Growth, CEO Europe and CEO for Asia, CIS and Africa for Lhoist company, the world leader in lime production. Prior to this, he was CEO of the Nickel division, then CEO of the Manganese division of ERAMET group, a global manufacturer of nickel and special alloys.

Key to Board Committee membership

A Audit Committee

N Nomination Committee

R Remuneration Committee

Committee Chair

Mark Collis

Chief Financial Officer

Appointed to the Board 1 April 2023

Ten months on the Board

- Wealth of international operational experience and leadership skills
- Complements the strong performance-oriented culture and the skills of the management team
- Respected leader for the finance and IT functions

Current external appointments

None.

Career experience

Mark was previously Chief Financial Officer of the Operations business of John Wood Group PLC. He has over 20 years of senior financial experience in a number of international businesses including Amec Foster Wheeler plc and Expro International Group. Mark is a Chartered Accountant qualified with the ICAEW.

Engagement with the workforce

E Carla Bailo serves as the designated Non-executive Director responsible for workforce engagement.

* Cevian Capital is a shareholder of Vesuvius plc and, at 28 February 2024, held 21.3% of Vesuvius' issued share capital.

Changes to the Board during the year

The Directors named were in office during the year and up to the date of this Annual Report, with the exception of:

- Carla Bailo who joined the Board as a Non-executive Director on 1 February 2023
- Guy Young who served as Chief Financial Officer from 1 November 2015 until he left the Group on 17 February 2023
- Mark Collis who joined the Board as Chief Financial Officer on 1 April 2023
- Jane Hinkley who served as a Non-executive Director until 18 May 2023
- Robert MacLeod who joined the Board as a Non-executive Director on 1 September 2023

Richard Sykes (formerly Group Vice President, Business Development) served as Interim Chief Financial Officer from 17 February to 31 March 2023 but was not a Director of Vesuvius plc.

Proposed appointment of Eva Lindqvist

It is proposed that Eva Lindqvist be appointed to the Board as a Non-executive Director with effect from the close of the 2024 AGM, subject to her election being approved by shareholders at the AGM. Subject to her election, Eva will succeed Douglas Hurt as Senior Independent Director at the close of the 2024 AGM and she will also join the Company's Audit, Remuneration and Nomination Committees. Eva's biography and details of her proposed appointment can be found in the Notice of AGM.

Current external appointments

Eva currently supports several small companies and non-profit organisations, and serves as a Non-executive Director of CLS Holdings plc, Greencoat Renewables plc and Tele2 AB. She will step down as a Non-executive Director and Chair of the Remuneration Committee of Keller Group plc at their AGM in May 2024.

Career experience

Eva is an engineer with more than 35 years' experience in global industrial and service businesses. She spent 20 years with Ericsson, focusing on strategy, production development and international sales. In 2000 she joined the Scandinavian telecommunications company Telia. She was Senior Vice President of Telia Equity before becoming Chief Executive of TeliaSonera International Carrier in 2002. Eva has served on the board of a range of listed companies including Acast AB, Bodycote plc, Mr Green & Co AB, Sweco AB and Tarsier AB. She is a member of the Royal Swedish Academy of Engineering Sciences.

Douglas Hurt

Senior Independent Director (SID)

Appointed to the Board 2 April 2015 and will step down from the Board at the conclusion of the AGM on 15 May 2024

Eight years on the Board

- Qualified Chartered Accountant, with recent and relevant financial experience
- Highly knowledgeable in operational and corporate financial matters, with significant US and European experience
- Proven management and leadership skills

Current external appointments

Non-executive Director and Chair of the Audit Committees of Hikma Pharmaceuticals PLC and the British Standards Institution.

Career experience

Douglas was Finance Director of IMI plc, a UK listed company, until 2015. He spent 23 years at GlaxoSmithKline plc where he held senior finance and general management positions. Douglas served as SID and Chair of the Audit Committees of Tate & Lyle plc and Countryside Partnerships PLC until 2019 and July 2022 respectively, and he also served as Chairman of Countryside Partnerships PLC from July to November 2022 when it merged with Vistry Group.

Carla Bailo

Non-executive Independent Director

Appointed to the Board 1 February 2023

One year on the Board

- Strong engineering and product management experience
- Research and development background gained during more than 40 years working in the automotive industry
- International experience and extensive knowledge of US markets

Current external appointments

Non-executive Director of Advance Auto Parts, Inc. and SM Energy Company.

Career experience

Carla was President and CEO of the Center for Automotive Research (CAR) in the USA for five years, until she stepped down in September 2022. Prior to joining CAR, Carla was Assistant Vice President for Mobility Research and Business Development at The Ohio State University. She spent 25 years at the Nissan Motor Company, culminating as Senior VP, Research and Development, Americas and Total Customer Satisfaction. Carla served as Non-executive director of EVe Mobility Acquisition Corp. until 21 February 2024.

Kath Durrant

Non-executive Independent Director

Appointed to the Board 1 December 2020

Three years on the Board

- 30 years' experience of people management
- Strong operational and strategic track record, gained working at a number of large global manufacturing companies
- Experienced UK governance professional

Current external appointments

Senior Independent Director and Chair of the Remuneration Committee of SIG plc, and a Non-executive Director of Essentra plc.

Career experience

Kath held various operational and specialist HR roles at GlaxoSmithKline plc and AstraZeneca plc, and was Group HR Director of Rolls-Royce plc. She was most recently Group HR Director of Ferguson plc and Chief HR Officer of CRH plc. Kath served as a Non-executive Director and Chair of the Remuneration Committee of Renishaw plc from 2015 to 2018 and as a Non-executive Director and Chair of the Remuneration Committee of Calisen plc from 2020 to 2021.

Dinggui Gao

Non-executive Independent Director

Appointed to the Board 1 April 2021

Two years on the Board

- Strong operational experience driving performance in multinational companies
- Proven track record of leadership and international commercial experience
- Strong focus on technology and in-depth knowledge of Asian markets

Current external appointments

Non-executive Director Intramco Europe B.V and Operating Partner CITIC Capital Holdings Ltd.

Career experience

Dinggui has 40 years of operational experience having worked in multinational companies including Bosch, Honeywell, Eagle Ottawa and Sandvik AB. Between 2017 and 2021 he was Managing Director, China of Formel D Group, the German global service provider to the automotive and components industry.

Friederike Helfer

Non-executive Director

Appointed to the Board 4 December 2019

Four years on the Board

- An experienced strategist, with strong analytic capability
- Commercial acumen and a strong track record of working with a portfolio of companies to identify scope for operational and strategic improvement

Current external appointments

Partner of Cevian Capital.*

Career experience

Friederike is a Partner of Cevian Capital. She joined Cevian in 2008 and served as a Non-executive Director on the boards of thyssenkrupp AG from 2020 to 2023 and Valmet Oyj from 2013 to 2017. These are both companies in which Cevian was also invested. Prior to joining Cevian, Friederike worked at McKinsey & Company. She is a CFA Charterholder.

Robert MacLeod

Non-executive Independent Director

Appointed to the Board 1 September 2023 and as Chair of the Audit Committee from AGM 2024

Five months on the Board

- Qualified Chartered Accountant, with significant experience in large multinational companies
- Knowledgeable corporate and operational finance professional
- Wealth of general management and financial leadership experience

Current external appointments

Non-executive Director and Chair of the Remuneration Committee of RELX PLC and Non-executive Member at The Defence Science and Technology Laboratory.

Career experience

Robert served as CEO of Johnson Matthey PLC from 2014 to 2022 and Group Finance Director from 2009 to 2014. Prior to this he worked at WS Atkins PLC, latterly as Group Finance Director.

Group Executive Committee

Patrick André

Chief Executive

Eight years with the Group

For biographical details, please see the Board of Directors on page 80.

Mark Collis

Chief Financial Officer

Eleven months with the Group

For biographical details, please see the Board of Directors on page 80.

Karena Cancilleri

President, Foundry

Four years with the Group

Appointed President, Foundry in October 2019. Karena joined the Group from Beaulieu International Group, where she served for six years as VP Engineered Products and latterly President Engineered Products. She has a breadth of managerial experience spanning various international leadership roles in companies such as FiberVisions, Kraton Corporation and Shell.

Karena is based in London, UK.

Pascal Genest

President, Flow Control

Three years with the Group

Appointed President, Flow Control in January 2021. Pascal joined the Group from GFG Alliance where he held the position of CEO Liberty Ostrava in the Czech Republic. Prior to this he was CEO of SULB in Bahrain. Pascal has more than 15 years' experience working in the steel industry, mainly with ArcelorMittal. He has also worked in consulting, in private equity and in the aluminium industry.

Pascal is based in London, UK.

Henry Knowles

General Counsel and Company Secretary

Ten years with the Group

Appointed as General Counsel and Company Secretary in September 2013. Prior to joining Vesuvius, Henry spent eight years at Hikma Pharmaceuticals PLC, a generic pharmaceutical manufacturer with significant operations in the Middle East, North Africa and the US where he held the roles of General Counsel and Company Secretary. Henry is also responsible for the Group's Intellectual Property function.

Henry is based in London, UK.

Richard Sykes

President, Advanced Refractories

Twenty-five years with the Group

Joined the GEC on 1 January 2023 prior to his appointment as Interim Chief Financial Officer in February 2023. He subsequently assumed the role of President, Advanced Refractories, in August 2023. Richard joined Premier Refractories Limited in May 1991 as Finance Director. He has since held various senior managerial roles in Vesuvius' Steel Division and in the Corporate centre. Most recently serving as President, Business Development and Special Projects, Regional Vice President Flow Control EMEA and Vice President Finance Flow Control.

Richard is based in London, UK.

Agnieszka Tomczak

Chief HR Officer

Five years with the Group

Appointed as Chief HR Officer in October 2018. Agnieszka has over 25 years of senior leadership experience in multinational companies spanning various business sectors and industries. Prior to joining Vesuvius, she spent 12 years at ICI, which was subsequently acquired by AkzoNobel, in regional and global HR roles.

Agnieszka is based in London, UK.

Changes to the Group Executive Committee (GEC)

- Richard Sykes joined the GEC on 1 January 2023 prior to his appointment as interim Chief Financial Officer on 17 February 2023. He remained on the GEC when he was appointed as President, Business Development and Special Projects on 1 April 2023, and as President, Advanced Refractories on 1 August 2023
- Mark Collis joined the GEC on his appointment as Chief Financial Officer on 1 April 2023
- Guy Young, Chief Financial Officer was a member of the GEC until he resigned from the Group on 17 February 2023
- Vincent Dujardin, President, Advanced Refractories was a member of the GEC from 1 April 2023 until he resigned from the Group on 30 September 2023

Corporate Governance Statement

Dear Shareholder,

On behalf of the Board, I am pleased to present Vesuvius' Corporate Governance Statement. This Statement provides investors and other stakeholders with an insight into the governance activities of the Board and its Committees during the year. It describes how the Group has complied with the Principles of the UK Corporate Governance Code during 2023, except where we consider it clearer for us to describe the application of a Principle elsewhere in this Annual Report. The table on page 84 signposts where detailed information on each section of the Code (and associated Principles) can be found. The Board of Vesuvius plc is committed to maintaining high standards of governance and to continuous improvement to reflect ongoing best practice.

The Board's key focus in 2023 was on continuing to support management to further develop the Group's strategy, together with setting clear objectives to measure business success. We outlined this strategy and our updated set of key strategic targets to our investors at the Capital Markets event in November. In December, we announced the launch of a £50m share buyback programme, as the first step to delivering this strategy.

Alongside this strategic focus, the Directors also oversaw the continued refreshment of the Board during 2023. Together with the recruitment of Carla Bailo and Mark Collis, who we welcomed to the Board in February and April, respectively, searches were also undertaken for two further Non-executive Directors. As a result of this work, Robert MacLeod joined the Board on 1 September 2023 and the Board recently announced the proposed appointment of Eva Lindqvist at the forthcoming AGM. Robert and Eva will assume the roles of Chair of the Audit Committee and Senior Independent Director, respectively, when Douglas Hurt retires from the Board at the close of the AGM, having served as a Director for nine years.

Yours sincerely

Carl-Peter Forster
Chairman
28 February 2024

In this section

Also see:

Carl-Peter Forster
Chairman

Corporate Governance Statement continued

Board Report

2018 UK Corporate Governance Code

The Company applied the Principles of the 2018 UK Corporate Governance Code (the 'Code'), and was fully compliant with its Provisions, throughout the year ended 31 December 2023. A copy of the Code can be found on the FRC website at: https://www.frc.org.uk/directors/corporate-governance-and-stewardship/uk-corporate-governance-code.

Information availability

Board leadership and Company purpose	The Corporate Governance statement (CG Statement) on pages 83-135 gives information on the Group's compliance with the Principles relating to the Board's leadership and Company purpose. **More detailed information on:** – The Group's statement of purpose can be found on the IFC – The Group's strategy, resources and the indicators it uses to measure performance can be found on pages 17, 20 and 21, and 28 and 35, respectively – The Group's engagement with stakeholders and the Group's Section 172(1) Statement is contained in the Section 172(1) Statement and stakeholder engagement section on pages 68-71 – The Group's approach to workforce matters can be found in the Our people section on pages 58-63, with further details of the Group's approach to employee involvement and engagement contained in the Section 172(1) Statement on pages 68 and 69 – Details of the Group's framework of controls is contained in the Audit Committee report on pages 97 and 98 of the CG Statement and in the Risk, viability and going concern section on pages 74 and 75
Division of responsibilities	The CG Statement describes the structure and operation of the Board. The Nomination Committee report, on pages 106 and 107, describes the process the Company conducts to evaluate the Board, to ensure that it continues to operate effectively, that individual Directors' contributions are appropriate and that the oversight of the Chairman promotes a culture of openness and constructive yet challenging debate.
Composition, succession and evaluation	Details of the skills, experience and knowledge of the existing Board members can be found in the Board biographies contained on pages 80 and 81. Information on the Board's appointment process and approach to succession planning and Board evaluation is contained in the Nomination Committee report on pages 102-107 of the CG Statement.
Audit, risk and internal control	Information on the policies and procedures the Group has in place to monitor the effectiveness of the Group's Internal and External Audit functions and the integrity of the Group's financial statements is contained in the Audit Committee report on pages 93-101 of the CG Statement, along with an overview of the procedures in place to manage risk and oversee the internal control framework. Further information on the Group's approach to risk management is contained in the Risk, viability and going concern section of the Strategic Report on pages 72-78. The Board believes the 2023 Annual Report to be a fair, balanced and understandable assessment of the Company's position and prospects. A description of the Audit Committee's work in enabling the Board to reach this conclusion is contained in the Audit Committee report on page 97.
Remuneration	The Company's approach to investing in and rewarding its workforce is described in the Our people section on pages 58-63. The Directors' Remuneration Report section of the CG Statement describes the Group's approach to Directors' remuneration, including the procedure for developing policy and the Remuneration Committee's discretion for authorising remuneration outcomes. It also includes information about the Remuneration Consultants appointed by the Remuneration Committee. Details of the linkage of the Directors' Remuneration Policy with long-term strategy is contained on pages 109 and 110 and also highlighted on pages 28 and 35 in the sections on Key Performance Indicators.

The aforementioned sections are incorporated into the Corporate Governance Report by reference.

Board leadership and Company purpose

The Board is responsible for leading the Group in an efficient and entrepreneurial manner, establishing the Group's purpose, values and strategy, and satisfying itself that these and the Group's culture are aligned. It focuses primarily on strategic and policy issues and is responsible for ensuring the long-term sustainable success of the Group. It also oversees the allocation of resources and monitors the performance of the Group in pursuit of this strategy. It is responsible for effective risk assessment and management of the Group's risk profile. In performance of these duties, the Board has regard to the interests of the Group's key stakeholders and is cognisant of the potential impact of the decisions it makes on wider society.

Purpose

Vesuvius' purpose is to be a global leader in molten metal flow engineering and technology, servicing process industries operating in challenging high-temperature conditions. We think beyond the status quo to create the innovative solutions that will shape the future for our customers, wider stakeholders and business. We help our customers make their industrial processes safer, more efficient and sustainable. The Group aims to deliver sustainable, profitable growth, providing its shareholders with a superior return on their investment, whilst providing each of its employees with a safe workplace where they are recognised, developed and properly rewarded.

In November 2023, the Company held a Capital Markets Day to outline the Group's strategic objectives for the next three years, and to provide further insight into the positive long-term growth trends anticipated in the steel and foundry markets. Further information on the Group's strategic targets can be found on page 17. The Board has identified a number of Key Performance Indicators (KPIs) which provide information on key aspects of the Group's financial and non-financial performance. Reviewing this information assists the Board to assess progress with the execution of the Group's strategy and to determine any remedial action that needs to be taken. Detailed information on the Group's financial and non-financial KPIs can be found on pages 28 and 35, respectively.

The Group has established a framework of controls to enable risk to be assessed and managed. Further information on this can be found in the Audit, risk and internal control section on page 92 of this Board Report.

Sustainability

Vesuvius recognises that lasting business success is measured not only in financial performance but in the way in which the Group deals with its customers, suppliers, business associates, employees, investors and local communities. Our sustainability strategy supports the Group's key strategic objectives which are focused on creating a better tomorrow in a profitable and sustainable way. To drive change throughout the Group, the Board has set specific targets focused on ways in which the Group can improve its impact on our planet, our communities, our people and our customers. The Board monitors these targets and oversees the output of the Sustainability Council in spearheading new activities to enhance Group performance. Further information can be found in the Non-financial and sustainability information statement on pages 32–67.

Culture

The Board monitors the corporate culture of the Group. The Group's CORE Values – Courage, Ownership, Respect and Energy – define our behaviours across the business and are the practical representation of the culture we seek to foster, aligning with the Company's purpose and strategy, and supporting our governance and control processes. These Values are prominently displayed at all sites. Our CORE Values are reinforced in our performance management systems, which ensure that they are firmly embedded in our day-to-day conversations and behaviours. Further detail can be found on page 60.

The CORE Values are supported by the Group's Code of Conduct which sets out the standards of conduct expected, without exception, of everyone who works for Vesuvius in any of its worldwide operations. The Code of Conduct emphasises the Group's commitment to ethical behaviour and compliance with the law. It also covers every aspect of Vesuvius' approach to business, from the way that the Group engages with customers, employees, its markets and each of its other stakeholders, to the safety of its employees and places of work. Everyone within Vesuvius is individually accountable for upholding these requirements.

The Board seeks to ensure that the Group's workforce policies and practices are consistent with the Group's long-term sustainable success. Further information about the Group's remuneration practices for senior managers can be found in the Directors' Remuneration Report on pages 108–135, the Group's approach to diversity in the Nomination Committee Report on pages 104–106, and the Group's general approach to HR matters in the Our people section on pages 58–63. Information on the Group's Speak Up confidential employee concern helpline is set out overleaf.

Corporate Governance Statement continued

Board site visits

The Directors undertook an extensive programme of site visits in 2023. A full off-site Board meeting was held in Brazil, with Directors visiting Vesuvius' sites in São Paulo and Rio de Janeiro, along with a customer site in Rio. In addition, the Non-executive Directors visited sites in Yingkou and Bayuquan in China, Borken and Grossalmerode in Germany, Pune and Kolkata in India, Enschede and Hengelo in the Netherlands, and Cleveland in the USA. A number of Directors were also able to attend the GIFA and METEC International Foundry and Metallurgical Trade Fairs that were held in Germany in June, showcasing recent innovations in the steel and foundry industries. The visits provided the Board with the opportunity to meet local management, and hear firsthand about business performance, and local opportunities and challenges. During the visits the Directors were also able to interact with a cross-section of employees, from various functions and organisational levels, and at some sites 'town hall' meetings were held, providing the Non-executive Directors with the opportunity to engage with the workforce to hear the views of employees and answer their questions about the Company. The Directors engaged in firsthand discussions on culture and purpose, providing direct feedback to the Board on their perceptions of each site and potential areas for improvement, alongside highlighting examples of best practice that could be shared more widely.

Board assessment of culture

During the year, the Board's assessment of the Group's culture considered the Group's:

(1) Adherence to the CORE Values – The Board focused on ensuring that there was a consistent culture across the Group, underpinned by the CORE Values. During their site visits, the Directors focused on the extent to which the Values are published, understood and motivate employee behaviour, and reported on their individual findings as part of their feedback. In 2023, nominations were once again sought for the Group's peer-nominated Living the Values Awards. The Board was delighted that there were almost 1,500 nominations, showcasing examples of individuals and teams going the 'extra mile' to live the CORE Values. Members of the Group Executive Committee presented both regional and global awards as part of the process of recognising those individuals who exemplify our Values. The global awards presentation was held online to allow all employees to join and celebrate the examples of Vesuvius' Values in action.

(2) Commitment to safety – At each meeting during the year, the Board received an update on issues affecting the global health and well-being of the Group's employees. As a priority the Board receives regular updates on the Group's performance against safety targets, and reviews all Lost Time Incidents and the follow-up action taken. In addition, the Board receives biannual reports on the progress of the Group's safety programmes. During the year, the Directors used their individual site visits to assess each site's commitment to safety, and the Executive Directors and Group Executive Committee members' long-term incentives include a safety target alongside other sustainability measures. A core tenet of the Group's Sustainability initiative is a focus on ensuring the Group affords a safe working environment for all its employees. The Board has set a challenging Group safety target of less than one Lost Time Injury per million hours worked. This equates to an average of less than two lost time work-related Lost Time Injuries or illnesses per month. The Board is encouraged to see the excellent progress in reducing the rate of Lost Time Injuries to date, but recognises that there is further work still to be done, particularly in relation to the management of third-party contractors, two of whom suffered serious injuries on our sites in 2023.

(3) Entrepreneurship – As part of the Board's rolling agenda, the Board received reports from each Business Unit President on their business strategy, new commercial initiatives and future technology trends. The Nomination Committee focused on the development and retention of key talent across the Group to execute the Group strategy, and the Board also received reports on the key commercial achievements across the Business Units as part of regular reporting from the Chief Executive.

(4) Transparency – The engagement and openness of the senior managers who presented to the Board and Committees during the year, along with the employees the Board met during site tours, 'town hall' meetings and formal and social engagements, was assessed in terms of the Group's culture. These firsthand reviews were supported by the Directors' review of the output of the Group's Speak Up processes. In addition, the Audit Committee sought qualitative feedback from External and Internal Audit on how transparent/engaged managers had been during audit interactions.

(5) Customer focus – In 2023, the Board received detailed briefings on the Group's key customers, their concentration, diversity and core challenges, alongside information on the state of the Group's markets. They also reviewed the initiatives undertaken in the Company to understand value drivers at our customers, to underpin our solutions-focused business model, and communicate the value contributed to customers by our products.

The Chief Executive provided updates on key customer issues, and undertook a range of customer visits, meeting face-to-face with customers to discuss business challenges and future prospects. During the Board site visit to Brazil in October, the Directors visited a key Steel Division customer. Throughout the year, the Board also received regular updates on quality performance, with detailed analysis of any specific quality issues.

(6) Diversity and respect for local cultures – In July 2023, the Directors revised the Board Diversity Policy to include a target for 40% of the Board to be female by the end of 2024. The Nomination Committee considered the Board's diversity as part of the Director recruitment exercises and monitored progress with the achievement of the Group's gender diversity target which seeks to have 25% female representation in the Senior Leadership Group, which comprises c.150 individuals, by 2025. The Board also reviewed the results of the employee engagement survey.

Whistleblowing policy

Speak Up

All Vesuvius employees can speak up without fear of retaliation, either to Vesuvius management or via independent channels. We have implemented a Speak Up policy, under the responsibility of our Board, which is included in our Code of Conduct. Details of it are provided on the internal Vesuvius website, and communicated by local language posters in all our locations. A third-party operated confidential Speak Up helpline is available 365 days per year, 24 hours per day, to anyone wishing to raise concerns anonymously or in situations where they feel unable to report directly. Details of the helpline can also be found on the Vesuvius website. This independent facility supports online reporting through a web portal and reporting by phone or by voicemail. Ensuring global accessibility, employees can speak with operators in any of our 29 functional languages.

All reports received are reviewed and, where appropriate, investigated and feedback is provided to the reporter via the helpline portal. Vesuvius' Speak Up helpline is highlighted during internal compliance training and new joiner inductions. No Vesuvius employee will ever be penalised or disadvantaged for reporting a legitimate concern in good faith. Reports received via Speak Up channels are managed by the General Counsel and Compliance Director. When received, reports are assessed for risk and category of concern. All reports are considered in line with a protocol for review, investigation, action, closure and feedback, independent of management lines where necessary, and involving senior Business Unit or HR management as appropriate. For complex issues, formal investigation plans are drawn up, and support from external experts is engaged where necessary. Feedback is recognised as an important element of the Speak Up process and we aim to acknowledge all cases within seven days of receipt. The Group monitors the volume, geographic distribution and range of reports made to the Speak Up facility to ascertain whether there are significant regional compliance concerns, or particular themes that recur, and whether this indicates that there are countries where access to this facility is less well understood or publicised.

During 2023, the Board received updates on the nature and volume of reports received by the confidential Speak Up helpline, key themes emerging from these reports and the results of any investigations undertaken. Further details on specific issues were provided where requested. In 2023, the Group received 120 reports (2022: 141) through the Speak Up facility and 16 walk-in reports (2022: 38). Each one of these was reviewed and, where appropriate, investigated. Similar to 2022, a majority of these reports related to HR issues which indicated no compliance concerns, nor serious breaches of the Code of Conduct. Of the small number of reports received that contained allegations of a breach of our Code of Conduct, thorough investigations were performed and, where appropriate, disciplinary action was taken.

The Board

Carl-Peter Forster	Non-executive Chairman	
Patrick André	Chief Executive	
Mark Collis	Chief Financial Officer	Joined 1 April 2023
Carla Bailo	Non-executive Director	Joined 1 February 2023
Kath Durrant	Non-executive Director and Chair of the Remuneration Committee	
Dinggui Gao	Non-executive Director	
Friederike Helfer	Non-executive Director	
Douglas Hurt	Senior Independent Director and Chair of the Audit Committee	
Robert MacLeod	Non-executive Director	Joined 1 September 2023
Leavers during the year:		
Guy Young	Chief Financial Officer	Stepped down on 17 February 2023
Jane Hinkley	Non-executive Director	Stepped down on 18 May 2023

On 15 February 2024, the Company announced the proposed appointment of Eva Lindqvist at the AGM to be held on 15 May 2024. Douglas Hurt will retire from the Board at the close of this meeting having served on the Board for nine years.

Section 172 duties

The Directors are cognisant of the duty they have under Section 172 of the Companies Act 2006, to promote the success of the Company over the long term for the benefit of shareholders as a whole, whilst also having regard to a range of other key stakeholders. In performance of its duties throughout the year, the Board had regard to these duties and remained cognisant of the potential impact on these stakeholders of the Group's activities. Details of the Board and the Company's engagement with stakeholders during the year can be found in the Section 172(1) Statement on pages 68–71.

Directors' independence

The Board considers that, for the purposes of the UK Corporate Governance Code, 62.5% of the Board – five of the current Non-executive Directors (excluding the Non-executive Chairman), namely Carla Bailo, Kath Durrant, Dinggui Gao, Douglas Hurt and Robert MacLeod, are independent of management and free from any business or other relationship which could affect the exercise of their independent judgement. Friederike Helfer is a Partner of Cevian Capital, which continues to hold 21.3% of Vesuvius' issued ordinary share capital (excluding Treasury Shares). As a result, Friederike Helfer is not considered to be independent. The Chairman satisfied the independence criteria on his appointment to the Board. The Board and its Committees have a wide range of skills, experience and knowledge, and further details of each Director's individual contribution in this regard can be found in their biographical details on pages 80 and 81.

Corporate Governance Statement continued

Division of responsibilities

The Board
Responsible for Group strategy, risk management, succession and policy issues. Sets the purpose, Values and culture for the Group. Monitors the Group's progress against the targets set

Chairman
Provides leadership and guidance for the Board, promoting a high standard of corporate governance. Sets the Board agenda and chairs and manages meetings. Independent on appointment, he is the link between the Executive and Non-executive Directors

Chief Executive
Develops strategy for review and approval by the Board. Directs, monitors and manages the operational performance of the Company. Responsible for the application of Group policies, implementation of Group strategy and the resources for their delivery. Accountable to the Board for Group performance

Chief Financial Officer
Supports the Chief Executive in developing strategic direction and works with the Board to develop and implement the Group's strategy. Directs, monitors and manages the finance and IT functions to ensure the Company's financial objectives are met, ensuring sound financial management and control of the Company's business

Senior Independent Director
Acts as a sounding board for the Chairman, an alternative contact for shareholders and an intermediary for other Non-executive Directors. Leads the annual evaluation of the Chairman and recruitment process for the Chairman's replacement, when required

Non-executive Directors
Exercise a strong, independent voice, constructively challenging and supporting the Executive Directors. Scrutinise performance against objectives and monitor financial reporting. Monitor and oversee risks and controls, determine Executive Director remuneration and manage Board succession through their Committee responsibilities. The Non-executive Directors meet at least twice a year without the Executive Directors being present

Company Secretary
Advises the Chairman on governance, together with providing updates on regulatory and compliance matters. Supports the Board agenda with clear information flow. Acts as a link between the Board and its Committees and between the Non-executive Directors and senior management

The Chairman and Chief Executive

The division of responsibilities between the Chairman and the Chief Executive is set out in writing. These role descriptions were reviewed during the year as part of the Company's annual corporate governance review. They are available to view on the Company's website: www.vesuvius.com.

The Board

The Board has a formal schedule of matters reserved to it and delegates certain matters to its Committees. It is anticipated that the Board will convene on seven occasions during 2024, holding ad hoc meetings to consider non-scheduled business if required.

Board Committees

The principal governance Committees of the Board are the Audit, Nomination and Remuneration Committees. Each Committee has written terms of reference which were reviewed during the year. These terms of reference are available to view on the Company's website: www.vesuvius.com.

Committee composition is set out in the relevant Committee reports. No one, other than the Committee Chairman and members of the Committee, is entitled to participate in meetings of the Audit, Nomination and Remuneration Committees. However, as detailed in the Committee reports, where the agenda permits, other Directors and senior management regularly attend by invitation, supporting the operation of each of the Committees in an open and consensual manner.

The interactions in the governance process are shown in the schematic below.

Group Executive Committee

The Group also operates a Group Executive Committee (GEC), which is convened and chaired by the Chief Executive and assists him in discharging his responsibilities. During 2023, the GEC comprised the Chief Executive, Chief Financial Officer, the main Business Unit Presidents, the Chief HR Officer, President Business Development and Special Projects and the General Counsel/Company Secretary. The GEC met for six formal multi-day meetings and two R&D reviews during 2023.

Board

Governance Committees

Audit Committee
To monitor the integrity of financial reporting and to assist the Board in its review of the effectiveness of the Group's internal controls and risk management systems

Chair
Douglas Hurt
Membership
All independent Non-executive Directors

Remuneration Committee
To determine the remuneration policy for the Executive Directors and set the appropriate remuneration for the Chairman, Executive Directors and senior management

Chair
Kath Durrant
Membership
All independent Non-executive Directors

Nomination Committee
To advise the Board on appointments, retirements and resignations from the Board and its Committees and to review succession planning and talent development for the Board and senior management

Chair
Carl-Peter Forster, Chairman (except when considering his own succession, in which case the Committee would be chaired by the Senior Independent Director)
Membership
Chairman and the Non-executive Directors

Administrative Committees

In addition, the Board delegates certain responsibilities to a Finance Committee and Share Scheme Committee, which operate in accordance with the delegated authority agreed by the Board

Finance Committee
To approve specific funding and treasury-related matters in accordance with the Group's delegated authorities or as delegated by the Board

Chair
Carl-Peter Forster, Chairman
Membership
Chairman, Chief Executive, Chief Financial Officer and Group Treasurer

Share Scheme Committee
To facilitate the administration of the Company's share schemes

Chair
Any Board member
Membership
Any two Directors or any two Directors and the Company Secretary

Corporate Governance Statement continued

2023 Board programme

The Board discharges its responsibilities through an annual programme of meetings.

At each of the regularly scheduled meetings, a number of standard items were considered.

These included:

- Directors' duties, including those in respect of s172, and conflicts of interest
- Minutes of the previous meeting and matters arising
- Reports from the Chief Executive (CEO) and the Chief Financial Officer (CFO) on key aspects of the business, and from the General Counsel and Company Secretary on governance matters

In 2023, the Board focused on key areas of strategy, performance and governance, including the matters outlined below:

Strategy

- Reviewing M&A opportunities
- Receiving and reviewing reports on strategy from the Flow Control, Advanced Refractories, Foundry and Sensors & Probes Business Units
- Receiving and reviewing regular reports from the CEO on business highlights, changes in the Group's markets, procurement practices and the implementation of the Group's strategic objectives
- Reviewing the progress of the Group's Sustainability agenda, including receiving updates on the Group's health, safety and environmental objectives, the Group's TCFD compliance and the Group's Roadmap to Net Zero
- Participation in a two-day off-site review of strategy presented by the CEO, CFO, the three main Business Unit Presidents and the Company's key financial advisers
- Receiving and considering a progress report on the Group's R&D strategy and objectives
- Reviewing the Steel Division's approach to pricing strategy
- Receiving and considering reports on the Group's key customers, and its purchasing, HR and digital strategies, legal and compliance activities and the management of the Group's key pension liabilities
- Reviewing the Group's capital structure, including investors' views, and receiving reports from the Company's brokers on market issues
- Reviewing the Group's key messages for the Capital Markets Day

Performance

- Reviewing the response to the Group's cyber security attack in February 2023 and the actions taken to develop the Group's cyber resilience to mitigate the impact of any future attacks
- Receiving regular business reports from the CEO
- Receiving regular reports on the Group's financial performance against key indicators
- Receiving biannual reports on progress against the Group's sustainability targets
- Receiving regular safety reports and summaries of the investigations conducted after serious safety incidents
- Receiving regular reports on performance against product quality targets
- Scrutinising the Group's financial performance and forecasts
- Reviewing and agreeing the annual budget and financial plans
- Approving the Group's trading updates, and preliminary and half-year results announcements

Governance

- Receiving regular reports from the Board Committees
- Approving the launch of the Group's £50 million share buyback programme
- Approving the appointment of Mark Collis as the new CFO and overseeing the process to identify new Non-executive Directors, and then approving their appointments
- Approving the Annual Report and Notice of AGM
- Approving the payment of the interim dividend, and approving the recommendation of the payment of the final dividend subject to shareholder approval
- Reviewing the Group's internal controls, risk management practices and risk appetite, monitoring the Group's key risks and approving the Group's risk register
- Reviewing and approving the Group's Modern Slavery Statement
- Reviewing information received through the Group's Speak Up reporting processes, including investigation outcomes
- Approving the Group's UK and Polish tax strategies
- Renewing the Group's delegated authorities
- Reviewing the level of fees for the Non-executive Directors
- Completing an evaluation of the Board and Committees' performance and reviewing progress against the improvement actions identified in the 2022 Board evaluation
- Reviewing the Board's engagement with employees, including the results of the Group engagement survey
- Receiving regular updates on corporate governance and regulatory developments, and conducting the formal annual review of the Group's governance arrangements

Information and support

The Board ensures that it receives, in a timely manner, information of an appropriate quality to enable it adequately to discharge its responsibilities. Papers are provided to the Directors in advance of the relevant Board or Committee meeting to enable them to make further enquiries about any matters prior to the meeting should they so wish. This also allows Directors who are unable to attend to submit views to the relevant Chairperson in advance of the meeting.

In addition to the formal Board processes, the Chief Executive provides updates on important Company business issues between meetings, and the Board is provided with regular reports on key financial and management information. The Directors also receive regular updates on shareholder matters, along with copies of analysts' notes issued on the Company. For the distribution of all information, Directors have access to a secure online portal, which includes a reference section containing relevant background information.

All Directors have access to the advice and services of the Company Secretary.

There is also an agreed procedure in place for Non-executive Directors, in the furtherance of their duties, to take independent legal advice at the Company's expense.

Directors' conflicts of interest

The Board has established a formal system to authorise situations where a Director has an interest that conflicts, or may possibly conflict, with the interests of the Company (situational conflicts). Directors declare situational conflicts so that they can be considered for authorisation by the non-conflicted Directors.

In considering a situational conflict, these Directors act in the way they consider would be most likely to promote the success of the Company and may impose limits or conditions when giving authorisation, or subsequently, if they think this is appropriate.

The Company Secretary records the consideration of any conflict and any authorisations granted. The Board believes that the approach it has in place for reporting situational conflicts continues to operate effectively. The Board has authorised (subject to certain exceptions) any potential or actual conflicts of interest that might arise as a result of Ms Helfer's role as a Partner of Cevian Capital AG. Prior to her resignation as a director of thyssenkrupp AG, the Board had also authorised any potential or actual conflicts of interest that might have arisen from that role.

Board and Committee attendance

The attendance of Directors at the Board meetings held in 2023, and at meetings of the principal Committees of which they are members, is shown in the table below. The maximum number of meetings in the period during which the individual was a Board or Committee member is shown in brackets.

	Board	Audit Committee	Remuneration Committee	Nomination Committee	% attendance[3]
Chairman					
Carl-Peter Forster	11 (11)	–	–	6 (6)	100%
Executive Directors					
Patrick André	11 (11)	–	–	–	100%
Mark Collis[1]	9 (9)	–	–	–	100%
Guy Young[2]	0 (1)	–	–	–	0%
Non-executive Directors					
Carla Bailo[1]	9 (10)	4 (5)	4 (6)	3 (5)	77%
Kath Durrant	10 (11)	5 (5)	7 (7)	6 (6)	97%
Dinggui Gao	9 (11)	5 (5)	7 (7)	6 (6)	93%
Friederike Helfer	11 (11)	–	–	6 (6)	100%
Jane Hinkley[2]	3 (3)	2 (2)	4 (4)	3 (3)	100%
Douglas Hurt	11 (11)	5 (5)	7 (7)	6 (6)	100%
Robert MacLeod[1]	6 (6)	2 (2)	2 (2)	2 (2)	100%

1. Carla Bailo, Mark Collis and Robert MacLeod were appointed to the Board on 1 February 2023, 1 April 2023 and 1 September 2023, respectively.
2. Guy Young stepped down from the Board on 17 February 2023 and Jane Hinkley retired from the Board at the close of the AGM on 18 May 2023.
3. The table reflects the number of Board and Committee meetings that the Directors could have attended during the year.

The outgoing CFO, Guy Young did not attend the Board meeting held in January to approve the appointment of his successor. Kath Durrant and Dinggui Gao missed Board meetings arranged at short notice due to pre-existing commitments. Carla Bailo, missed one set of Board and Committee meetings, due to pre-existing commitments known at the time of her appointment, and missed a further Remuneration and Nomination Committee meeting due to a flight delay. All Directors received the papers for meetings that they missed in advance and, where their absence was anticipated, relayed their comments to the Chairman for communication at the meeting.

The Chairman and Non-executive Directors have letters of appointment which set out the terms and conditions of their directorship. An indication of the anticipated time commitment is provided in recruitment role specifications, and each Non-executive Director's letter of appointment provides details of the meetings that they are expected to attend, along with the need to accommodate travelling time. Non-executive Directors are required to set aside sufficient time to prepare for meetings, and regularly to refresh and update their skills and knowledge. Copies of all contracts of service or, where applicable, letters of appointment of the Directors, are available for inspection during

Corporate Governance Statement continued

business hours at the registered office of the Company and are available for inspection at the location of the Annual General Meeting (AGM) for 15 minutes prior to and during each AGM.

All Non-executive Directors have agreed to commit sufficient time for the proper performance of their responsibilities, acknowledging that this will vary from year to year depending on the Group's activities, and will involve visiting operational and customer sites around the Group. The Chairman in particular dedicates a significant amount of time to Vesuvius in discharging his duties.

Directors are expected to attend all scheduled Board and Committee meetings and any additional meetings as required. Each Director's other significant commitments are disclosed to the Board during the process prior to their appointment and they are required to notify the Board of any subsequent changes.

The Company has reviewed the availability of the Chairman and the Non-executive Directors to perform their duties and considers that each of them can, and in practice does, devote the necessary amount of time to the Company's business.

Composition, evaluation and succession

Appointment and replacement of Directors

The Company's Articles of Association specify that Board membership should not be fewer than five nor more than 15 Directors, save that the Company may, by ordinary resolution, from time to time, vary this minimum and/or maximum number of Directors. Directors may be appointed by ordinary resolution or by the Board. The Board may appoint one or more Directors to any executive office, on such terms and for such period as it thinks fit, and it can also terminate or vary such an appointment at any time. The Articles specify that, at every AGM, any Director who has been appointed by the Vesuvius Board since the last AGM and any Director who held office at the time of the two preceding AGMs, and who did not retire at either of them, shall retire from office. However, in accordance with the requirements of the Code, all Directors will offer themselves for election or re-election at the 2024 AGM. The Board believes that each of the current Directors is effective and demonstrates commitment to his or her respective role. Accordingly, the Board recommends that shareholders approve the resolutions to be proposed at the 2024 AGM relating to the election and re-election of the Directors. The biographical details of the Directors offering themselves for election or re-election, including details of their other directorships and relevant skills and experience, will be set out in the 2024 Notice of AGM. The biographical details of the Directors are also set out on pages 80 and 81.

Recommendations for appointments to the Board and rotation of the Directors are made by the Nomination Committee. The Nomination Committee is also responsible for overseeing the maintenance of an effective succession plan for the Board and senior management. Further information on the activities of the Nomination Committee is set out in the Nomination Committee report on pages 102–107.

A comprehensive induction programme is available to new Directors. The induction programme is tailored to meet the requirements of the individual appointee and explains the dynamics and operations of the Group, and its markets and technology. The induction includes, as a minimum, a series of meetings with key Group executives, along with site visits to the Group's key strategic sites. Further details of the induction provided for Robert MacLeod are set out in the Nomination Committee report on page 104.

The Chairman, through the Company Secretary, continues to ensure that there is an ongoing process to review training and development needs. Directors are provided with details of seminars and training courses relevant to their role and are encouraged and supported by the Company to attend them. In 2023, regulatory updates were provided as a standing item at each Board meeting in a Secretary's Report. External input on legal and regulatory developments impacting the business was also given, with specialist advisers invited to the Board and Committee meetings to provide briefings on topics such as the changing landscape of UK Corporate Governance, and the likely impact of the forthcoming introduction of ISSB ESG standards in the UK and the EU CSRD requirements.

Performance evaluation

The Board carries out an evaluation of its performance and that of its Committees and individual Directors, including the Chairman, every year. Details of the evaluation conducted in 2023 can be found in the Nomination Committee report.

Audit, risk and internal control

The Audit Committee is responsible for ensuring that policies and procedures are in place to ensure the independence and effectiveness of the Internal and External Audit functions. It also reviews the effectiveness of the Group's Internal and External Audit functions, in addition to monitoring the integrity of the Group's financial and narrative statements. Further information about the work of the Audit Committee can be found in the Audit Committee report on pages 93–101.

The Board is responsible for setting the Group's risk appetite and ensuring that appropriate risk management systems are in place. The Audit Committee assists the Board in reviewing the effectiveness of the system of internal control, including financial, operational and compliance controls, and risk management systems. The Group's approach to risk management and internal control is discussed in greater detail on pages 72–76 and the Group's principal risks and how they are being managed or mitigated are detailed on pages 77 and 78. The Viability Statement which considers the Group's future prospects is included on page 76. Risk management and internal control are also discussed in greater detail in the Audit Committee report.

All of the independent Non-executive Directors serve on both the Audit and Remuneration Committees. They therefore bring their experience and knowledge of the activities of each Committee to bear when considering critical areas of judgement. This means that, for example, the Directors are able to consider carefully the impact of incentive arrangements on the Group's risk profile and ensure that the Group's Remuneration Policy and programme are structured to align with the long-term objectives and risk appetite of the Company.

Remuneration

The Directors' Remuneration Report on pages 108–135 is incorporated into this Corporate Governance Report by reference. It describes the work of the Remuneration Committee in developing the Group's policy on executive remuneration, determining Director and senior management remuneration, reviewing workforce remuneration and related policies – including ensuring that these align with the Group's strategic objectives and culture, and overseeing the operation of the executive share incentive plans. It also includes information on the Group's remuneration advisers.

Audit Committee

Douglas Hurt – Committee Chairman

Carla Bailo
(from 1 February 2023)

Kath Durrant

Dinggui Gao

Jane Hinkley
(until 18 May 2023)

Robert MacLeod
(from 1 September 2023)

The Company Secretary is Secretary to the Committee

Dear Shareholder,

On behalf of the Audit Committee, I am pleased to present the Audit Committee report for 2023. The foundation of the Committee's work each year is a recurring and structured programme of activities which are defined in an annual rolling Audit Committee timetable. The Audit Committee then considers additional items as matters arise or priorities change.

Following the cyber incident early in 2023, the Committee spent time reviewing the impact of the incident on the financial performance of the Group, and satisfying itself that the data required for the reporting of the Group's financial results had not been compromised. Later in the year, once the incident and its repercussions had been fully investigated, it received a report from the Group's cyber consultants with recommendations for further enhancements to the Group's cyber security.

In July, the Committee was notified by its External Auditors that the FRC's Audit Quality Review ('AQR') team, as part of its ordinary review process, was performing a review of the audit of Vesuvius' financial statements for the year ended 31 December 2022. In November, the AQR team notified us that the work within the scope of their review had not identified any matters which required significant action and only limited improvements were required. The Audit Committee discussed the results of the review with PwC.

Alongside considering these matters and its ordinary items of business during the year, the Committee also undertook a deep dive into the Group's accounting for R&D expenditure and, responding to an issue that had been identified, reviewed the Group's inventory accounting for certain raw material consignment stocks in the United States.

In May, I will be leaving the Company, having reached nine years' service on the Board. Robert MacLeod, who joined the Board on 1 September 2023, will become the new Audit Committee Chair. As I hand over the Chairmanship, I would like to take this opportunity to thank my colleagues, past and present, for their contribution to the work of the Committee during my tenure.

Yours sincerely

Douglas Hurt
Chairman, Audit Committee
28 February 2024

The Audit Committee comprises all the independent Non-executive Directors of the Company, who bring a wide range of financial and commercial expertise to the Committee's decision-making processes. Douglas Hurt is the current Senior Independent Director and Chairman of the Audit Committee. He was the Finance Director of IMI plc for nine years prior to his appointment and has worked in various financial roles throughout his career. Douglas currently serves as the Chairman of the Audit Committees of Hikma Pharmaceuticals PLC and the British Standards Institution. He is a Chartered Accountant. This background provides him with the 'recent and relevant financial experience' required under the Code. Robert MacLeod will succeed Douglas as Chair of the Audit Committee at the close of the 2024 AGM. Robert is also a Chartered Accountant, with 'recent and relevant' financial experience, having served as Finance Director of W.S.Atkins Plc and Johnson Matthey Plc for ten years.

The Code and Financial Conduct Authority Disclosure Guidance and Transparency Rules also contain requirements for the Audit Committee as a whole to have competence relevant to the sector in which the Company operates. Vesuvius' Non-executive Directors have significant breadth of experience and depth of knowledge on matters relevant to Vesuvius' operations, both from their previous roles and from their induction and other activities since joining the Vesuvius Board. The Directors' biographies on pages 80 and 81 outline their range of multinational business-to-business experience and expertise in fields such as engineering, manufacturing, services, human resources and research and development, as well as their financial and commercial acumen. The Board considers that the Audit Committee as a whole has competence relevant to Vesuvius' business sector.

The Committee met five times during 2023. The Committee has also met twice since the end of the financial year and prior to the signing of this Annual Report. The Board Chairman, the non-independent Non-executive Director, the Chief Executive, the Chief Financial Officer, the Head of Finance, the Group Financial Controller, the Group Head of Internal Audit and the External Auditors were all invited to each meeting. Other management staff were also invited to attend as appropriate.

Audit Committee meetings are conducted to promote an open debate, they enable the Committee to provide constructive challenge of significant accounting judgements, and guidance and oversight to management, to ensure that the business maintains an appropriately robust control environment. Between Audit Committee meetings, the Chairman of the Audit Committee encourages open dialogue between the External Auditors, the management team and the Group Head of Internal Audit to ensure that emerging issues are addressed in a timely manner.

Audit Committee continued

The Committee operates under formal terms of reference, which were reviewed during the year and no changes made. They are available to view in the Investors/Corporate Governance/Board Committees section of the Company's website: www.vesuvius.com. Within these terms, the Committee and its individual members are empowered to obtain outside legal or other independent professional advice at the cost of the Company. These powers were not utilised during the year. The Committee may also secure the attendance at its meetings of any employee or other parties with relevant experience and expertise should it be considered necessary.

The Committee members believe that they received sufficient, relevant and reliable information throughout the year from management and the Internal and External Auditors to enable the Committee to fully discharge its responsibilities. The work of the Audit Committee is further elaborated in the remainder of this report.

How the Audit Committee delivered on its responsibilities in 2023

Published Financial Information

To monitor and assess the integrity of the financial statements of the Company, and review any significant financial reporting issues and judgements which those statements contain.

– It reviewed the integrity of the half-year and annual Financial Statements and recommended their approval to the Board

– It reviewed the draft Preliminary and Interim Results announcements

– It deliberated on, and challenged reports from, the Chief Financial Officer and the Head of Finance, setting out areas of judgement and/or estimation, the rationale for the accounting treatment and disclosures, and the pertinent assumptions and the sensitivities of the estimates to changes in the assumptions

– It reviewed provisions held for disposal, closure and environmental costs, including the reasonableness of underlying assumptions and estimates of costs, and the quantum of any related insurance assets

– It considered the Group's outstanding litigation items and the adequacy of provisions held in regard to these

– It reviewed the External Auditors' memoranda for the half-year and year-end, on the treatment of significant issues, which provided a summary for each issue, including an assessment of the appropriateness of management's judgements or estimates

– It challenged the assumed growth rates and discount rates used for asset impairment assessments

– It considered the Company's going concern statements, reviewing the nature, quantum and assessment of the significant risks to the business model, future performance, solvency and liquidity of the Group which were modelled as part of the scenarios

– It considered the stress testing that had been undertaken to support the Viability Statement made by the Company, examining the criteria selected for enhanced stress testing

– It advised the Board on whether the Annual Report and Financial Statements, taken as a whole, are fair, balanced and understandable and provided the information necessary for the shareholders to assess the Group's position and performance, business model and strategy

– It reviewed the management representation letters to be provided to the External Auditors by the Company in respect of the half-year and annual financial statements and recommended them to the Board for approval

– It confirmed that it was content that the External Auditors had received access to all the information necessary to conduct their audit

– It considered the Group's compliance with the requirements in respect of TCFD reporting, including the assurance received regarding the sustainability KPI data. The Committee reviewed and approved the climate-related risk and opportunities register, the scenario analyses and the roadmap to net zero

– It considered the contents of a letter received from the FRC following their limited scope review of the Group's 2022 TCFD disclosures of metrics and targets and net zero commitments. The Committee noted that the FRC had not identified any questions or queries with regard to this disclosure, but had made a small number of recommendations about areas for further refinement. The Committee committed to address these in the 2023 TCFD report

– It received a regulatory update from the VP Sustainability and a PwC specialist, on forthcoming changes to European ESG reporting, and considered the likely impact on the Group's future reporting and the work being undertaken to prepare for this

– It reviewed the Group's Tax Strategy, and commended the Group's UK and Polish tax strategies to the Board for approval

– It received information on the preparations for the filing of the Group's annual financial report in the required European Single Electronic Format (ESEF)

How the Audit Committee delivered on its responsibilities in 2023 continued

Risk Management and Internal Control

To review and monitor the Company's internal financial controls and internal control and risk management systems, and monitor and review the role and effectiveness of the Company's internal audit function and audit programme.

- It received reports from the Internal Audit function at each meeting, summarising activity and outlining progress with the audit programme
- It monitored both the responses from and follow-up by management, to Internal Audit recommendations arising during the year, in particular making sure that where longer-term actions were needed to resolve an issue, effective short-term mitigations were put in place. The Committee discussed at length any significant issues raised, the root causes for those issues and the actions being taken to resolve them
- It reviewed the resourcing and delivery of the 2023 Internal Audit plan and approved the 2024 Internal Audit plan
- It considered the effectiveness of the Internal Audit process, reviewing the results of an external quality review of the Internal Audit function that was conducted by EY, and the action being taken to further enhance the work of the function
- It received feedback from the CFO on the results of an internal survey of the work of Internal Audit conducted at the end of the year
- It met with the Group Head of Internal Audit without management being present on a regular basis, and discussed a range of topics, including confirming that the function operated free from management or other restrictions
- It monitored and reviewed the role and effectiveness of the Company's Internal Audit function and audit programme, and considered the resourcing of the function
- The Committee Chairman is involved in the process to recruit a new Group Head of Internal Audit following the resignation of the incumbent
- It considered the impact of the Q1 2023 cyber incident on the Group's operations, particularly with regard to the integrity of its financial reporting, and received a report from the Group's cyber consultants on developments in the Group's cyber security following the incident
- Following identification of an issue at one of the Group's sites in respect of the accounting treatment for consignment inventory, the Committee conducted a review of the accounting treatment for this raw material at other Group sites
- It undertook a deep dive into the Group's accounting for R&D expenditure
- It reviewed the Group's risk management processes and internal controls, including the work undertaken with external consultants to undertake a comprehensive review of the Group's risk register and the results of the Group's self-certification process
- It recommended statements to be included in the Annual Report concerning the effectiveness of the Group's internal financial controls and risk management systems
- It considered the Group's procedures for detecting fraud, and carried out a review of all alleged instances of fraud notified to the Committee
- Members of the Committee met and discussed business and control matters with senior management both during Board presentations and during site visits

External Audit

To oversee the relationship with the external auditors including making recommendations to the Board in relation to their appointment, negotiating and agreeing the statutory audit fee and the scope of the statutory audit, approving any permitted non-audit services, reviewing the findings of their work, assessing the effectiveness of the external audit process and monitoring the external auditors' processes for maintaining independence.

- It reviewed the findings of the work of PwC (the External Auditors) and Mazars (who audit the Group's non-material subsidiaries), including their key accounting and audit judgements, how any risks to audit quality were addressed and their views on interactions with senior management
- It monitored the External Auditors' independence, objectivity and effectiveness
- It considered the External Auditors' 2023 Audit Strategy and approved the 2023 engagement letter. It also made recommendations to the Board on the reappointment of the External Auditors and agreed the annual fees
- It considered the contents of a letter received from the FRC's Audit Quality Review team following a review of PwC's 2022 audit. The Committee was satisfied that no matters arose which required significant action, and with PwC's response to the inspection
- It reviewed and approved the non-audit services provided by the External Auditors
- It reviewed updates from PwC on material accounting and governance developments impacting the Group
- It reviewed the effectiveness of the External Audit process
- It met with the External Auditors without management being present on a regular basis and received valuable feedback on a range of topics

Governance

Report to the Board on how the Committee has discharged its responsibilities. Arrange for periodic reviews of its own performance and review its constitution and terms of reference to ensure it is operating effectively and recommend any changes it considers necessary to the Board for approval.

- It reviewed its terms of reference and monitored developments in corporate governance that were likely to impact the future work of the Committee, including the development of the UK Government's plans to augment the regime on internal control and assurance
- It conducted an evaluation of its performance and effectiveness
- It reported to the Board on the outcomes of Audit Committee meetings. All members of the Board received the agenda, papers and minutes of each Committee meeting

Audit Committee continued

Significant issues and material judgements

The Committee considered the following significant issues in the context of the 2023 Financial Statements. It identified these areas to be significant, taking into account the level of materiality and the degree of judgement exercised by management.

The Committee resolved that the judgements and estimates made on each of the significant issues detailed below were appropriate and acceptable.

Impairment of goodwill

The 2023 year-end carrying value of goodwill of £631m was tested against the current and planned performance of the Steel Flow Control, Steel Advanced Refractories and Foundry CGUs. The Committee considered the Board-approved medium-term business plans and terminal growth assumptions, and the discount rates used in the assessments. Relevant sensitivities using reasonably possible changes to key assumptions were evaluated. The detailed assumptions are provided in Note 16 to the Group Financial Statements.

Given that the models indicated, even with the application of reasonable sensitivities to the assumptions, that there remains significant headroom between the Value in Use and the carrying value, the Committee concurred that no goodwill impairment charges were required.

Other provisions

The Committee continues to monitor the implications of a number of potential exposures and claims arising from ongoing litigation, product quality issues, employee disputes, restructuring, vacant sites, environmental matters, legacy matter lawsuits, indirect tax disputes and indemnities or warranties outstanding for disposed businesses. Due to the long gestation period before settlement for a number of these issues can be reached, provisioning for these items requires careful judgement in order to establish a reasonable estimate of future liabilities. The Committee also assessed the strength of any insurance coverage for certain of these liabilities and challenged the accounting treatment for any amounts deemed to be recoverable from insurers. After due consideration and challenge, and having considered legal advice obtained by the Company, the Committee is satisfied that there are appropriate levels of provisions set aside to settle third-party claims and disputes (Note 29 to the Group Financial Statements) and that adequate disclosure has been made. Where no reliable estimate of the potential liability can be made for the outcome of an existing issue, no provision has been made and appropriate disclosure is included under contingent liabilities (Note 31 to the Group Financial Statements).

Operating segments for continuing operations

The Committee considered the aggregation of the Steel Flow Control, Steel Advanced Refractories, and Steel Sensors & Probes operating segments into the Steel reportable segment, noting the economic characteristics of these operating segments which include a similar nature of products, customers, production processes and margins. The Committee concluded that this segmentation remained appropriate.

Impairment of investment in subsidiaries

The Committee has reviewed management's impairment analysis of the Parent Company's investment in subsidiaries. Following this review it concurred that no impairment was required.

Fair, balanced and understandable reporting

The Committee considered all the information available to it in reviewing the overall content of the Annual Report and Financial Statements and the process by which it was compiled and reviewed, to enable it to provide advice to the Board that the Annual Report and Financial Statements are fair, balanced and understandable. In doing so, the Committee ensured that time was again dedicated to the drafting and review process so that internal linkages were identified and consistency was tested. Drafts of the Annual Report and Financial Statements were also reviewed by a senior executive not directly involved in the year-end process who reported to the Committee on his impressions of their clarity, comprehensiveness and the balance of disclosure in the document. On completion of the process, the Committee was satisfied that it could recommend to the Board that the Annual Report and Financial Statements are fair, balanced and understandable.

Risk management and internal controls

Risk management is inherent in management's thinking and is embedded in the business planning processes of the Group. The Board has overall responsibility for establishing and maintaining a system of risk management and internal control, and for reviewing its effectiveness; the Audit Committee assists the Board in reviewing the effectiveness of the Group's system of internal control, including financial, operational and compliance controls, and risk management systems.

In 2023, Deloitte facilitated a comprehensive review of the Group's risk register. All Committee members participated in this review of the Group's existing risks and ongoing mitigating actions, further details of which are given on page 72. The review led to a further refinement of the Group's risk register and a reassessment and reallocation of responsibilities for managing mitigation of the Group's principal risks. The Committee believes that this process for identifying and understanding its principal risks and uncertainties, including its emerging risks, was robust and appropriate.

The Committee considered the Company's going concern statement and challenged the nature, quantum and effects of the combination of the unlikely but significant risks to the business model, future performance, solvency and liquidity of the Group. These were all modelled as part of the scenarios and stress testing undertaken to support the Viability Statement. As part of this review, the Committee considered the Group's forecast funding requirements over the next three years and analysed the impact of key risks faced by the Group with reference to the Group's debt covenants; these included stress testing for a business interruption due to an unplanned loss of a key plant and the impact of a significant supply chain disruption. The Committee noted that the Group's debt headroom was sufficient to accommodate the modelled stress scenarios. As a result of its review, the Committee was satisfied that the going concern statement and Viability Statement had been prepared on an appropriate basis. The 2023 going concern statement and the 2023 Viability Statement are contained within the Risk, viability and going concern section on page 76.

The key features of the Group's internal control system, which provides assurance on the accuracy and reliability of the Group's financial reporting, are detailed in the Risk, viability and going concern section on pages 72–78. During 2023, the Committee considered the process by which management evaluates internal controls across the Group. The Group Head of Internal Audit provided the Committee with a summary overview of the assurance provided by the Group's control framework. PwC reports if there are any significant control deficiencies identified during the course of their audit, with no such deficiencies reported in 2023.

The Group is made up of several large operating units, but also many small units in geographically diverse locations. Consequently, segregation of duties, overlapping access controls on systems and remote management oversight can give rise to control vulnerabilities and fraud opportunities. The Group has not adopted a common Enterprise Resource Planning system as a Group-wide standard, though where it becomes necessary to update the ERP for a particular business, the same supplier is used for these implementations, on a standardised basis. Over time, the Group is moving towards more harmonisation of its ERP landscape and a shared services model for financial transactions, enabled by this process, systems and controls standardisation between businesses. This is expected to enhance the overall internal control environment in the smaller operating units.

In February 2023, the Group was the subject of a cyber incident involving unauthorised access to our IT systems. The Group responded swiftly to the incident, instigating the Cyber Incident Plan and shutting down our IT systems to contain the incident. The Group's sites implemented their business continuity plans to maintain their operations. The Audit Committee considered the potential impact of the incident on the reporting of the Group's financial results and was satisfied that the data required was not compromised.

Audit Committee continued

Although cyber security remains a matter for the full Board, see page 73, the Committee considers the effectiveness of the Group's cyber controls at mitigating the risk of further incidents that might impact the Group's financial controls in the future. In July, the Committee received a report from the Group's cyber consultants on the Group's cyber security systems and preparedness. This provided useful benchmark data on the Group's systems and processes, an analysis of the development of the Group's cyber security, including its resourcing, emerging risks and the Group's future plans for focus and investment.

The Committee believes that an appropriate control environment exists, but recognises that there remain areas for further upgrade in respect of the Group's cyber risks. The Committee recognises that with an organisation of the size and complexity of Vesuvius it is virtually impossible to eradicate the risk of cyber attack but is pleased to note that whilst the Group's systems were penetrated, the risk management plans and practices in place, particularly the business continuity plans, did serve to mitigate the incident.

The Group undertakes a range of activities to mitigate the risk of fraud. This framework is regularly reviewed to determine areas for improvement. Eliminating the risk of fraud remains one of the key areas of focus for Internal Audit, forming a fundamental part of the Financial Controls and Compliance audits. These assess the quality of the balance sheet reconciliations, review key judgement matters, consider ERP access rights, review tenders and quotations, review the entity's controls over the purchase requisition process, review the entity's controls over master data changes, and review controls over payments, journals and associated applications, along with travel and expense reimbursements.

Any control issues identified by management locally or as a result of the work performed by Internal Audit are escalated as appropriate. Internal Audit rates all control issues they identify in terms of their significance and agrees remediation plans with the management of the auditee and an action owner, in each case establishing a target date for remediation. For significant issues, management at all levels within the Business Unit are engaged to agree the actions and remediation dates. The status of the remediation is monitored and overdue issues are escalated appropriately with management, and reported at Audit Committee meetings. Where a specific audit identifies multiple issues, or where issues arise on the progress of remediation activities, the Audit Committee continues to challenge management to identify root causes and ensure that the right organisational structure and people are in place to address issues effectively.

In line with the requirements of the Code, responsibility for the oversight and monitoring of the Group's Speak Up helpline, which collates allegations of improper behaviour and employee concerns, has passed from the Audit Committee to the full Board. Members of the Committee are kept apprised of any complaints received by the Company regarding fraud, accounting, internal accounting controls and auditing matters. Further details of the operation of the Group's Speak Up policy and helpline can be found on page 87.

Each year, the senior financial, operational and functional management of the businesses self-certify compliance with Group policies and procedures for the areas of the business under their responsibility and confirm the existence of adequate internal control systems throughout the year. The Committee reviews any exceptions noted in this bottom-up exercise.

No significant control issues were raised by our External Auditors, PwC and Mazars, in 2023, and no material issues were identified. After considering these various inputs, the Committee was able to provide assurance to the Board on the effectiveness of internal financial control within the Group, and on the adequacy of the Group's broader internal control systems.

Internal Audit

The Group's Internal Audit function operates on a global basis through professionally qualified and experienced individuals located in Poland, India, Malaysia and the Czech Republic. The team reports to the Group Head of Internal Audit, who in turn reports directly to the Chairman of the Audit Committee. During the year the incumbent Group Head of Internal Audit resigned. The Company currently has an acting Group Head of Internal Audit and is focused on progressing the appointment of a formal successor shortly.

Throughout 2023, Internal Audit continued to perform a programme of audits focusing on internal financial controls and key compliance issues. The Committee received, considered and approved the 2023 Internal Audit plan which was constructed using a risk-based approach to cover the Group's control environment. The plan is based on the premise that all operating units are audited at least once every three to four years, and each of the large operating entities located in Germany, the US, China, Mexico and Brazil are audited on an annual basis.

Six categories of audit were conducted: Financial Controls Audits, Deep Dive Trial Balance Audits, Compliance Audits, Focused Audits (covering for example, purchasing, post acquisition and P-cards), IT Audits and Follow-up Audits, with the majority of the 35 audit assignments undertaken in 2023 (2022: 32) focused on financial controls. The Committee received a report from the Group Head of Internal Audit at each of its meetings detailing progress against the agreed plan and key trends and findings. An update on the progress made towards resolving open issues was also given. Common themes emerging from Internal Audit reports coupled with Internal Audit and management's assessment of risk have informed the development of the 2024 Internal Audit plan.

When necessary, Internal Audit contracts auditors from other audit firms to supplement internal resources on an ad hoc basis. This process provides valuable learning opportunities and we expect to continue to use external resources in specialist areas and geographies in the future.

Control issues are recorded in a live web-based database into which management is required to report progress towards addressing any open issues. Internal Audit monitors the progress made and frequent meetings continue to be held with each Business Unit President to ensure that engagement on the resolution of issues is clearly understood at all levels of the business and responsibility for remediation has been appropriately assigned. The results are communicated to the Audit Committee which also involves senior management as necessary to provide an update against any high-priority actions. Internal Audit undertakes follow-up reviews as required. In situations where audit findings require longer-term solutions, the Committee oversees the process for ensuring that adequate mitigating controls are in place.

In 2023, the Audit Committee also commissioned EY to undertake a formal review of the quality of the Group's Internal Audit function. EY assessed the Internal Audit function against 46 Institute of Internal Auditors standards and reported to the Committee its observations on the function and recommendations for improvement. In response to EY's report, the Group Head of Internal Audit prepared an action plan, identifying key priorities for the function to address and a timetable for changes to be made to further enhance the effectiveness of the function.

At the end of the year the CFO also conducted an internal review of the effectiveness of the Internal Audit function. The feedback was positive overall with the function considered to operate effectively.

Having considered the work of the Internal Audit function during 2023, including progress against the 2023 Internal Audit plan, the quality of reports provided to the Committee, and the results of the review of the function's effectiveness, the Committee concluded that the Internal Audit function operated effectively during 2023, exhibiting an appropriate level of independence and challenge.

External Audit

Auditors' appointment

In 2017, the Company appointed PricewaterhouseCoopers LLP (PwC) as External Auditors to the Company and the Group, and Mazars LLP (Mazars) to audit the non-material entities within the Group. Darryl Phillips serves as the PwC audit partner responsible for the Group audit, a role he assumed following the completion of the 2020 half-year review.

Under the Statutory Audit Services for Large Companies Market Investigation (Mandatory Use of Competitive Tender Processes and Audit Committee Responsibilities) Order, the Audit Committee is required to report in which year the Company proposes to complete a competitive tender process in respect of the statutory External Auditor, and the reasons why the proposed year for the competitive tender process is in the best interests of the shareholders. In compliance with the Order, the Audit Committee confirms that a competitive tender process for the appointment of a statutory auditor will, subject to satisfactory annual reviews of the effectiveness of the External Auditors and its costs in the intervening period, be conducted during 2025 or 2026 with a view to recommending the appointment of a new statutory auditor or the reappointment of the incumbent auditor, for the financial year ending December 2027. The Audit Committee believes that conducting a competitive tender process during 2025 or 2026 for the appointment of a new statutory auditor for the financial year ending December 2027 will allow enough time to ensure any successor firm would be independent on appointment, and in the best interests of the shareholders.

2023 Audit plan

During the year the Committee evaluated the PwC Group audit scope for 2023. The year-end audit plan was based on agreed objectives, with the audit focused on areas identified as representing significant risk and requiring judgement. In order to manage costs, and ensure that the Group maintains audit relationships outside the 'Big 4', Mazars undertakes some of the Group audit work under the direction of PwC. It is principally responsible for the statutory audits of the non-material Group subsidiaries, but also undertook specific audit procedures for certain component entities that were within PwC's Group audit scope in 2023. Mazars reported independently to PwC on this work and the work was directed, supervised and reviewed by PwC. Mazars also reported independently to the Committee on the work it undertook auditing non-material subsidiaries.

PwC maintained an ongoing dialogue with the Audit Committee throughout the year providing regular updates, including commentaries on significant issues and its assessment of consistency and appropriateness in the judgements and estimates made by management. Private sessions were held with PwC without management being present. PwC confirmed that its work had not been constrained in any way and that it was able to exercise appropriate professional scepticism and challenge throughout the audit process. The Chairman of the Audit Committee met on a number of occasions with PwC to monitor the progress of the audit and discuss questions as they arose. The Committee also received a report from Mazars during the year which noted that there were no findings or recommendations in respect of its statutory audits of the non-material Group subsidiaries for the year ended 31 December 2022 that Mazars deemed sufficiently material or significant to bring to the attention of the Audit Committee.

The Independent Auditors' Report provided by PwC on pages 144–151 includes PwC's assessment of the key audit matters. These key audit matters are discussed in the significant issues and material judgements comments above. The report also summarises the scope, coverage and materiality levels applied by PwC in its audit. As part of the audit planning process and based on a detailed risk assessment, the Committee agreed a materiality figure of £8.5m for Group financial reporting purposes which is 17.5% lower than last year (£10.3m) and is based on 5% of a three-year average of statutory profit before tax. Importantly, much lower levels of materiality are used in the audit fieldwork on the individual businesses across the Group and these lower figures drive the scope and depth of audit work. Any misstatement at or above £0.42m was reported to the Committee.

There were no significant changes this year to the coverage of the audit which stood at 72% of the Group's revenue and 74% of statutory profit before tax. This coverage was considered to be sufficient by the Committee. The audit coverage is reflective of the long tail of smaller businesses within the Group that individually are not 'material' to the Group result.

Audit Committee continued

The PwC audit fee approved by the Audit Committee was £2.3m. This was constructed bottom-up on a local currency basis and was assessed in light of the audit work required by the agreed materiality level and scope. The fee agreed with Mazars for the audit of the non-material entities and three material entities was £1.0m, resulting in a combined audit fee for 2023 of £3.3m, compared with £3.2m in 2022.

Independence and objectivity

The Committee is responsible for safeguarding the independence and objectivity of the External Auditors in order to ensure the integrity of the external audit process. It is responsible for the implementation and monitoring of the Group's policies on external audit, including the policy on the employment of former employees of the External Auditors, and the policy on the provision of non-audit services by the External Auditors. To assist with its assessment of independence, the Committee also sought regular confirmation from the incumbent External Auditors during 2023 that they considered themselves to be independent of the Company in their own professional judgement, and within the context of applicable professional standards. It assessed the work of the External Auditors, reviewing compliance against the non-audit services policy and reviewed the details of the non-audit services provided by the External Auditors and associated fees. As a result of its review, the Committee concluded that the External Auditors remained appropriately independent.

Non-audit services

Vesuvius operates a policy for the approval of non-audit services. A copy of the current policy is available to view in the Audit Committee section of the 'Investors/Corporate Governance' pages of the Company's website: www.vesuvius.com.

The use of the External Auditors for the provision of non-audit services is strictly prohibited except for specific permitted audit-related services. These comprise: Category 1 services which the External Auditors are obliged to perform due to law or regulation, such as regulatory and solvency reports; and Category 2 services which could be provided by others (albeit there are typically significant efficiencies to be had when done in combination with the audit, such as interim reporting). An annual budget for the additional Category 2 service fees proposed to be paid to the External Auditors in the following year is presented for pre-approval to the Audit Committee each year. Audit Committee approval is required for expenditure in excess of this approved budget.

All audit-related and permissible non-audit services proposed to be carried out for any Group company worldwide by the External Auditors must be pre-approved before an engagement is agreed. Pre-approval must be obtained from the Head of Finance or the Chief Financial Officer, who will confirm that the Audit Committee has approved the engagement. Any assignment proposed to be carried out by the External Auditors must also have been cleared by the External Auditors' own internal pre-approval process, to assess the firm's ethical ability to do the work.

In 2023, the fees for non-audit services payable to PwC amounted to £0.2m (2022: £0.2m). The 2023 fees represent payment for assurance services related to the review of the Group's half-year financial statements, quarterly reviews and tax form audits in India (as required by regulation) and Mexico. These are services where it was considered most efficient to use PwC because of their existing knowledge of the business or because the information required was a by-product of the audit process. In each of the past four years the non-audit-related fees have represented <9% of the statutory audit fees.

Effectiveness of the External Audit process

The Committee and the Board are committed to maintaining the high quality of the external audit process. Each year the Committee carries out a formal assessment of the performance of the External Auditors in carrying out their work and of the audit process in general. Input into the evaluation in 2023 was obtained from management and other key Company personnel, members of the Audit Committee and the External Audit team. The review focused on the External Auditors' mindset and culture, skills, character and knowledge, and the quality of its controls, as set out in the guidance for audit committees prepared by the FRC.

The evaluation of the External Auditors included the following steps:

- A survey of key finance and non-finance stakeholders in Head Office and in-scope countries
- A commentary-based survey of Audit Committee members focused on their experience of working with PwC
- A review of other external evidence on PwC audit quality (e.g. report on PwC by the FRC)
- Discussions with PwC and key finance and non-finance personnel

It was noted that the cyber incident in early February 2023 had presented additional challenges for the External Auditors in 2023, resulting in the need for additional audit procedures and delaying group reporting and audit work. Despite this, the External Auditors had worked diligently to ensure that the audit was completed for the scheduled signing date. The quality of the audit team, their audit approach, technical expertise and independence, were all positively rated along with their communication of issues and findings. Debrief meetings were held at a local level to discuss the 2022 audit, and to constructively share feedback that would facilitate further improvements to the audit planning for the 2023 audit.

FRC Audit Quality Review

The Financial Reporting Council's Audit Quality Review (AQR) team routinely monitors the quality of the audit work of certain UK audit firms through inspections of sample audits and related quality processes. The AQR team selected to review the audit of Vesuvius plc's financial statements for the year ended 31 December 2022 as part of its 2023/24 annual inspection.

The AQR has provided us with a copy of their confidential report which has been reviewed and discussed by the Audit Committee with PwC. We are satisfied that no matters arose which required significant action, and with PwC's response to the inspection.

Reappointment of PwC for 2023

The Committee is responsible for making recommendations to the Board in relation to the appointment, reappointment and removal of the External Auditors. In undertaking this duty, the Committee takes into consideration a number of factors concerning the External Auditors and the Group's current activity, including:

- The results of its most recent review of the effectiveness of the Auditors
- The results of its review of the independence and objectivity of the Auditors, particularly in light of the provision of non-audit services
- Its ability to coordinate a global audit, working to tight deadlines
- The cost-competitiveness of the Auditors in relation to the audit costs of comparable UK companies
- The tenure of the incumbent Auditors
- The periodic rotation of the senior audit management assigned to the audit of the Company
- External reviews of the performance and quality of the Auditors, including:
  - The annual report issued by the Audit Quality Review team of the Financial Reporting Council on the work of the Auditors
  - The Auditors' own annual Transparency Report

Having considered the aforementioned factors, the Committee recommended to the Board that PwC be reappointed for 2024. It confirms that its recommendation is free from the influence of any third party and that there are no contractual restrictions on the choice of auditors. A resolution proposing the reappointment of PwC will be included in the Notice of AGM for 2024.

Statement of compliance with the Competition and Markets Authority (CMA) Order

The Committee considers that the Company has complied with the Statutory Audit Services for Large Companies Market Investigation (Mandatory Use of Competitive Tender Processes and Audit Committee Responsibilities) Order 2014 (Article 7.1), published by the CMA on 26 September 2014, including with respect to the Audit Committee's responsibilities for agreeing the audit scope and fees and authorising non-audit services.

Audit Committee evaluation

The Audit Committee's performance was evaluated as part of the externally facilitated Board and Committee performance evaluations, which are further described in-depth on pages 106 and 107. The review concluded that the Committee continued to function well, with the management of meetings, quality of the Committee's relationships and communications with the key counterparties, and review and oversight of key areas of responsibility, considered to be effective. It was noted that the forthcoming changes in European ESG regulations, and the potential changes to corporate governance reporting would remain matters of focus for the Committee during 2024, and that ensuring a successful transition of the Audit Committee Chair would also be a priority for the Committee over the coming year.

On behalf of the Audit Committee

Douglas Hurt
Chairman, Audit Committee
28 February 2024

Nomination Committee

Carl-Peter Forster – Committee Chairman

Carla Bailo
(from 1 February 2023)

Kath Durrant

Dinggui Gao

Friederike Helfer

Jane Hinkley
(until 18 May 2023)

Douglas Hurt

Robert MacLeod
(from 1 September 2023)

The Company Secretary is Secretary to the Committee

Dear Shareholder,

2023 was a year of ongoing change for the Board, and most of the Committee's work during the year related to Director succession. At the beginning of January, after a diligent search process, the Committee met to recommend the appointment of Mark Collis as the Group's new CFO, following Guy Young's resignation in September 2022. Mark joined the Group on 1 April 2023. Then, at the end of January, the Committee recommended the appointment of Carla Bailo, as a new Non-executive Director. This recommendation was the culmination of the Committee's activities at the end of 2022, which focused on identifying an individual with extensive international industrial experience to support the work of the Board.

Having filled these two vacancies, the Committee then focused on future succession requirements. Noting that Douglas Hurt would complete nine years' service with the Company in 2024, the Committee commenced searches in 2023 to identify individuals to assume the roles of Chair of the Audit Committee and Senior Independent Director. On 1 September 2023, Robert MacLeod, a Chartered Accountant with experience serving as CEO and CFO of UK-listed companies, joined the Board as a new Non-executive Director. Robert will become the Chair of the Audit Committee when Douglas retires from the Board at the close of the 2024 AGM, subject to shareholder approval at that meeting. On 15 February, we were also pleased to announce the appointment of Eva Lindqvist as a Non-executive Director with effect from the close of the 2024 AGM. Eva will take over as Senior Independent Director from Douglas Hurt at that point.

Alongside this Board recruitment, the Committee also spent time focusing on senior management development and succession planning, particularly with respect to the changes to the membership of the Group Executive Committee. The Committee discussed the Group's progress with the development of the senior management pipeline, reviewing the turnover, sourcing and diversity of staff in the Senior Leadership Group of c.150 managers. It received regular reports on developments in senior leadership roles, and the capabilities of individuals in key roles across the Group. It also considered the Group's progress on developing the senior management talent pool to ensure that the right resources are readily available to fill future vacancies. This work continues in 2024.

Yours sincerely

Carl-Peter Forster
Chairman, Nomination Committee
28 February 2024

Role and responsibilities

The Nomination Committee's foremost priorities are to ensure that the Company has the best possible leadership and that plans are in place for orderly succession to both the Board and Group Executive Committee positions. The Committee ensures that the procedure for the selection of potential candidates for Board appointments – either as an Executive Director or independent Non-executive Director – is formal, rigorous and transparent, and undertaken in a manner consistent with best practice. It also ensures that the Board is composed of individuals with the appropriate drive, abilities, diversity and experience to lead the Company in the delivery of its strategy and that appointments are made on merit, against objective criteria and with due regard for the benefits of gender, social, ethnic and cognitive diversity, and personal strengths.

The Committee is composed solely of Non-executive Directors and is chaired by the Chair of the Board. The Chief Executive and Chief HR Officer attend all scheduled meetings of the Committee. Members' biographies are set out on pages 80 and 81. The Committee met six times during the year. It operates under formal terms of reference, a copy of which is available on the Group's website at: https://www.vesuvius.com/en/investors/corporate-governance/committees.html.

The Committee and its members are empowered to obtain outside legal or other independent professional advice at the cost of the Company in relation to its deliberations. These rights were not exercised during the year. The Committee may also secure the attendance at its meetings of any employee or other parties it considers necessary.

Board composition

The Committee keeps the current and future membership needs of the Board and its Committees under continual review. The independence and diversity of the Board are also examined as part of the Group's annual corporate governance review. Having taken into account the structure, size and composition of the Board, along with the existing tenure and prospective rotation and retirement of Board members, the Committee sought to recruit additional resource for the Board and its Committees in 2023.

The Committee considered the Company's ongoing compliance with the Board Diversity Policy, also noting the update to the UK Listing Rules effective for financial years starting on or after 1 April 2022, pursuant to which one of the Chair, Chief Executive, Chief Financial Officer and Senior Independent Director should be female. The Board recognises that over time the proportion of female Directors may fluctuate naturally as Board members retire and new Directors are appointed. The Board always seeks to review a diverse list of candidates for all Board positions.

How the Nomination Committee delivered on its responsibilities in 2023

Board composition

- Reflected on the balance of skills, knowledge and experience of the current Directors and compared this to the list of key skills the Board assesses are needed to support the delivery of the Company's strategy
- Reviewed the membership needs of the Board and its Committees, considering the existing tenure and the prospective rotation and retirement of Board members
- Recommended to the Board that Mark Collis be appointed as the new CFO
- Recommended to the Board that Carla Bailo be appointed as a new Non-executive Director
- Appointed Spencer Stuart to undertake searches for two new Non-executive Directors, to take over the roles of Chair of the Audit Committee and Senior Independent Director from Douglas Hurt who will shortly have completed nine years' service on the Board
- Considered and interviewed potential candidates, including assessing whether individuals had appropriate time available to commit to the roles, before making final recommendations on the appointment of the two preferred candidates, Robert MacLeod and Eva Lindqvist, to the Board

Succession planning and senior management development

- Throughout the year, reviewed changes in personnel in the Senior Leadership Group. Also, considered the level of turnover in this Group and the activities being undertaken to retain existing talent, along with the action being taken to develop and recruit new executives to fill gaps in this talent pool
- Reviewed the Board and senior management succession plans, focusing particularly on any gaps in these and the action being undertaken to ensure these are filled on a timely basis
- Reviewed the Group's talent management programme, including the methods used to identify and develop talent across the Group

Diversity

- Reviewed the Group's diversity with a focus on gender diversity and the range of nationalities represented in the Senior Leadership Group
- Reviewed the Group's progress in achieving its diversity targets, noting the actions being taken to improve the Group's diversity, particularly the number of women employed throughout the Group
- Reviewed the Board Diversity Policy and recommended to the Board that this be revised to include an aim to ensure that by the end of 2024, at least 40% of the Directors are women, and at least one of the senior positions (the Chair, Chief Executive, Senior Independent Director and Chief Financial Officer) is held by a woman, while continuing to appoint candidates based on merit

Committee evaluation

- Participated in the Board's evaluation of its performance, reviewing the Committee's performance and effectiveness during 2023, including evaluating whether each Non-executive Director continued to be able to allocate sufficient time to fulfil their duties

Governance

- Approved the Nomination Committee report for publication in the Annual Report
- Reviewed the Committee's terms of reference, and recommended to the Board that no changes be made to them

Nomination Committee continued

Audit Committee Chair appointment process

Requirement – Recognising that Douglas Hurt was due to reach the ninth anniversary of his appointment to the Board in April 2024, the Committee commenced a search for a suitable successor to take on the role of Audit Committee Chair.

Brief – The global specialist search consultant, Spencer Stuart, was retained to assist with the search. Spencer Stuart has adopted the Voluntary Code of Conduct addressing gender diversity and best practice in search assignments. It does not have any other connection with the Group, other than in respect of management recruitment work undertaken as part of normal trading activities.

Search considerations – A candidate specification was prepared taking into consideration the balance of skills, knowledge and experience of the existing Directors, the diversity of the Board, the independence of continuing Board members, and the ongoing requirements and anticipated strategic developments of the Group. Along with the focus on proven financial expertise in a listed UK company, it was agreed that the search would focus on individuals with recent and relevant financial experience.

Review – Spencer Stuart identified potential candidates and produced a diverse longlist for consideration. A shortlist was drawn up, based upon the objective criteria identified at the beginning of the process and these candidates were invited for interview with members of the Committee.

Selection – The preferred candidate then met with the remaining members of the Board. Detailed external references were taken up and the candidate demonstrated that they had sufficient time available to devote to the role. It was confirmed that there were no potential conflicts of interest.

Appointment – The Committee made a formal recommendation to the Board for the appointment and the Board approved the appointment.

Induction – A comprehensive induction programme was put in place. Robert was given access to past Board and Committee papers, and a programme of meetings and site visits was drawn up to ensure that he was quickly able to assimilate fundamental information about the business and the Group's operations. Robert was invited to attend the Board's June Strategy meetings prior to his formal appointment to the Board.

Robert MacLeod induction programme

Areas covered:	Provided by:
Vesuvius' purpose, strategy, customer and supplier landscape and strategic priorities	CFO, BU Presidents, Group Head of Strategy, Chief Digital Officer
Business operations, people and culture	Chief HR Officer, HeaTt Training, site visit to Borken, Germany
Financial position and performance, risk management and treasury matters	CFO, Group Financial Controller, Group Head Internal Audit, Group Treasurer
Health and safety and sustainability strategy	VP Sustainability, provision of policies/procedures, access to past Board sustainability presentations
Corporate governance, Board operations, legal and regulatory matters	General Counsel/Company Secretary, existing NEDs

Senior management development and succession

The Committee's succession planning activities also encompass the senior management levels immediately below the Board, aiming to support and encourage the growth of a pool of talent able to step up to the Group's top roles. As a matter of routine, the Committee is informed of changes in personnel in the Senior Leadership Group and the Committee maintained oversight of the changes to membership of the Group Executive Committee throughout the year.

The Committee considers succession plans for all the senior functional and Business Unit positions. It assesses the availability of candidates who could cover the roles on a short-term contingency basis should the need arise, along with the pool of medium-term and long-term talent available for future development into specific roles. It monitors the level of turnover and diversity in the broader Senior Leadership Group, along with the balance of internal promotions and external appointments into these roles. During 2023, it continued to examine how the Group's talent management processes were developing, how the senior management cadre was performing and how the mentoring programme established for the development of individuals flagged as 'high potential' was proceeding – all aimed at developing the pipeline of experienced and talented managers to succeed to roles at the highest level of the business. In this process, the Committee focused both on the bench strength in key skills and expertise, as well as the talent pipeline in critical geographies. The Committee also considered the level of turnover in the Senior Leadership Group and the activities being undertaken to retain existing talent, along with the action being taken to develop and recruit new executives to fill gaps in this talent pool.

Diversity

The Group's policy on Diversity and Equality outlines Vesuvius' commitment to encouraging a supportive and inclusive culture among its global workforce, promoting diversity and eliminating any potential discrimination in our work environment. (See the Policy summary on page 61.) Vesuvius' Board Diversity Policy explains how this commitment manifests in relation to the Board.

Vesuvius recognises the value of a diverse and skilled workforce and is committed to creating and maintaining an inclusive and collaborative workplace culture that will provide sustainability for the organisation into the future. We believe that the dedication and professionalism of our people is the most significant contributor to our success. Having a balance of cultures, ethnicities and genders helps to promote innovation, creativity and engagement. The diversity of our senior management cadre and employees is one of the core strengths of the Group. (See pages 61 and 62 for further information about the Group's approach to diversity.)

The Nomination Committee considers the Group's progress in implementing the Group's diversity policy each year and the achievement of the Group's diversity targets. Across the Group in 2023, 15% (2022: 15%) of our workforce were women, no change versus 2022. The Group has set a target of ensuring that 25% of the Senior Leadership Group of the Company (which comprises c.150 individuals) are female by 2025. This KPI has been incorporated into the long-term incentives of our senior management. The number of women in the Senior Leadership Group remained stable at 20% in 2023 (2022: 20%). Each of the Group's four Business Units has put in place strategies to enhance gender diversity.

Board diversity

A large part of the work of the Nomination Committee focuses on ensuring that the Board and its Committees have the appropriate range of diversity, skills, experience, independence and knowledge of the Company and the markets in which it operates, to enable them to discharge their duties and responsibilities effectively. The Board Diversity Policy confirms the Group's commitment to maintaining a diverse Board, while continuing to appoint candidates based on merit. We continue to look at diversity in its broadest sense – reflected in the range of backgrounds and experience of Board members who are drawn from different nationalities and have managed a variety of complex global businesses. The Nomination Committee recognises that diversity is a key ingredient in creating a balanced culture for open discussions at Board level and in minimising 'groupthink'.

All independent Non-executive Directors serve on the Audit and Remuneration Committees, and the Chairman and all the Non-executive Directors serve on the Nomination Committee, so the diversity of the Board's principal Committees reflects the diversity of our Non-executive Directors. The Nomination Committee therefore considers the diversity of the Non-executive Directors as a stand-alone cadre, as well as the diversity of the Board as a whole, when considering recruitment to the Board.

In 2017, the Board set a target for at least 33% female Board membership. This was achieved in 2019. In July 2023, the Board set a revised target of 40% female Board membership, with at least one of the senior Board positions (Chair, CEO, SID or CFO) to be held by a woman by the end of 2024. As at 31 December 2023, women continued to make up 33% of the Directors, one of the Directors (11%) identified as having an Asian heritage, and another Director (11%) identified as having a mixed-race heritage. This represented a small decrease in the Board's gender and ethnic diversity versus 31 December 2022, as a result of the increase in the Board from eight to nine members. Currently, five Directors hold citizenship outside the UK.

As at 31 December 2023, the Board had not met the UK Listing Rule targets for 40% of Directors on the Board to be women and for a woman to hold at least one of the senior Board positions. When Eva Lindqvist joins the Board at the close of the 2024 AGM, the percentage of women on the Board will increase to 44%, and as she will also take over as Senior Independent Director at the close of the AGM, at that point a woman will also occupy one of the senior Board positions.

Women made up 40% of the membership of the Audit and Remuneration Committees as at 31 December 2023 (60% in 2022), and 43% of the membership of the Nomination Committee (57% in 2022). There have been no changes in the constitution of the Board or its Committees between 31 December 2023 and the date of this report.

Vesuvius Board Diversity Policy

Vesuvius plc recognises the value of a diverse and skilled workforce and is committed to creating and maintaining an inclusive and collaborative workplace culture that will provide sustainability for the organisation into the future. Vesuvius is committed to ensuring equality of opportunities, with the aim of promoting diversity and inclusion. In this context, the promotion of diversity and inclusion relates, but is not limited to, both protected and non-protected characteristics, including gender, age, educational and professional background, ethnicity, sexual orientation, disability and socio-economic background.

Objectives

- The Nomination Committee will focus on ensuring that it, the Board and the Board's Committees, have the appropriate range of diversity, skills, experience, independence and knowledge of the Company to enable them to discharge their duties and responsibilities effectively
- As all independent non-executive Directors serve on the Audit and Remuneration Committees, and the Chairman and all of the Non-executive Directors serve on the Nomination Committee, the diversity of the Board's principal Committees reflects the diversity of the Non-executive Directors. For the purposes of considering the diversity of the Board's Committees, the Nomination Committee will therefore consider the diversity of the Non-executive Directors as a stand-alone cadre, as well as the diversity of the Board as a whole, when considering recruitment to the Board
- The Nomination Committee will ensure that all appointments to the Board and its Committees are aligned with Vesuvius Policy, and are based on merit with each candidate assessed against objective criteria focused on the skills, experience and knowledge required of the position, and with due regard to the benefits of diversity and inclusion on the Board
- The Nomination Committee will engage with executive search firms in a manner which ensures that opportunities are taken for a diverse range of candidates to be considered for appointment. This will include ensuring that the Committee only uses search firms that are signed up to the Voluntary Code of Conduct for Executive Search Firms
- The Nomination Committee supports senior management efforts to increase diversity in the senior management pipeline to facilitate succession planning towards executive Board positions. With respect to the representation of women on the Board, the Board is supportive of the initiatives to increase the proportion of women on the boards of FTSE 350 companies. Vesuvius aims, by the end of 2024, to achieve a Board with at least 40% of the Directors being women, and at least one of the senior positions (the Chair, Chief Executive, Senior Independent Director and Chief Financial Officer) being held by a woman, while continuing to appoint candidates based on merit
- With regard to ethnic diversity, the Board is committed to ensure that at least one Director is from a minority ethnic background
- The Board recognises that over time the proportion of women Directors and Directors from a minority ethnic background may fluctuate naturally as Board members retire and new Directors are appointed

View the Board Diversity Policy on the Vesuvius website at: https://www.vesuvius.com/content/dam/vesuvius/corporate/Sustainability/policies/board-diversity-policy-july-2023.pdf

Nomination Committee continued

As at 31 December 2023, the gender balance of the Group's employees was as follows:

	Female	Male	Gender not available[1]	Total	Female	Male
Group Executive Committee members	2	5		7	29%	71%
Leadership roles reporting to members of the GEC	12	36		48	25%	75%
Senior Managers[2]	**14**	**41**		**55**	**25%**	**75%**
All other employees	1,739	9,582		11,321	15%	85%
Vesuvius employees	**1,753**	**9,623**		**11,376**	**15%**	**85%**
Directly supervised contractors	43	165	1,927	2,135		
Vesuvius employees and directly supervised contractors	**1,796**	**9,788**	**1,927**	**13,511**		
Senior Leadership Group[3]	**29**	**116**		**145**	**20%**	**80%**

1. The Group had 1,927 directly supervised contractors who were contracted through third parties and for whom the Group does not hold detailed employment records.
2. Senior Managers comprise Group Executive Committee members plus key leadership roles reporting directly to members of the Group Executive Committee.
3. The Senior Leadership Group comprises the 145 most senior managers in the organisation.

As at 31 December 2023, the gender balance of the Directors and members of the Group Executive Committee was as follows:

	Number of Board members	Percentage of the Board	Number of senior positions on the Board (CEO, CFO, SID and Chair)	Number in Group Executive Committee	Percentage of Group Executive Committee
Men	6	67%	4	5	71%
Women	3	33%	–	2	29%
Not specified/prefer not to say	–	–	–	–	–

The data for this table was collected by asking individuals to self-report against the categories displayed.

As at 31 December 2023, the ethnic background of the Directors and members of the Group Executive Committee was as follows:

	Number of Board members	Percentage of the Board	Number of senior positions on the Board (CEO, CFO, SID and Chair)	Number in Group Executive Committee	Percentage of Group Executive Committee
White British or other White (including minority-white groups)	7	78%	75%	6	86%
Mixed/Multiple Ethnic Groups	1	11%	25%	1	14%
Asian/Asian British	1	11%	–	–	–
Black/African/Caribbean/Black British	–	–	–	–	–
Other ethnic group, including Arab	–	–	–	–	–
Not specified/prefer not to say	–	–	–	–	–

The data for this table was collected by asking individuals to self report against the categories displayed.

As at 31 December 2023, the gender balance of the Directors serving on the Audit, Remuneration and Nomination Committees was as follows:

	Number of Audit and Remuneration Committee members	Percentage of the Audit and Remuneration Committee	Number of Nomination Committee members	Percentage of the Nomination Committee
Men	3	60%	4	57%
Women	2	40%	3	43%
Not specified/prefer not to say	–	–	–	–

The data for this table was collected by asking individuals to self report against the categories displayed.

Board evaluation

The Board carries out an evaluation of its performance in the last quarter of each year. This year's evaluation was overseen by the Chairman, and was again externally facilitated by the corporate advisory firm, Lintstock, following a review of providers. The Group uses Lintstock's Insider List database tool but has no other connection with the organisation and Lintstock does not have a connection with any of the Directors.

Each evaluation was conducted via a series of targeted questionnaires, sent to all the Directors, the Company Secretary and Chief HR Officer. As with previous years, the evaluation covered both the performance of the Board and that of its Committees, along with individual reviews of each Director and an analysis of the performance of the Chairman. Narrative reports were prepared for the Board, the Audit, Nomination and Remuneration Committees, and in respect of the Chairman.

In 2023, the Board assessment focused on nine core areas:		
	Board composition and dynamics	Board Strategy Meeting
	Oversight of stakeholders	Strategy oversight
	Board support and focus of meetings	Talent
	Board Committees	Risk oversight
		Priorities for change

Lintstock compared the Board's ratings against those of other organisations, to identify areas of particular strength and to provide additional context.

Overall, the Board was felt to be well-composed with a good range of skills and experience, covering a mixture of different industrial sectors, functional expertise and geographies. The Board's dynamics were also rated highly overall, although it was noted that a number of the topics discussed during the year had heightened tension in the Boardroom. The Board's understanding of the views and requirements of stakeholders was rated highly with regard to investors, employees and customers, with the Board's visit to a customer site in 2023 identified as particularly valuable.

The Chairman conducted one-on-one meetings with each of the other Directors, to discuss the evaluation process and outcomes and ensure that the Group was drawing effectively on each of their skills and experience. He concluded that each Director continued to contribute effectively to the work of the Board.

From these discussions a number of points for further attention of the Board were highlighted, including the need to continue the work of the new Board Chairman ensuring that the Board's agenda and discussions were focused on the strategic and operational priorities for the year that would drive value for the business. In this regard, the opportunity to hear more regularly from senior Business Unit management on specific strategic initiatives in their respective business units was highlighted, as well as work being needed to balance priorities in the discussions at the annual strategy meeting. It was noted that there was also continued scope to improve the Board's understanding of the interests of key customers and suppliers.

In terms of the Group's strategy, Vesuvius' significant focus on R&D was highly rated, with each Business Unit's R&D activities well understood. It was noted that this needs to remain a focus for the Board's attention going forward, together with reporting on its effectiveness, given the fundamental part that technology plays in the Vesuvius strategy. The Board considered that sustainability initiatives were well-embedded throughout the Group. The effectiveness of the Board's workforce engagement and the continued focus on talent retention, development and succession planning was also highlighted.

An assessment of the Chairman was conducted by the Senior Independent Director with overall feedback provided to the Chairman. Each of the Committees was also considered to have operated effectively during the year.

As in previous years, a set of action points was compiled from the output of the evaluation to ensure that its findings are integrated into the Board's activities. These will be implemented by the Board in 2024, with progress reviewed by the Board throughout the year.

The 2022 evaluation identified the following Board priorities for future Board attention; these were addressed during 2023 as follows:

Area	Issue	Action taken in 2023
Strategy	Further integrate information on supplier base and profile into the Board agenda	– Group Head of Purchasing provided a detailed update on key Suppliers, and procurement dynamics to the December Board meeting – BU Strategy presentations included improved information on key supplier issues
People and organisation	Continue to develop a robust process for succession plans for Executive Directors and GEC members and talent development for senior leaders	– Nomination Committee received regular updates from the Chief Executive on senior management developments – A formal session on the talent and succession pipeline for key roles was held at the December Nomination Committee meeting – The CHRO reported on the talent development strategy and initiatives at the July Nomination Committee meeting
	Extend the geographical diversity/ representation on the Board	– Carla Bailo was appointed to the Board in February 2023, bringing, in particular, experience of working in North America and Japan
	Improve the effectiveness of the site visit programme, and improve workforce engagement	– A more formalised plan for site visits was introduced in 2023, with each NED committing to conduct two site visits in addition to the annual offsite Board visits. A standardised agenda for these visits was developed, together with more rigorous focus on consistent NED feedback
Organisation	Review Board agenda to ensure correct focus on business, operational and strategic topics	– Initial steps were taken to update the content of the Board agenda, which freed more time for debate on operational and strategic topics. Further work on this will continue in 2024

Committee evaluation

The Committee's activities were a separate part of the externally facilitated evaluation of Board effectiveness during the year. The results of the questionnaires were collated, and a written report tabled and discussed by the Committee, as well as being discussed in one-on-one meetings with the Chairman. The composition, management of Nomination Committee meetings and quality of information provided, continued to be rated highly, and the management of director succession was deemed to operate effectively with the appointment of the CFO and new Non-executive Directors during the year. Succession plans for the Chief Executive and other members of the GEC were highlighted as an area for continued focus. The pipeline of talent for these roles continued to develop, but it was noted that there had been some turnover during the year, and some gaps remained.

On behalf of the Nomination Committee

Carl-Peter Forster
Chairman, Nomination Committee
28 February 2024

Remuneration overview

Kath Durrant – Committee Chair

Carla Bailo
(from 1 February 2023)

Dinggui Gao

Jane Hinkley
(until 18 May 2023)

Douglas Hurt

Robert MacLeod
(from 1 September 2023)

The Company Secretary is Secretary to the Committee

Dear Shareholder,

I am pleased to present our Directors' Remuneration Report (Remuneration Report) for 2023.

The report outlines how we implemented the Directors' Remuneration Policy in 2023, following the approval of a new remuneration policy in May 2023, and how we intend to apply the Policy in 2024.

We are grateful to shareholders for their support for the revised Policy in 2023 where 96.7% of voting shareholders voted in favour, and for their approval of a new set of share plan rules. We also appreciated the strong support of shareholders for last year's Remuneration Report, and welcomed the willingness of many shareholders to engage, ahead of last year's AGM, in discussions on the proposals for changes to CEO remuneration and the rationale behind them.

Key activities in 2023

- Reviewing and approving achievement against the performance targets for the 2022 Annual Incentive arrangements
- Setting performance targets and approving the structure of the 2023 Annual Incentive arrangements
- Reviewing and assessing the Company's attainment of performance conditions applicable to the Vesuvius Share Plan (VSP) awards made in 2020
- Setting the performance measures and targets, and authorising the grant of new awards in 2023 under the VSP, the Deferred Share Bonus Plan and the Medium Term Incentive Plan
- Considering the Company's ongoing share sourcing requirements to meet obligations under the Company's share plans, and funding of the Employee Benefit Trust (EBT)
- Reviewing employee remuneration arrangements around the Group, with particular reference to the ongoing cost of living issues facing many of our workforce
- Considering retention issues and implementing significant uplifts in base pay for the next levels of management
- Approving the 2022 Directors' Remuneration Report
- Reviewing the Committee's terms of reference
- Approving remuneration arrangements for the new CFO
- Approving the 2024 remuneration for the Chairman, Chief Executive, CFO and senior management

Overview of executive remuneration

In last year's report we outlined concerns regarding the stability and retention of the senior leadership team, and the consequent proposals for a significant increase in quantum for the CEO. Some adjustments were also made to the remuneration structure for members of the Group Executive Committee. I am pleased to report far greater stability during 2023. The Committee will continue to keep executive remuneration under review – both in terms of the structure of incentives and quantum relative to the global marketplace in which it recruits executives.

This year we have approved more normalised levels of increase to base pay for our Executive Directors (5% for the CEO and 5% for the CFO) – just below the global workforce budget of 6.1%. Note we continue to use the global workforce as our primary comparator rather than the UK workforce which represents less than 1% of our total population of employees.

Our new CFO, Mark Collis, joined Vesuvius during the year and has settled well. The arrangements indicated in last year's remuneration report, to compensate for various awards foregone from his prior employer, have been executed. All payments and equity awards made have been made on a like-for-like basis in terms of quantum/value and timing. All share awards are made in line with the rules of the Vesuvius Share Plan and Remuneration Policy. Resulting shares, once vested, will be retained and count towards Mark's shareholding requirement. The detail of these compensatory buy-out awards is reported in detail on pages 126 and 129.

2023 Remuneration Policy

As noted above, 96.7% of voting shareholders approved the Policy in May 2023. The policy reflected the extensive reviews of remuneration undertaken in the previous two years, and in particular shareholder consultation on a revised set of KPIs in line with the Company's strategy, changes to incentive opportunity levels for Executive Directors, and a continuation of a performance share arrangement for long-term incentivisation.

Alignment of our KPIs with Company strategy, purpose and values

The delivery of financial KPIs and the development of an effective organisation sustainable over the long term relies on a clear set of values. Vesuvius believes that high levels of performance and growth require a diversity of thinking and continuous innovation, underpinned by the behaviours of courage, ownership, respect and energy. The alignment of our incentives with our strategic objectives is summarised in the table below. The reward structure operated as intended in 2023 and no changes are proposed in the KPIs used to assess performance in 2024.

KPI	2023 and 2024 weighting	Strategic rationale
Annual Incentive Plan: one-year performance		
EPS	**40%**	Consistent with our strategic aim of sustainable, profitable growth Maintains the primary focus on a profit measure in short-term incentivisation
Working capital/sales	**20%**	Consistent with our strategic aim of maintaining strong cash generation and an efficient capital structure
Post-tax ROIC	**20%**	Consistent with our strategic aim of generating sustainable profitability and creating shareholder value
Personal measures	**20%**	Enables a focus on specific personal deliverables, managed through the performance management system
Vesuvius Share Plan: three-year performance		
Relative TSR	**40%**	Consistent with our strategic aim of delivering shareholders a superior return on their investment
Post-tax ROIC	**40%**	Consistent with our strategic aim of generating sustainable profitability and creating shareholder value
ESG	**20%**	Provides a specific focus on the three priority long-term ESG measures for the Group: CO_2 intensity (10%), Safety (5%) and Diversity (5%)

Performance and incentive outcomes in 2023

Health and safety

As the Chairman and Chief Executive outlined in their statements, Safety continues to be a key priority at Vesuvius, and is part of the culture in our operations and in the Boardroom. Each CEO Board report starts with a report on safety performance in the period and provides extensive detail of any incidents. The Vesuvius team have been successful in 2023 in achieving their best-ever safety performance, reflecting a continued focus on improvement, training and risk management. A Lost Time Injury Frequency Rate of 0.6 injuries per million hours worked was recorded for 2023 – an improvement on the rate of 1.08 reported for 2022.

This performance is strong not least because a large proportion of our workforce work on customer sites, and the majority work in industrial and factory environments. Safety will continue to be a KPI in the long-term incentive plan where we hope to consolidate 2023 rates and improve further.

Operational

2023 again witnessed a difficult macro-economic environment in many of our markets – and in our customers' end-markets. Destocking and falling steel production created tough trading conditions. In Europe, steel production declined 7.3% in 2023 compared with 2022 and in South America it declined 5.8%. Chinese production remained stable, supported by increases in exports. India was the only major region in the world to exhibit strong growth – up 11.8%. In Foundry, a similar backdrop of low demand and destocking particularly affected markets in Europe, China and South America.

Remuneration overview continued

In this context the team has done a good job in executing plans to grow market share in Flow Control and Foundry in most regions in spite of lower volumes; tightly managing pricing – where all Business Units fully recovered cost increases, and partnered with customers to share the value from our technologically advanced products; and controlling costs, both at a Group level, and in Business Units. The team has demonstrated real resilience in managing very difficult market conditions and focusing on all areas they can control in order to maximise performance in this part of the cycle.

Revenue for the year decreased 3% on an underlying basis vs 2022. Trading profit at £200.4m was 6.7% lower than 2022 (on an underlying basis) and return on sales decreased by 40 bps, on an underlying basis, to 10.4%. These results reflect the challenging year for Vesuvius and many industrial businesses.

Our trade working capital to sales ratio was 23.4%, a modest improvement on 2022. We continue to work to reduce the ratio, focusing on driving down overdues, and managing production to control inventory levels. Product quality metrics have continued to improve.

Free cash flow from continuing operations remained strong at £128.2m with a 93% cash conversion rate. Net debt remains firmly under control. The strong balance sheet enabled the Board to approve a £50m share buyback which commenced during 2023, and interim and final 2023 dividends of 23 pence per share.

Strategic

We again increased our investment in research and development to £37m in 2023 (2022: £36m), fully expensed in our profit and loss statement. Our main focus areas remain innovation in materials science, with the objective to continuously improve the performance of our consumables, and the development of mechatronics solutions enabling our customers to substitute operators to manipulate our consumables and, by doing so, improve their safety, reliability, cost and quality performance.

R&D productivity improvements enabled 21 new products to be launched in 2023 and improved the proportion of sales from products launched in the prior five years to 17.6% (16.4% in 2022, 15.3% in 2021).

Capex investment in 2023 was largely directed towards strategically important capacity expansion in Flow Control – in India for both VISO and flux; in North America for VISO; and in EMEA for VISO and slide-gate production. Investments in India for Advanced Refractories and in India and China for Foundry also commenced to provide new levels of capacity in important regions.

The Sustainability initiative launched in 2020 has continued to deliver strong results across the associated KPIs, with Scope 1 and 2 CO_2e emission intensity continuing to reduce, the 2023 emissions intensity was 20.2% lower than the 2019 base year (reflecting pro forma performance as if the dolime process had been operating normally); sustained focus on diversity with women representing 20% of the Senior Leadership Group; and succession candidates identified for the majority of critical roles.

The Chief Executive led the Board through extensive strategy discussions, exploring options for both organic and inorganic growth. A successful Capital Markets Event during the year enabled investors to explore the Company's medium-term strategy for growth. It examined the strong fundamentals of the business today, its investment in R&D to provide long-term technological advantage, and investment in regional capacity to ensure the penetration of growing markets around the world.

Strategic Value alignment

Safety
Better environments and outcomes for Vesuvius staff and customers

Quality
Optimised products driving better steel, and better castings

Efficiency
Cheaper casting and steel through reduction of input costs

Sustainability
Less energy usage and fewer CO_2 emissions in our processes and our customers' processes

Rewarding careers
We encourage and reward high performance to create an environment where all can realise their individual potential

Return for investors
Optimised pricing and market share gains driving improved profitability

See **Business Model** on **p20 and 21**

In 2023, the Annual Incentive Plan (AIP) was based 40% on Group headline earnings per share (EPS), 20% on Group post-tax ROIC (return on invested capital), 20% on the Group's working capital to sales ratio (based on the 12-month moving average) and 20% on specified personal objectives. Performance against these measures is illustrated below and full details of the targets are given on pages 126 and 127. For consistency with the original targets, financial performance excludes unbudgeted M&A costs. On this basis:

- Our headline earnings per share (restated at December 2022 exchange rates and adjusted for unbudgeted M&A costs) was 51.2 pence, which was above the maximum Annual Incentive Plan target of 47.9 pence
- Similarly, the Group's post-tax ROIC of 9.0% after adjustment for unbudgeted M&A costs, sat above the Annual Incentive Plan target of 8.5%, but below the maximum of 10.0%

The Group's working capital to sales ratio of 23.4% sat between the threshold Annual Incentive Plan target of 23.8% and the target of 23.1%.

The Committee agreed personal objectives for the Chief Executive at the start of 2023, and for the CFO upon his appointment in April 2023, and assessed their performance to merit 79.0% and 73.5% of maximum targets respectively.

As a result, the overall outcome for the Chief Executive was 74.8% of maximum opportunity, and for the CFO, was 73.7% of maximum, noting that the CFO's opportunity is prorated to reflect his appointment part way through 2023.

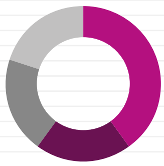
The Committee gave careful consideration to these outcomes and was satisfied that they were consistent with the resilient financial and operational performance and strategic progress outlined above. The Committee noted that similar and complementary KPIs exist in the incentive programmes for managers and employees and was mindful of the outturns for the wider workforce in confirming its decisions for Executive Directors and the Executive Committee. Consequently, the Committee concluded that no discretionary adjustment was required to the formulaic outturns set out above.

The performance period for the awards made under the Vesuvius Share Plan (VSP) in 2021 was completed at the end of 2023. Performance was measured equally by reference to total shareholder return (TSR) relative to the FTSE 250 (excluding investment trusts) and Group headline earnings per share, and yielded a vesting outturn of 49.76% of maximum for the Chief Executive (noting that the CFO was not in receipt of a 2021 award). Again, the Committee gave careful consideration to the related outcomes, and concluded that no discretionary adjustment was required.

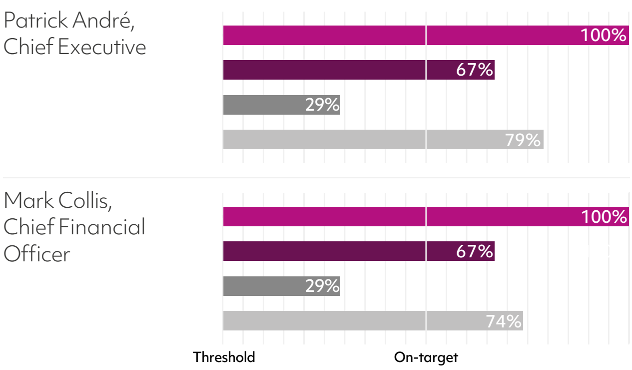
Annual Incentive Plan outturn

Weighting

- 40% EPS
- 20% ROIC
- 20% Working capital/sales ratio
- 20% Personal objectives



Performance

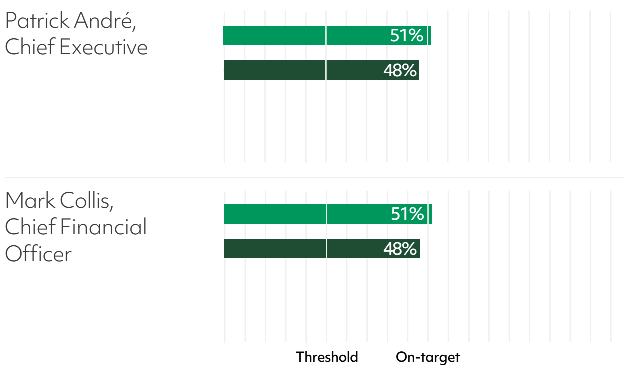


Vesuvius Share Plan 2021 outturn

Weighting

- 50% Total shareholder return
- 50% Headline EPS

Performance



Chairman and Non-executive Directors' fees

During the year, the Committee reviewed the Chairman's annual fee, and determined that an increase from £250,000 p.a. to £262,500 p.a. was appropriate. Separately, the Board considered Non-executive Director fees and made a number of consequent adjustments to the fee structure that are detailed on page 130.

Employee engagement

During the year the Non-executive Directors visited plants in Brazil, China, Germany, India, the Netherlands and the United States. Each of these site visits enabled direct discussions with local management teams and the workforce on a range of topics. At larger sites, 'town hall' meetings were also held and enabled a two-way dialogue on a range of issues of interest to the workforce. In these meetings it was usual for Non-executive Directors to present on how the Board and its Committees operate, and on corporate governance, including executive remuneration.

In 2023, the Remuneration Committee received a report from the Chief HR Officer regarding workforce terms and conditions across the globe. The subsequent discussion enabled the Committee to better understand the standards applied across a highly decentralised group to ensure appropriate and competitive remuneration arrangements exist in each operating company.

The key issues raised continue to reflect the pressures of the present inflationary environment in higher inflation countries, though it is helpful that in much of the world pay settlements have fallen during the year compared to the peaks experienced in 2022, and early 2023; the impact of low unemployment levels in many of our main markets, retirement levels and decreasing workforce availability, are all driving very competitive recruitment market conditions at all levels of the organisation. The Committee noted the range of solutions developed as part of the People Strategy – including improved employer branding and alternative recruitment market targeting.

Shareholder engagement

At the 2023 AGM, the Annual Report on Remuneration was supported by 82.2% of voting shareholders and I am very grateful for this demonstration of broad-based support for the executive remuneration arrangements proposed last year.

Ahead of the AGM, the Company's top 22 shareholders were consulted on the proposed changes to the Remuneration Policy and discussions regarding changes in the CEO's remuneration took place at length either in face-to-face meetings or through detailed correspondence where this was the shareholder's preference. We are grateful for the responses received and discussions had, and appreciate the support expressed by many of our shareholders.

The business has delivered a resilient performance in 2023, in tough market conditions, by operationally focusing on the areas within its control; it has been steadfast in its determination to build for the future through investments in R&D and strategic capacity expansion. We hope to gain your support for the Remuneration Report at the forthcoming AGM.

Kath Durrant
Chair of the Remuneration Committee
28 February 2024

Operation of the Remuneration Committee

Remuneration Committee structure

The current members of the Remuneration Committee are all the independent Non-executive Directors of the Company.

The Committee Chair is Kath Durrant. She, Dinggui Gao and Douglas Hurt have served on the Committee throughout 2023. Carla Bailo joined the Committee on her appointment to the Board on 1 February 2023 and Robert MacLeod on his appointment to the Board on 1 September 2023. Jane Hinkley retired from the Board at the 2023 AGM having served as a Director for more than ten years, the majority of which she also served as Chair of the Committee.

The Committee complies with the requirements of the UK Corporate Governance Code for the composition of remuneration committees. Each of the members brings a broad experience of international businesses and an understanding of their challenges to the work of the Committee. The Company Secretary is Secretary to the Committee. Members' biographies are on pages 80 and 81.

Meetings

The Committee met seven times during the year. The Group's Chairman, Chief Executive, Chief Financial Officer and Chief HR Officer were invited to each meeting, together with Friederike Helfer, Vesuvius' non-independent Non-executive Director, though none of them participated in discussions regarding their own remuneration. In addition, a representative from Deloitte, the Remuneration Committee adviser, attended the meetings. The attendees supported the work of the Committee, giving critical insight into the operational demands of the business and their application to the overall remuneration strategy within the Group. In receiving views on remuneration matters from the Executive Directors and senior management, the Committee recognised the potential for conflicts of interest to arise and considered the advice accordingly. The Chair of the Committee reported the outcomes of all meetings to the Board.

The Committee operates under formal terms of reference which were reviewed during the year. The terms of reference are available on the Group website: www.vesuvius.com. The Committee members are permitted to obtain outside legal advice at the Company's expense in relation to their deliberations. The Committee may also secure the attendance at its meetings of any employee or other parties it considers necessary.

Role and responsibilities

The Committee is responsible for:

- Determining the overall remuneration policy for the Executive Directors, including the terms of their service agreements, pension rights and compensation payments
- Setting the appropriate remuneration for the Chairman, the Executive Directors and senior management (being the Group Executive Committee)
- Reviewing workforce remuneration and related policies, and the alignment of incentives and rewards with culture, taking these into account when setting the policy for Executive Director remuneration
- Overseeing the operation of share incentive plans

Advice provided to the Remuneration Committee

Deloitte is appointed directly by the Remuneration Committee to provide advice on executive remuneration matters, including remuneration structure and policy, updates on market practice and trends, and guidance on the implementation and operation of share incentive plans. The Committee appointed Deloitte, a signatory to the Remuneration Consultants Group Code of Conduct in relation to Executive Remuneration Consulting in the UK, following a formal tender process in 2014. Deloitte also provides the Remuneration Committee with ongoing calculations of total shareholder return (TSR) to enable the Committee to monitor the performance of long-term share incentive plans. Deloitte does not have any other connection with any individual Director.

In addition, in 2023, Deloitte provided the Group with IFRS 2 calculations for the purposes of valuing the share plan grants and, within the wider Group, was engaged in various jurisdictions to provide tax advisory work, and some consultancy services. During 2023, Deloitte's fees for advice to the Remuneration Committee, charged on a time spent basis, amounted to £72,370. The Committee conducted a review of the performance of Deloitte as remuneration adviser during the year and concluded that Deloitte continued to provide effective, objective and independent advice to the Committee. No conflict of interest arises as a result of other services provided by Deloitte to the Group.

Directors' Remuneration Report

Remuneration Policy design principles

Remuneration Policy design

The Committee is satisfied that the Remuneration Policy, approved in 2023, is designed to promote the long-term success of the Company in accordance with the requirements of the Code with regard to:

Clarity

Executive remuneration arrangements are transparent with full disclosure in the Annual Report. The Annual Incentive structure for the Executive Directors is based on the same structure utilised for senior executives throughout the Group. Long-term sustainable growth is core to the long-term incentive, and alongside five-year holding periods clearly aligns the interests of executives with those of the Group's shareholders.

Simplicity

The Policy, with its focus on three core elements: fixed pay, Annual Incentive and Long-Term Incentive, is clear, simple and easy to understand.

Risk

The Committee has carefully analysed the range of possible outcomes of awards and believes the Policy to be fair and proportionate, with the clear linkage to Group profitability mitigating the potential for excessive rewards and the reliance on audited profit numbers and externally verified TSR targets serving to mitigate behavioural risk. The Committee has discretion under the Vesuvius Share Plan to determine the vesting of awards in accordance with the Code requirement and malus and clawback provisions also apply.

Predictability

The remuneration illustrations indicate the minimum and maximum potential remuneration. The Committee reviews the underlying financial performance of the Company over the performance period, and the non-financial performance of the Group and participants, to ensure that pay-out levels are justified. The Committee has the discretion to amend the final vesting level if required.

Proportionality

The Committee believes that the performance-related elements of remuneration have financial targets which are transparent, stretching and clearly align the Executive Directors' remuneration with the delivery of the Group's strategy. The Vesuvius Share Plan rewards long-term performance directly linked with the Group's strategy and results, ensuring that only strong performance is rewarded (see page 123).

Alignment to culture

The Executive Directors' incentive arrangements are consistent with the Group's core strategic objective of delivering long-term sustainable and profitable growth and support our performance-orientated culture, Values and purpose (see page 110).

The Remuneration Policy was prepared in accordance with the Companies Act 2006 and the Large and Medium-sized Companies and Groups (Accounts and Reports) Regulations 2008 (as amended). It also meets the requirements of the Financial Conduct Authority's Listing Rules and the Disclosure Guidance and Transparency Rules.

2023 Remuneration Policy

The policy set out below contains minor amendments, as appropriate, to reflect activities undertaken in 2023. For reference, the policy, as approved by shareholders at the AGM on 18 May 2023, can be found on pages 124 to 132 of the 2022 Annual Report, available on the vesuvius.com website.

Comparison of Remuneration Policy for Executive Directors with that for other employees

The Remuneration Policy for Executive Directors is designed in line with the remuneration philosophy set out in this report – which also underpins remuneration for the wider Group. However, given that remuneration structures for other employees need to reflect both seniority and local market practice, they differ from the policy for Executive Directors. In particular, Executive Directors receive a higher proportion of their remuneration in performance-related pay and share-based payments.

All members of the Group Executive Committee participate in the Vesuvius Share Plan and receive awards of Performance Shares, which vest on the basis of the same performance targets set for the Executive Directors. The level of awards granted to members of the Group Executive Committee who don't serve on the Board are lower than those granted to the Executive Directors.

Middle and senior managers also participate in the Annual Incentive Plan and, in certain cases, longer-term share or cash-based plans, with awards predominantly based on a blend of Group and regional or Business Unit performance measures appropriate for the scope of participants' responsibilities. Individual percentages of variable versus fixed remuneration and participation in share-based structures increase as seniority increases.

Consideration of conditions elsewhere in the Group in developing policy

The Non-executive Directors participated in a number of 'town hall' meetings and site visits during the year which provided the opportunity to engage with the workforce on a wide range of issues, including executive remuneration where appropriate. The Remuneration Committee also commissioned an annual review of workforce remuneration in 2023, which reported on general remuneration, incentives and benefits practices around the Group and, in addition, included insights on the latest trends in our key markets. The latter was supported by a detailed compensation competitiveness review commissioned by management during the year, which highlighted the talent attraction and retention challenges facing the Group in many locations. This review reinforced the Committee's commitment to ensure that the Group operates a market-competitive approach to remuneration which fosters the motivation and retention of key talent, right up to Executive level. The Committee takes into account all such detail regarding the pay and employment conditions of other Group employees when determining Executive Directors' remuneration, particularly when determining base salary increases, when the Committee will consider the salary increases for other Group employees in the same jurisdiction.

Consideration of shareholder views

Vesuvius is committed to open and transparent dialogue with its shareholders on remuneration as well as other governance matters. The Chair of the Committee welcomes shareholder engagement and is available for any discussions investors wish to have on remuneration matters.

Remuneration Policy Table for Executive Directors[1]

Alignment/purpose	Operation	Opportunity	Performance
S Base salary			
Helps to recruit and retain key employees. Reflects the individual's experience, role and contribution within the Company	Base salary is normally reviewed annually, with changes effective from 1 January. Base salary is positioned to be market competitive when considered against other global industrial companies, and relevant international and FTSE 250 companies (excluding investment trusts). Paid in cash, subject to local tax and social security regulations.	Salary increases will normally not exceed the average increase awarded to other employees in the Group, although increases may be made above this level at the Committee's discretion in appropriate circumstances. In considering any increase in base salary, the Committee will also take into account: (i) The role and value of the individual (ii) Changes in job scope or responsibility (iii) Progression in the role (e.g. for a new appointee) (iv) A significant increase in the scale of role and/or size, value or complexity of the Group (v) The need to maintain market competitiveness No absolute maximum has been set for Executive Director base salaries. Current Executive Directors' salaries are set out in the Annual Report on Directors' Remuneration section of this Remuneration Report.	Any increase will take into account the individual's performance, contribution and increasing experience.
B Other benefits			
Provides normal, market-aligned benefits	A range of benefits including, but not limited to: car allowance, private medical care (including spouse and dependent children), life insurance, disability and health insurance, expense reimbursement (including costs if a spouse accompanies an Executive Director on Vesuvius business), together with relocation allowances and expatriate benefits, in some instances grossed up for tax, in accordance with the Group's policies, and participation in any employee share scheme operated by the Group.	There is no formal maximum as benefit costs can fluctuate depending on changes in provider, cost and individual circumstances.[1]	None.
P Pension			
Helps to recruit and retain key employees Ensures income in retirement	An allowance is given as a percentage of base salary. This may be used to participate in Vesuvius' pension arrangements, invested in own pension arrangements or taken as a cash supplement (or any combination of the above options).	Maximum of 17% of base salary for incumbent Executive Directors from the end of 2022, in line with the average of that received by the majority of the global workforce.[2] The level of allowance for Executive Directors appointed following the adoption of this Policy will be aligned with the post-retirement benefits applicable to the majority of the workforce or, where appropriate, to the majority of the workforce of the relevant geography.	None.

1. The Remuneration Committee reserves the right to make any remuneration payments and payments for loss of office (including exercising any discretions available to it in connection with such payments), notwithstanding that they are not in line with the Policy set out here, where the terms of the payment were agreed: (i) before the Policy set out here came into effect, provided that the terms of the payment were consistent with the shareholder-approved Remuneration Policy in force at the time they were agreed; or (ii) at a time when the relevant individual was not a Director of the Company and, in the opinion of the Remuneration Committee, the payment was not in consideration for the individual becoming a Director of the Company. For these purposes, 'payments' include the Remuneration Committee satisfying awards of variable remuneration and, in relation to an award over shares, the terms of the payment are 'agreed' at the time the award is granted.
2. As analysed in the business's Workforce Retirement Practices review conducted in 2020, as detailed on page 122 of the 2020 Annual Report.

2023 Remuneration Policy continued

Alignment/purpose	Operation	Opportunity	Performance
AI Annual Incentive			
Incentivises Executive Directors to achieve key short-term financial and strategic targets of the Group Additional alignment with shareholders' interests through the operation of bonus deferral	Normally 33% of any Annual Incentive earned by Executive Directors will be deferred into awards over shares under the Vesuvius Deferred Share Bonus Plan which normally vest after at least three years, other than in specified circumstances, i.e. in cases of dismissal for cause, as outlined on page 120 in this Policy. These may be cash or share settled. The Committee has the discretion to award participants the equivalent value of dividends accrued during the vesting period on any shares that vest. Subject to malus and clawback.	Below threshold: 0%. At threshold: Between 0 and 25% of maximum. On-target: 50% of the applicable maximum opportunity in any year. Maximum: Up to 175% of base salary. The Remuneration Committee will normally set the level of maximum bonus opportunity for each Executive Director at the start of each year. Payments start to accrue on meeting the threshold level of performance, with payments between threshold and on-target and between on-target and maximum made on a pro rata basis.	The Annual Incentive is normally measured on targets set at the beginning of each year. In unusual or exceptional circumstances, for example where there is exceptional economic volatility which limits visibility to set robust 12-month targets, the Committee may elect to set and measure targets other than on an annual basis. The majority of the Annual Incentive will be determined by measure(s) of Group financial performance. The remainder of the Annual Incentive will be based on financial, strategic or operational measures appropriate to the individual Director. Actual performance targets will be disclosed after the performance period has ended. They are not disclosed in advance due to their commercial sensitivity. The Committee may use its discretion to amend the formulaic outturn upwards or downwards if it does not consider the formulaic outcome appropriate.
VSP Vesuvius Share Plan (VSP)			
Aligns Executive Directors' interests with those of shareholders through the delivery of shares. Rewards Executive Directors for achieving the strategic objectives of growth in shareholder value and earnings Assists retention of Executive Directors over a three-year performance period and the further two-year holding period	VSP awards to Executive Directors are granted as Performance Share awards. These may be cash or share settled. Awards vest three years after their award date, other than in specified circumstances outlined elsewhere in this Policy, subject to the achievement of specified conditions. All vested shares, net of any tax liabilities, are then subject to a further two-year holding period after the vesting date, which will continue to apply notwithstanding the termination of employment of the participants during this holding period, except at the Committee's discretion in exceptional circumstances, including a change of control or where the participant dies or has left employment due to ill health, injury or disability. The Committee has the discretion to award participants the equivalent value of dividends accrued during the vesting period and further two-year holding period on any shares that vest. Subject to malus and clawback.	Executive Directors are eligible to receive an annual award with a face value of up to 200% of base salary in Performance Share awards. Vesting at threshold performance is between 0 and 25% of the award, rising to vesting of the full award at maximum.	Vesting will be subject to performance conditions as determined by the Remuneration Committee ahead of each award. Those conditions will be disclosed in the Annual Report on Directors' Remuneration section of the Remuneration Report. The performance conditions for 2024 are relative TSR, post-tax ROIC and ESG measures, weighted at 40%, 40% and 20% respectively. The Remuneration Committee will retain discretion for future awards to include additional or alternative performance conditions which are aligned with the corporate strategy. At its discretion, the Committee may elect to add additional underpinning performance conditions. The Company reserves the right only to disclose certain of the performance targets after the performance period has ended, due to their commercial sensitivity. Prior to any vesting, the Remuneration Committee reviews the underlying financial performance of the Group over the performance period, and the non-financial performance of the Group and participants, to ensure that the vesting is justified. Following this review, the Committee has the discretion to amend the final vesting level if it does not consider that it is justified.

Illustration of the application of the Remuneration Policy for 2024

The charts below show the total remuneration for Executive Directors for 2024 for minimum, on-target and maximum performance. The fixed elements of remuneration comprise base salary, pension and other benefits, using 2024 salary data. The assumptions on which they are calculated are as follows:

Minimum

Fixed remuneration only.

On-target

Fixed remuneration plus on-target Annual Incentive (made at 87.5% of base salary for Patrick André and 75% for Mark Collis); and for the Performance Share awards under the Vesuvius Share Plan, median performance for the TSR element and the mid-point between threshold and maximum performance for the post-tax ROIC and ESG performance conditions (with overall vesting at 40% of maximum, based on the vesting schedule detailed on page 124). No share price appreciation is assumed.

Maximum

Fixed remuneration plus maximum Annual Incentive (being full achievement of financial and personal targets, made at 175% of base salary for Patrick André and 150% for Mark Collis) and 100% vesting for Performance Share awards (made at 200% of base salary for Patrick André and 150% of base salary for Mark Collis) under the Vesuvius Share Plan. No share price appreciation is assumed.

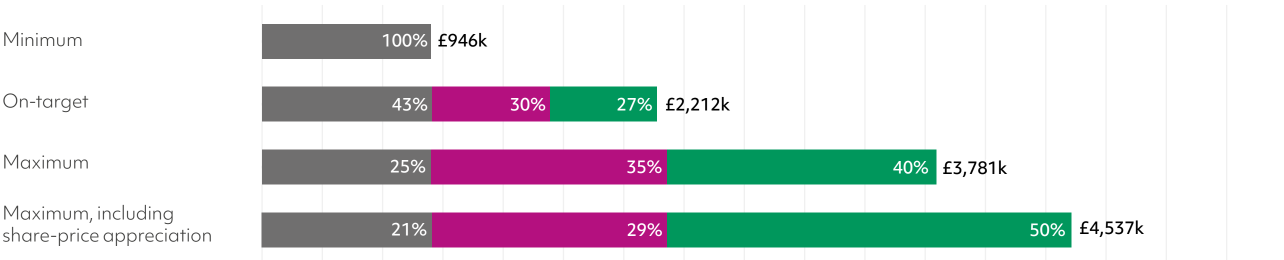
Maximum including assumed 50% share price appreciation

This shows the value of the maximum scenario if 50% share price appreciation is assumed over the three-year performance period of the Performance Share awards.

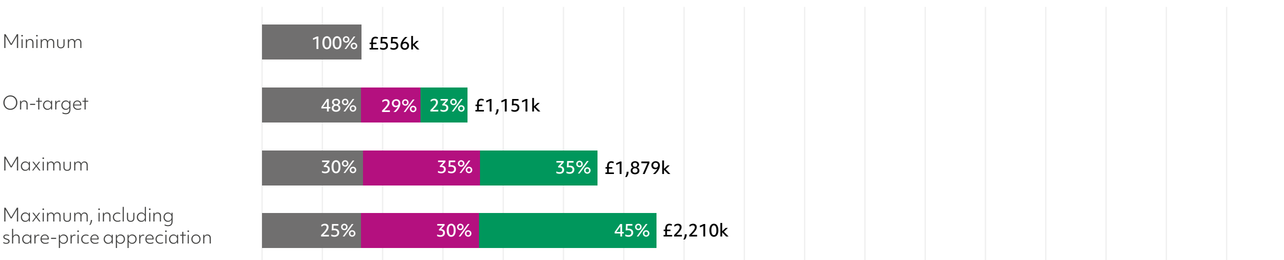
Note: In addition, the Committee retains the discretion to award dividends (either shares or their cash equivalent) on any shares that vest.

Remuneration illustrations £000

Patrick André, Chief Executive



Mark Collis, Chief Financial Officer*



Fixed elements | Annual variable elements | Long-term variable elements

* Annualised equivalent shown for illustrative purposes.

2023 Remuneration Policy continued

General operation of the Policy for Executive Directors

Shareholding guidelines

The Remuneration Committee encourages Executive Directors to build and hold a shareholding in the Company equivalent in value to at least 200% of base salary.

Compliance with the shareholding policy is tested at the end of each year for application in the following year, with the valuation of any holding being taken at the higher of: (1) the share price on the date of vesting of any shares derived from a share award, in respect of those shares only; and (2) the average of the closing prices of a Vesuvius ordinary share for the trading days in that December.

Unless exceptionally the Committee determines otherwise, under the post-employment shareholding guideline the Executive Directors will remain subject to their shareholding requirement in the first year after their cessation as an Executive Director and to 50% of the shares retained in the first year during the second year after such cessation, recognising that there is no requirement to purchase additional shares if the shares held when they cease to be an Executive Director are less than the applicable shareholding guideline. However, in relation to shares acquired by an Executive Director in their personal capacity, the Committee may, where appropriate, exempt such shares from the post-employment guideline.

Malus/clawback arrangements

The Executive Directors' variable remuneration is subject to malus and clawback provisions. These provide the Committee with the flexibility, if required, to withhold or recover payments made to Executive Directors under the Annual Incentive Plan (including deferred awards) and/or to withhold or recover share awards granted to Executive Directors under the Vesuvius Share Plan, including any dividends granted on such awards. The circumstances in which the Committee could potentially elect to apply malus and clawback provisions include: a material misstatement in the Group's financial results; an error in the calculation of the extent of payment or vesting of an incentive; gross misconduct by an individual; or significant financial loss or serious reputational damage to Vesuvius plc resulting from an individual's conduct, a material failure of risk management or a serious breach of health and safety. These malus and clawback provisions apply for a period of up to three years after the end of a performance period (or end of the deferral period in respect of awards made under the Vesuvius Deferred Share Bonus Plan).

Performance measures

In selecting performance measures for the Annual Incentive, the Committee seeks to reflect key strategic aims and the need for a rigorous focus on financial performance. Each year, the Committee agrees challenging targets to ensure that underperformance is not rewarded. The Company will not be disclosing the specific financial or personal objectives set until after the relevant performance period has ended because of commercial sensitivities. The personal objectives are all job-specific in nature and track performance against key strategic, organisational and operational goals.

In selecting performance measures for the Vesuvius Share Plan, the Committee seeks to focus Executive Directors on the execution of long-term strategy and also align their rewards with value created for shareholders. In the Policy period, the Committee will continually review the performance measures used to ensure that awards are made on the basis of challenging targets that clearly support the achievement of the Group's strategic aims.

The Committee may vary or waive any performance condition(s) if circumstances occur which cause it to determine that the original condition(s) have ceased to be appropriate, provided that any such variation or waiver is fair, reasonable and not materially less difficult to satisfy than the original condition (in its opinion). In the event that the Committee were to make an adjustment of this sort, a full explanation would be provided in the next Remuneration Report.

Service contracts for Executive Directors

The Committee will periodically review the contractual terms for new Executive Directors to ensure that these reflect best practice. Service contracts currently operate on a rolling basis and are limited to a 12-month notice period.

Patrick André is employed as Chief Executive of Vesuvius plc pursuant to the terms of a service agreement made with the Company dated 17 July 2017. Mark Collis is employed as Chief Financial Officer pursuant to the terms of a service agreement with Vesuvius plc dated 4 January 2023. Patrick André's appointment is terminable by Vesuvius on not less than 12 months' written notice, and by him on not less than six months' written notice. Mark Collis's appointment is terminable by him and Vesuvius on not less than six months' written notice.

External appointments of Executive Directors

The Executive Directors do not currently serve as non-executive directors of any other quoted company. Subject always to consent being granted by the Company for them to take up such an appointment, were they to so serve, the Company would allow them to retain any fees they received for the performance of their duties.

Other

The Committee may: (a) in the event of a variation of the Company's share capital, demerger, special dividend or any other corporate event which it reasonably determines justifies such an adjustment, adjust; and (b) amend the terms of awards granted under the share schemes referred to above in accordance with the rules of the relevant plans.

Share awards may be settled by the issue of new shares or by the transfer of existing shares. In line with prevailing best practice at the time this Policy was approved, any issuance of new shares is limited to 5% of share capital over a rolling ten-year period in relation to discretionary employee share schemes and 10% of share capital over a rolling ten-year period in relation to all employee share schemes.

The Committee may make minor amendments to the Policy set out in this Policy Report (for regulatory, exchange control, tax or administrative purposes or to take account of a change in legislation) without obtaining shareholder approval for that amendment.

Policy for joining and leaving: Recruitment policy

Typical event	Policy
Executive Director appointed or promoted	On appointment or promotion of a new Executive Director, the Committee will typically use the Remuneration Policy in force at the time of the Committee's decision to determine ongoing remuneration. Base salary levels will generally be set in accordance with the Remuneration Policy current at the time of the Committee's decision, taking into account the experience and calibre of the appointee. Other than in exceptional circumstances, other elements of annual remuneration will, typically, be set in line with the Remuneration Policy, including a limit on awards under the Annual Incentive and Vesuvius Share Plan of 375% of salary in aggregate.
First year of appointment	If appropriate the Committee may apply different performance measures and/or targets to a Director's first incentive awards in his/her year of appointment.
Service contract agreed	Service contracts will be entered into on terms similar to those for the existing Executive Directors, summarised in the service contracts of Executive Directors section above.
Appointment of Chairman or Non-executive Director	With respect to the appointment of a new Chairman or Non-executive Director, appointment terms will be consistent with those applicable at the time the appointment is agreed. Variable pay will not be considered. With respect to Non-executive Directors, fees will be consistent with the Policy at the time the appointment is agreed. If, in exceptional circumstances, a Non-executive Director was asked to assume an interim executive role, the Company retains the discretion to pay them appropriate executive compensation, in line with the Policy.
Individual appointed on a base salary below market, contingent on performance	If it is appropriate to appoint an individual on a base salary initially below what is adjudged to be market positioning, contingent on individual performance, the Committee retains the discretion to realign base salary over the one to three years following appointment, which may result in a higher rate of annualised increase than might otherwise be awarded under the Policy. If the Committee intends to rely on this discretion, it will be noted in the first Remuneration Report following an individual's appointment.
Internal appointment	In the event that an internal appointment is made, or where a Director is appointed as a result of transfer into the Group on an acquisition of another Company, the Committee may continue with existing remuneration provisions for this individual, where appropriate.
Relocation required	If necessary and appropriate to secure the appointment of a candidate who has to move locations as a result of the appointment, whether internal or external, the Committee may make additional payments linked to relocation, above those outlined in the policy table, and would authorise the payment of a relocation allowance and repatriation, as well as other associated international mobility terms. Such benefits would be set at a level which the Committee considers appropriate for the role and the individual's circumstances.
Buying out compensation forfeited on leaving previous employer	In addition to the annual remuneration elements noted above, the Committee may consider buying out terms, incentives and any other compensation arrangements forfeited on leaving a previous employer that an individual forfeits in accepting an appointment with Vesuvius. The Committee will have the authority to rely on Listing Rule 9.4.2 R(2) or to apply the existing limits within the Vesuvius Share Plan to make Restricted Share awards on recruitment. In making any such awards, the Committee will review the terms of any forfeited awards, including, but not limited to, vesting periods, the expected value of such awards on vesting and the likelihood of the performance targets applicable to such awards being met, while retaining the discretion to make any buy-out award the Committee determines is necessary and appropriate. The Committee may also require the appointee to purchase shares in Vesuvius to a pre-agreed level prior to vesting of any such awards. The value of any buy-out award will be capped, to ensure its maximum value is no higher than the value of the awards that the individual forfeited on joining Vesuvius. Any such awards will be subject to malus and clawback.
Reimbursement of other costs	In addition to the elements noted above, the Committee may consider reimbursement of other demonstrable, specific costs incurred by an individual in relation to their appointment (e.g. legal costs).

2023 Remuneration Policy continued

Policy for joining and leaving: Exit payment policy

Vesuvius has the option to make a payment in lieu of part or all of the required notice period for Executive Directors. Any such payment in lieu will consist of the base salary, pension contributions and value of benefits to which the Director would have been entitled for the duration of the remaining notice period, net of statutory deductions in each case. Half of any payments in lieu of notice would be made in a lump sum, the remainder in equal monthly instalments commencing in the month in which the midpoint of their foregone notice period falls (and are reduced or extinguished by salary from any role undertaken by the departing Executive in this time). Executive Directors are subject to certain non-compete covenants for a period of nine to 12 months, and non-solicitation covenants for a period of 12 months, following the termination of their employment. Their service agreements are governed by English law.

Executive Directors' contracts do not contain any change of control provisions; they do contain a duty to mitigate should the Director find an alternative paid occupation in any period during which the Company must otherwise pay compensation on early termination.

The table below summarises how the awards under the annual bonus and Vesuvius Share Plan are typically treated in different leaver scenarios and on a change of control.

Whilst the Committee retains overall discretion on determining 'good leaver' status, it typically defines a 'good leaver' in circumstances such as retirement with agreement of the Company, ill health, disability, death, redundancy, or part of the business in which the individual is employed or engaged ceasing to be part of the Group. Final treatment is subject to the Committee's discretion.

Event	Timing	Calculation of vesting/payment
Annual Incentive Plan – during period prior to payment		
Good leaver	Paid at the same time as to continuing employees.	Annual bonus is paid only to the extent that any performance conditions have been satisfied and is pro rated for the proportion of the financial year worked before cessation of employment. In determining the level of bonus to be paid, the Committee may, at its discretion, take into account performance up to the date of cessation or over the financial year as a whole based on appropriate performance measures as determined by the Committee. The bonus may, at the Committee's discretion, be paid entirely in cash.
Bad leaver	Not applicable.	Individuals lose the right to their annual bonus.
Change of control	Paid on the effective date of change of control.	Annual bonus is paid only to the extent that any performance conditions have been satisfied and is prorated for the proportion of the financial year worked.
Annual Incentive Plan – in respect of any amount deferred into awards over shares under the Vesuvius Deferred Share Bonus Plan		
Good leaver	On the date of the event.	Deferred awards vest in full.
Bad leaver	On the date of the event.	Other than dismissal for cause, deferred awards will vest in full.
Change of control[1]	Within seven days of the event.	Deferred awards vest in full.
Vesuvius Share Plan		
Good leaver[2]	On normal release date (or earlier at the Committee's discretion).	Unvested awards vest to the extent that any performance conditions have been satisfied and a pro rata reduction applies to the value of the awards to take into account the proportion of performance period not served, unless the Committee decides that the reduction in the number of vested shares is inappropriate.
Bad leaver	Unvested awards lapse.	Unvested awards lapse on cessation of employment.
Change of control[1]	On the date of the event.	Unvested awards vest to the extent that any performance conditions have been satisfied and a pro rata reduction applies for the proportion of the vesting period not served, unless the Committee decides that the reduction in the number of vested shares is inappropriate.

1. In certain circumstances, the Committee may determine that unvested awards under the Vesuvius Deferred Bonus Plan and Vesuvius Share Plan will not vest on a change of control but will instead be replaced by an equivalent grant of a new award, as determined by the Committee, in the new company.
2. Under the rules of the Vesuvius Share Plan, any vested shares, net of any tax liabilities, are subject to a further two-year holding period after the vesting date. The holding period may be terminated early at the Committee's discretion in exceptional circumstances, including a change of control or where the award holder dies or leaves employment due to ill health, injury or disability.

Benefits normally cease to be provided on the date employment ends. However, the Committee has the discretion to allow some minor benefits (such as health insurance, tax advice and repatriation expenses) to continue to be provided for a period following cessation where this is considered fair and reasonable, or appropriate on the basis of local market practice. In addition, the Committee retains discretion to fund other expenses for the Executive Director; for example, payments to meet legal fees incurred in connection with termination of employment, or to meet the costs of providing outplacement support, and de minimis termination costs up to £5,000 to cover the transfer of mobile phone or other administrative expenses.

The Committee reserves the right to make any other payments in connection with a Director's cessation of office or employment where the payments are made in good faith in discharge of an existing legal obligation (or by way of damages for breach of such an obligation) or by way of a compromise or settlement of any claim arising in connection with the cessation of a Director's office or employment.

In certain circumstances, the Committee may approve new contractual arrangements with departing Executive Directors, including (but not limited to) settlement, confidentiality, restrictive covenants and/or consultancy arrangements. These would be used only where the Committee believed it was in the best interests of the Company to do so.

Remuneration Policy for Non-executive Directors

The Company seeks to appoint Non-executive Directors who have relevant professional knowledge and have gained experience in a relevant industry and geographical sector, to support diversity of expertise on the Board and match the wide geographical spread of the Company's activities.

Non-executive Directors attend Board, Committee and other meetings, held mainly in the UK, together with an annual strategy review to debate the Company's strategic direction.

All Non-executive Directors are expected to familiarise themselves with the scale and scope of the Company's business and to maintain their specific technical skills and knowledge.

The Board sets the level of fees paid to the Non-executive Directors after considering the role and responsibilities of each Director and the practice of other companies of a similar size and international complexity. The Non-executive Directors do not participate in Board discussions on their own remuneration.

Alignment/purpose	Operation	Opportunity	Performance
Fees			
To attract and retain Non-executive Directors of the necessary skill and experience by offering market-competitive fees	Fees are usually reviewed every year by the Board. Non-executive Directors are paid a base fee for the performance of their role plus additional fees for roles that involve significant additional time commitment and/or responsibility. Such roles could include, but are not limited to, Committee chairmanship (and, where appropriate, membership) or acting as the Senior Independent Director. Fees are paid in cash. When travelling internationally on Company business, all Non-executive Directors may also be provided with additional travel allowance payments, reflecting the associated time commitment, paid in cash. The Chairman is paid a single cash fee and receives administrative support from the Company.	Non-executive Directors and the Chairman will be paid market-appropriate fees, with any increase reflecting changes in the market or adjustments to a specific Non-executive Director's role. Any travel allowances payable will be reflective of travel time incurred as necessary to fulfil Company business. No eligibility for bonuses, retirement benefits or to participate in the Group's employee share plans. Base fees paid to Non-executive Directors excluding the Chairman will, in aggregate, remain within the aggregate limit stated in our Articles, currently being £500,000.	None.
Benefits and expenses			
To facilitate execution of responsibilities and duties required by the role	All Non-executive Directors are reimbursed for reasonable expenses incurred in carrying out their duties (including any personal tax owing on such expenses). Should the Board deem it appropriate, additional benefits can be provided to Non-executive Directors as required (e.g. liability insurance).	Non-executive Directors' expenses are paid in accordance with Vesuvius' expense procedures. Provision of additional benefits will be at the discretion of the Board and will reflect the reasonable needs of a Non-executive Director in undertaking Company business.	None.

2023 Remuneration Policy continued

Terms of service of the Chairman and other Non-executive Directors

The terms of service of the Chairman and the Non-executive Directors are contained in letters of appointment. Each Non-executive Director is appointed subject to their election at the Company's first Annual General Meeting following their appointment and re-election at subsequent Annual General Meetings. The Chairman is entitled to six months' notice from the Company. None of the other Non-executive Directors is entitled to receive compensation for loss of office at any time.

All Non-executive Directors are subject to retirement, and election or re-election, in accordance with the Company's Articles of Association. The current policy is for Non-executive Directors to serve on the Board for a maximum of nine years, with review at the end of three and six years, subject always to mutual agreement and annual performance evaluation. The Board retains discretion to extend the tenure of Non-executive Directors beyond this time, subject to the requirements of Board balance and independence being satisfied.

The table below shows the date of appointment for each of the Non-executive Directors:

Non-executive Director	Date of appointment
Carl-Peter Forster	1 November 2022
Carla Bailo	1 February 2023
Kath Durrant	1 December 2020
Dinggui Gao	1 April 2021
Friederike Helfer	4 December 2019
Douglas Hurt	2 April 2015
Robert MacLeod	1 September 2023

Directors' Remuneration Report

Annual Report on Directors' Remuneration

Executive Directors' remuneration in year ahead

The table below sets out the phasing of receipt of the various elements of Executive Director remuneration for 2024.

	2024	2025	2026	2027	2028	2029	Description and link to strategy
S Base salary							Salaries are set at an appropriate level to enable the Company to recruit and retain key employees, and reflect the individual's experience, role and contribution within the Company.
B Benefits							Provides normal market practice benefits.
P Pension							The pension benefit helps to recruit and retain key employees and ensures income in retirement.
AI Annual Incentive							The Annual Incentive incentivises the Executive Directors to achieve key short-term financial and strategic targets of the Group.
AI Deferred Annual Incentive							The deferral of a portion of the Annual Incentive increases alignment with shareholders.
VSP Vesuvius Share Plan				Holding period			Awards under the Vesuvius Share Plan align Executive Directors' interests with those of shareholders through the delivery of shares and assist in the retention of the Executive Directors. The VSP rewards the Executive Directors for achieving the strategic objectives of growth in shareholder value and earnings.

The table below sets out how the Remuneration Policy will be applied to the Executive Directors' remuneration for 2024. Further details about each of the elements of remuneration are set out in the Remuneration Policy.

S Base salary

Patrick André	£756,000 **2023:** £720,000 As explained in the Committee Chair's letter, the CEO was awarded a 5% increase, effective 1 January 2024.	**Mark Collis**	£441,000 **2023:** £420,000 As explained in the Committee Chair's letter, the CFO was awarded a 5% increase, effective 1 January 2024.

B Benefits

Benefits for Executive Directors may include:

- Car allowance
- Private medical care
- Relocation expenses
- Tax advice and tax reimbursement
- Commuting costs
- School fees
- Directors' spouses' travel
- Administrative expenses

P Pension

17% of base salary, in line with the average received by the majority of the global workforce.

AI Annual Incentive

Annual Incentive potential for Patrick André, maximum value	175% of base salary	**Annual Incentive potential for Mark Collis, maximum value**	150% of base salary

For 2024, the maximum Annual Incentive potential for Patrick André will remain at the level previously available, i.e. 175% of base salary with target Annual Incentive potential being 87.5% of base salary for the achievement of target performance in all elements. For Mark Collis, potential will also remain at the level previously available, i.e. 75% at target, and 150% at maximum. Pay-outs will commence and increase incrementally from 0% once the threshold performance for any of the elements has been met. 33% of any Annual Incentive earned will be deferred into awards over shares, which will vest after a holding period of three years.

These incentives are based 40% on Group headline earnings per share, 20% on the Group's working capital to sales ratio (based on the 12-month moving average), 20% on post-tax return on invested capital (ROIC) and 20% on specified personal objectives.

The Company will not be disclosing the targets set until after the relevant performance period has ended because of commercial sensitivities. Targets will be set and assessed so as to exclude approved restructuring costs and any unbudgeted M&A costs.
The personal objectives for 2024 are focused on long-term strategic objectives or are job-specific in nature and track performance against the Group's key strategic, organisational and operational goals with a specific focus on ESG outcomes.

VSP Vesuvius Share Plan (VSP)

Patrick André, maximum value	200% of base salary	
Mark Collis, maximum value	150% of base salary	

Share awards with a maximum value of 200% of salary will be granted to Patrick André and, for Mark Collis a maximum value of 150% of salary will be granted.
The strike price for the awards will be determined by reference to the average share price over the 30 calendar days prior to grant.
Vesting of 40% of shares awarded will be based upon the Company's TSR performance relative to that of the constituent companies of the FTSE 250 (excluding investment trusts), 40% on post-tax return on invested capital (ROIC) and 20% on ESG. Targets are set out overleaf. Performance will be measured over three years with awards vesting after three years. There will then be a further two-year holding period applicable to the awards.

Annual Report on Directors' Remuneration continued

Targets for the VSP Awards for the year 2024

TSR ranking relative to FTSE 250 excluding investment trusts	Weighting 40%

	Vesting percentage (of total LTIP)
Below median	0%
Median	10%
Between median and upper quintile	Pro rata between 10% and 40%
Upper quintile and above	40%

Post-tax ROIC[1]	Weighting 40%

	Vesting percentage (of total LTIP)[2]	Average ROIC over three-year performance period
Threshold and below	0%	8.5%
Maximum	40%	11.5%

1. ROIC is defined as Net Operating Profit After Tax (NOPAT), divided by invested capital (IC). NOPAT is defined as Group trading profit, plus post-tax share of JV results, less amortisation of intangible assets calculated as an average over the target period. (The inclusion of amortisation charges serves to reduce the calculation of ROIC returns though we believe this to be the most appropriate definition.) Invested capital is defined as total assets excluding cash and non-interest-bearing liabilities, calculated as the average of IC at the start and the end of the target period at constant currency. See Note 35.18 of the Group Financial Statements.
2. Vesting between these points will be on a straight-line basis.

Environment, Social, Governance	Weighting 20%

Safety: Average Lost Time Injury Frequency Rate (LTIFR)[1] 2024–2026

	Vesting percentage (of total LTIP)[2]	Range
Threshold and below	0%	0.95
Maximum	5%	0.65

Energy: CO_2e: Reduction in Scope 1 and 2 CO_2e emission intensity (vs 2019 baseline) in 2026[3]

	Vesting percentage (of total LTIP)[2]	Range
Threshold and below	0%	-20%
Maximum	10%	-26%

Diversity: Gender diversity in Senior Leadership Group[4] on 31 Dec 2026

	Vesting percentage (of total LTIP)[2]	Range
Threshold and below	0%	20%
Maximum	5%	26%

1. LTIFR is the Lost Time Injury Frequency Rate, based on the number of lost time injuries that occur during the performance period per million hours worked.
2. Straight-line vesting between threshold and maximum.
3. Reduction of CO_2e emissions per metric tonne of product packed for shipment.
4. Senior Leadership Group is defined as the Group Executive Committee plus the most senior Vesuvius managers worldwide, in terms of their contribution to the Group's overall results and to the execution of the Group's strategy. This group comprises between 140 and 170 members (number may slightly fluctuate from one year to the next based on organisational changes).

Explaining the ROIC target range

The Committee has considered the Group strategy over the period, market conditions, and historic and current estimates of WACC provided by our financial advisers in determining the target range.

Whilst we expect ROIC to be at the lower end of the range in Year 1, we believe a range of 8.5–11.5% to be appropriate for the VSP award 2024–2026. The targets have been set, and performance will be assessed, excluding approved restructuring costs. The threshold pay-out level remains at 0% this year, but may change for future awards.

Adjustments to the ROIC target range may be required should the Board approve certain mergers, acquisitions or disposals. For any such event that requires Board approval then management will assess the potential impact on ROIC as part of their broader submission, and the Committee will determine whether any adjustment to targets should be made. In general, the Committee will have regard to the materiality of the event and the timing in the life of the award cycle. The intention will be to maintain fair, stretching but achievable targets, whilst not providing a disincentive to management to bring forward proposals for mergers, acquisitions or disposals that are in the Company's interest.

Explaining the ESG metrics

The Environment, Social and Governance targets for the 2024 awards represent key strategic priorities for the management team as well as the Board.

Safety continues to be of paramount cultural importance to Vesuvius and progressive improvement has been made in recent years. The targets are considered stretching in the context of an operationally challenging environment with many employees working remotely at customer sites. Lost Time Injury Frequency Rate is a recognised metric, and is measured per million hours worked.

Energy – the reduction in Scope 1 and 2 emissions is a key feature of the Company's sustainability strategy (see pages 32–53) and as such a measure of CO_2e emission intensity is used (CO_2e emissions per tonne of product packed for shipment). Baseline and current emissions have been verified by Carbon Footprint Ltd. Vesuvius has committed to achieve a net zero status by 2050 at the latest and a roadmap, with clear intermediary targets in 2025 and 2035, has been established, as detailed in our Non-Financial and Sustainability Information Statement(see pages 47–49 for further information). The targets have been set relative to the 2023 outturn of 20.2% (versus the 2019 baseline) which, as outlined on page 35, reflected pro forma performance as if the dolime process had been operating normally. This ensures that the results are not inflated and seek to measure performance consistently year on year.

Diversity – a focus on gender diversity has seen improvements in the Senior Leadership Group of c.140–170 individuals in recent years. Targets are set so as to drive continued progress towards the targets outlined in our Sustainability initiative. The Committee notes that the market for female talent in the sector remains extremely tight, and whilst the target range has remained the same for the 2024-26 LTIP, it believes such targets to be stretching.

Executive Directors' remuneration in year under review

Single total figure table – audited

The table below sets out the total remuneration received by Executive Directors in the financial year under review:

	Patrick André		Mark Collis[1]		Guy Young[2]	
	2023 (£000)	2022 (£000)	2023 (£000)	2022 (£000)	2023 (£000)	2022 (£000)
Total salary	720	643	315	–	56	420
Taxable benefits[3]	61	83	30	–	14	18
Pension[4]	122	155	54	–	10	96
Total fixed pay[5]	904	880	399	–	80	535
Annual Incentive[6]	942	731	348	–	0	0
Long-Term Incentives[7,8]	566	613	–	–	0	0
Buy-out awards[9]	–	–	178	–	–	–
Total variable pay[10]	1,508	1,344	526	–	0	0
Total[11]	2,412	2,225	925	–	80	535

1. Mark Collis joined Vesuvius as Chief Financial Officer and as an Executive Director effective 1 April 2023. As such the figures shown for 2023 represent the actual, pro-rated amounts received during the period served in 2023.
2. Guy Young stepped down as Chief Financial Officer and as an Executive Director effective 17 February 2023. As such the figures shown for 2023 represent the actual, pro-rated amounts of Total fixed pay received during the period served in 2023, noting that no incentives were payable, in line with Company leaver policies, on account of his resignation.
3. Standard benefits for the Executive Directors include car allowance and private medical care. In 2022 and 2023, Patrick André also received external professional services support, funded by the Company, in relation to EU Settled Status applications for him and his wife, in line with the approval for such support granted by the Remuneration Committee in May 2019. The total cost of this support including gross-up of associated taxes was £44,811 in 2022, and £3,098 in 2023.
4. In 2022, Patrick André and Guy Young received a pension allowance of 25% of base salary capped at the January 2020 level. The figures for 2023 for Patrick André, Mark Collis and Guy Young represent the value of all cash allowances and contributions received in respect of pension benefits, at the reduced rate of 17% base salary, implemented in line with the Remuneration Policy from 1 January 2023.
5. The sum of total salary, taxable benefits, pension and other compensation.
6. This figure includes the Annual Incentive payments to be made to the Executive Directors in relation to the year under review. Note that Guy Young received no such payment for the years 2022 or 2023, having forfeited his entitlement to such payments on account of his resignation from the Company in September 2022. 33% of any Annual Incentive payments will be deferred into awards over shares, to be held for a period of three years, subject to no further performance measures. See page 116 for more details. Leaver and change of control provisions in relation to these shares are set out in the Policy on page 120.
7. The 2023 figure represents the Performance Share awards granted to Patrick André in 2021 under the VSP, which will vest in 2024. Note that Guy Young's 2021 award lapsed upon his departure on 17 February 2023.
8. The value of the 2023 Long-Term Incentives, relating to the Performance Share awards granted to Patrick André under the VSP in 2021, is reflective of a share price depreciation of 19.94% between the share price used at grant (536.9p), versus the Q4 2023 average share price (429.8p), used here as a proxy for the vesting price. The values also include dividend vesting at 64.55p per vested share.
9. As noted on page 118 of the 2022 Annual Report, Mark Collis received a one-off payment to compensate for the 2022 annual incentive payment forfeited when leaving his former employer, as well as a combination of Restricted Share awards and Performance Shares to compensate for forfeited equity incentives, which the Committee resolved to make in line with the Remuneration Policy. The figure quoted here comprises the one-off payment value, equivalent to the 2022 payment he had foregone, equal to £73,261 as well as Restricted Share awards made during the year with face value totalling £105,034 (as referenced on page 126 and detailed further on page 129). Note that the Performance Share awards, also detailed further on page 129, are not reflected in this table given the associated vesting performance will be aligned to the equivalent vesting performance of the awards Mark Collis has forfeited when leaving his former employer. Such vesting performance will not be known until April 2024, and as such, further detail related to these awards will be included in next year's Report.
10. The sum of the value of the Annual Incentive and the Long-Term Incentives where the performance period ended during the financial year.
11. The sum of base salary, benefits, pension, other compensation, Annual Incentive and Long-Term Incentives where the performance period ended during the financial year.

Additional note:

12. Total 2023 Directors' Remuneration (Executive Directors and Non-executive Directors) is £4.176m. 2022 Directors' Remuneration for the Directors who served during 2022 was £3.396m.

Annual Report on Directors' Remuneration continued

Remuneration for the former Chief Financial Officer – audited

Guy Young stepped down as an Executive Director and Chief Financial Officer on 17 February 2023. In line with Company leaver policies, having resigned in September 2022, during the 2022 performance year, he forfeited his entitlement to any annual incentive related to the Financial Year 2022 and to the period served during the Financial Year 2023. In addition, Guy Young's outstanding 2020, 2021 and 2022 Performance Share awards lapsed upon his termination, and no further grant was made in 2023, again in line with Company leaver policies.

In line with the Remuneration Policy, Guy Young's outstanding Deferred Share Bonus Plan awards, as detailed in the 2022 Annual Report, vested in full upon his termination.

No further termination payments will be made to Guy Young.

Buy-out awards for the incoming Chief Financial Officer – audited

As noted on page 118 of the 2022 Annual Report, upon Mark Collis' appointment as Chief Financial Officer, the Committee resolved, in compliance with the Remuneration Policy on recruitment, that it would compensate him for the annual incentive and long-term incentives awarded by his previous employer which he forfeited as a result of joining Vesuvius. The Committee resolved that Mark Collis would receive a one-off payment equivalent in value to the 2022 annual incentive payment he had foregone, as well as seven one-off share awards over Vesuvius plc shares (comprising a mix of Restricted Share awards and Performance Share awards) under the Vesuvius Share Plan, each of them corresponding in value to individual awards granted by his previous employer, with vesting dates aligned as closely as possible with the vesting dates of the forfeited awards.

Note that all the awards made as part of this buy-out process were over Vesuvius plc shares, and as such will count towards Mark Collis' shareholding requirement.

The Committee is satisfied that these payments/awards, summarised below, represent a like-for-like equivalent to the awards forfeited:

- A one-off cash payment, made in October 2023, amounting to £73,261 to compensate for forfeited annual incentive. This figure is reported in the Single total figure table on page 125
- Five Restricted Share awards, granted 20 June 2023 and detailed further on page 129, amounting to a total of 27,120 Vesuvius plc shares, without performance conditions, representing a like-for-like equivalent to a mix of forfeited performance share awards where vesting value was already known, or forfeited awards of restricted stock units. The face value of these awards is included/reflected in the Single total figure table on page 125 of this report
- Two Performance Share awards, granted in 20 June 2023 and detailed further on page 129, amounting to a total of 29,775 shares, with vesting performance to be directly aligned to the vesting performance of Mark Collis' former employer in relation to two forfeited performance share awards. The actual number of shares which vest, under these awards, will depend upon the extent to which the Remuneration Committee determines that the performance conditions have been satisfied by Mark Collis' former employer

Annual Incentive for 2023 performance – audited

The Executive Directors are eligible to receive an Annual Incentive calculated as a percentage of base salary, based on achievement against specified financial targets and personal objectives. Each year, the Remuneration Committee establishes the performance criteria for the forthcoming year. The financial targets are set by reference to the Company's financial budget. The target range is set to ensure that Annual Incentives are only paid out at maximum for significantly exceeding performance expectations. The Remuneration Committee considers that the setting and attainment of these targets is important in the context of achievement of the Company's longer-term strategic goals.

Payouts will commence and increase incrementally from 0% once the threshold performance for any of the elements has been met. The Annual Incentive has a target level at which 50% of the maximum opportunity is payable, and a maximum performance level at which 100% of the maximum opportunity is earned, on a pro rata basis.

For 2023, the maximum Annual Incentive potential for the Executive Directors was 175% of base salary for Patrick André and 150% for Mark Collis, with their target Annual Incentive potential being 87.5% and 75% of base salary respectively. Note that Guy Young was not entitled to any Annual Incentive relating to period served in 2023, in line with Company leaver policies.

For the Financial Year 2023, the Executive Directors' Annual Incentives were based 40% on Group headline EPS, 20% on the Group's return on invested capital (post-tax ROIC), 20% on the Group's working capital to sales ratio (based on the 12-month moving average) and 20% on specified personal objectives.

The Annual Incentive 2023 award for Mark Collis is pro-rated to reflect his date of joining Vesuvius, 1 April 2023.

Financial targets for the Annual Incentive in 2023

The 2023 Vesuvius Group headline EPS performance targets set out below were set at the December 2022 full-year average foreign exchange rates, being the rates used for the 2023 budget process:

Threshold:	On-target:	Maximum:
37.9p	42.9p	47.9p

The 2023 Group's return on invested capital (post-tax ROIC) targets were set as follows:

Threshold:	On-target:	Maximum:
7.5%	8.5%	10.0%

The 2023 Group's working capital to sales ratio targets were set as follows:

Threshold:	On-target:	Maximum:
23.8%	23.1%	22.4%

In assessing the Group's performance against these targets, the Committee uses a constant currency approach. Thus, the 2023 full-year EPS performance was retranslated at December 2022 full-year average foreign exchange rates to establish performance. This is consistent with practice in previous years.

In 2023, Vesuvius' EPS performance at the December 2022 full-year average foreign exchange rates, adjusted for unbudgeted M&A costs, was 51.2 pence, return on invested capital (post-tax ROIC) outcome was 9.0% and the working capital to sales ratio was 23.4%. Consequently, EPS performance was above the maximum target, return on invested capital (post-tax ROIC) performance was above target-level performance but below maximum, and the

Group working capital to sales ratio was above threshold but below target-level performance.

As a result, in respect of the financial performance metrics of the 2023 Annual Incentive, 70.0% and 60.0% of salary is due to the CEO and CFO respectively on the EPS targets, 23.3% and 20.0% respectively on the ROIC targets, and 10.0% and 8.6% respectively on the working capital targets (related to a maximum bonus opportunity of 70%, 35% and 35% of salary respectively for the CEO, and 60%, 30% and 30% of salary respectively for the CFO).

Personal objectives

In 2023, a proportion (20%) of the Annual Incentive for Executive Directors (representing 35% of salary for the CEO, and 30% of salary for the CFO) was based on the achievement of personal objectives.

Patrick André

Summary of objective	Key objective details	Summary outcome
Drive performance and deliver results	– Deliver enhanced cash conversion and optimise gross margin, quality performance and R&D efficiency – Deliver strategic expansion and optimisation of capex on budget and on time	– High performance in all areas with, for example, achievement close to or above maximum target for cash conversion, gross margin and quality performance optimisation – All related projects delivered on time and below budget in 2023, including the slidegate tunnel kiln at Skawina and the complex technical transfer between NAFTA sites
Stabilise GEC, prepare succession and reinforce talent management	– Stabilise GEC and develop internal GEC succession pipelines – Achieve progress in engagement of the Company's Senior Leadership Group	– Successful, effective and efficient integration of Mark Collis and Richard Sykes into the Group Executive Committee, and significant development and progression of internal talent pipeline for a range of GEC positions – Further improvement in leadership group's engagement scores year-on-year vs 2022
Develop Group strategy	– Continue to foster conditions and road map to facilitate achievement of enhanced return on sales targets	– Credible plans presented to the Board during 2023 to address margin growth. Strategy for each Division presented to, and well received by, investors at the Company's Capital Markets Day event in November 2023
Improve Vesuvius' sustainability performance	– Drive further reduction in CO_2 emission intensity and reinforce governance risk management	– Significant improvements in energy efficiency across the business and comprehensive roll-out and uptake of employee risk management training programmes in 2023

In summary, after considering performance as outlined above, the Committee approved an Annual Incentive pay-out of 27.7% of contractual base salary, out of the maximum potential 35%, in respect of the personal objectives of Patrick André.

Mark Collis

Summary of objective	Key objective details	Summary outcome
Optimise cash management and profitability	– Deliver enhanced cash conversion and trading profit margin, reduce receivables and achieve targeted cash tax savings	– Cash conversion, trading profit margin and cash tax savings all achieved above maximum target set
Develop investor relations strategy	– Review strategy and organise a successful Capital Markets Day event in 2023	– Successful CMD organised and delivered in November 2023, yielding very positive feedback from investors and analysts
Drive IT performance	– Enhance cyber resilience, ensure successful collaboration of IT with a newly created Digital function – Deliver implementation of key IT enhancement projects	– In-depth analysis of 2023 cyber security incident conducted, and associated lessons derived and implemented into operations. IT and Digital functions operating to a high degree of collaboration – Key enhancement projects delivered successfully and on time
Drive opex reductions	– Finalise implementation of new finance operating model in EMEA and NAFTA and progress the implementation of structural simplification in European entities	– Foundations laid, with operating model implemented as targeted, and structural simplification also now completed. Further improvements of operational efficiency and quality targeted for 2024 to maximise the value of these opex initiatives
Improve Vesuvius' sustainability performance	– Drive further reduction in CO_2 emission intensity and reinforce governance risk management	– Significant improvements in energy efficiency across the business and comprehensive roll-out and uptake of employee risk management training programmes in 2023

In summary, after considering performance as outlined above, the Committee approved an Annual Incentive pay-out of 22.1% of pro-rated 2023 contractual base salary, out of the maximum potential 30%, in respect of the personal objectives of Mark Collis.

The total Annual Incentive awards payable to Patrick André and Mark Collis, in respect of their service as Executive Directors during 2023, are therefore 130.9% and 110.6% of salary respectively (noting that, for Mark Collis, this reflects a percentage of actual salary received during 2023, reduced in comparison to his annualised salary on account of having joined Vesuvius in April 2023), of which 33% will be deferred into awards over shares, to be held for a period of three years, with vesting in accordance with the Remuneration Policy. Other than in cases of dismissal for cause, deferred awards will vest in full.

The Committee considered the appropriateness of this overall AIP payment in the context of the experience of our various stakeholders during 2023 and was satisfied that no discretionary adjustments were required.

Annual Report on Directors' Remuneration continued

2021 VSP Awards (vesting in 2024) – audited

The performance period applicable to these awards ended on 31 December 2023. Further details on the number of shares awarded are shown on page 135.

	Weighting	0% vesting	25% vesting	50% vesting	100% vesting	Performance achieved	Pay-out level (% of maximum)
TSR relative to FTSE 250 excluding investment trusts[1]	50%	Below median	Median	–	Upper quintile	Between median and upper quintile (Ranked 64th)	25.6%
Headline EPS for the Financial Year 2023[1]	50%	Less than 35.0p	35.0p	47.5p	60.0p	46.7p	24.2%

1. Straight-line vesting applies between the vesting points.

Share awards granted during the financial year – audited

VSP award

An award was granted under the VSP to selected senior executives in April 2023. UK executives receive awards in the form of nil-cost options with a flexible exercise date and non-UK executives receive conditional awards. This award is subject to the performance conditions described below and will vest in April 2026 (with a subsequent two-year holding period for any vested shares to April 2028).

	Type of award	Date of grant	Maximum number of shares[1]	Face value (£)	Face value (% of salary)	Threshold vesting	End of performance period
Patrick André	Nil-cost option	6 April 2023	355,599	£1,439,998	200%	25% of award	31 December 2025
Mark Collis[2]	Nil-cost option	6 April 2023	142,799	£578,265	138%	25% of award	31 December 2025

1. In 2023, Patrick André and Mark Collis were entitled to receive allocations of Performance Shares worth 200% and 138% of their base salaries respectively, noting that the latter represents a pro-rated award reflecting Mark Collis's hire date part way through the award performance period. Awards were calculated based on the average closing mid-market price of Vesuvius' shares on the 30 dealing days prior to grant, of £4.0495. The maximum number of shares quoted excludes any additional shares that may be awarded in relation to dividends accruing during the vesting and holding periods.
2. Award details displayed for Mark Collis relate only to Performance Share awards made under VSP which link to the Vesuvius performance conditions described in the table below. This excludes those Restricted Share awards made to Mark Collis under the VSP in 2023 (both those made with and those without performance conditions) which are detailed separately under Buy-out share awards on page 129.

Vesting of the VSP awards is subject to satisfaction of the following performance conditions. Any LTIP vesting is at the discretion of the Remuneration Committee.

	Weighting	Threshold	100% vesting
TSR relative to FTSE 250 excluding investment trusts[1]	40%	Median	Upper quintile
Group post-tax ROIC[1]	40%	8.5%	11%
ESG: Safety: Average Lost Time Injury Frequency Rate (LTIFR) 2023–2025[1,2]	5%	1.05	0.85
ESG: Energy: CO_2e: Reduction in Scope 1 and 2 energy CO_2e emissions/tonne (vs 2019 baseline) in 2025[1,3]	10%	-17%	-23%
ESG: Diversity: Gender diversity in Senior Leadership Group on 31 December 2025[1,4]	5%	20%	26%

1. Straight-line vesting applies between the vesting points. Threshold vesting for the TSR element is 25% of maximum, and 0% of maximum for all other elements.
2. LTIFR is the Lost Time Injury Frequency Rate, based on the number of Lost Time Injuries that occur during the performance period. The calculation rate is LTIFR per million hours worked.
3. Reduction of energy CO_2e emissions per metric tonne of product packed for shipment.
4. Senior Leadership Group is defined as the Group Executive Committee plus the most senior Vesuvius managers worldwide, in terms of their contribution to the Group's overall results and to the execution of the Group's strategy. This group comprises between 150 and 170 members (number may slightly fluctuate from one year to the next based on organisational changes).

Each of the VSP performance measures operates independently. The use of these measures is intended to align Executive Director remuneration with shareholders' interests. Prior to vesting, the Remuneration Committee reviews the underlying financial performance of the Company and non-financial performance of the Company and individuals over the performance period to ensure that the vesting is justified, and to consider whether to exercise its discretion including consideration of any potential windfall gains.

Deferred Share Bonus Plan award

33% of the Annual Incentive earned by Patrick André in respect of performance in 2022 was deferred into a share award granted in April 2023 under the Company's Deferred Share Bonus Plan. There are no additional performance conditions applicable to these awards. Leaver and change of control provisions in relation to these shares are set out in the Policy on page 120.

	Type of award	Date of grant	Number of shares[1]	Face value (£)	Vesting date
Patrick André	Conditional award	6 April 2023	60,179	£243,695	6 April 2026

1. The number of shares has been calculated using the share price of £4.0495 (average closing share price for the 30 dealing days prior to grant) and excludes any additional shares that may be awarded in relation to dividends accruing during the vesting period.

Buy-out share awards

The buy-out awards granted to Mark Collis during 2023 comprise Restricted Share awards and Performance Share awards, as detailed below.

The basis for calculation of these awards referenced the mid-market closing average share prices, of Vesuvius plc and Mark Collis's former employer, over the 30 days (excluding non-trading and closed period days) prior to the Board meeting convened on 4 January 2023 to confirm his appointment.

	Type of award	Date of grant	Maximum number of shares[1]	Face value (£)	Vesting conditions	30 day mid-market average share price prior to Board resolution (pence)	Earliest vesting date
Mark Collis	Nil-cost option	20 June 2023	27,120	105,034	None	387.29	Various[2]
	Nil-cost option	20 June 2023	23,820[3]	92,252	Subject to John Wood Group plc vesting performance as determined by the Remuneration Committee	387.29	8 April 2024
	Nil-cost option	20 June 2023	5,955[3]	23,063		387.29	9 March 2026

1. The number of shares has been calculated using the share price of £3.8729 (average closing share price for the 30 dealing days prior to Board confirmation of appointment) and excludes any additional shares that may be awarded in relation to dividends accruing during the vesting period.
2. The Restricted Share awards total quoted here represents five separate awards with the following vesting dates: 1,349 shares vested on 20 June 2023; 835 shares will vest 11 March 2024; 1,662 shares on 8 April 2024; 23,129 shares on 10 March 2025; and 145 shares on 27 April 2025.
3. Relevant John Wood Group plc award is the 2021 LTIP whose performance period ends on 31 December 2023.

Statement of Executive Directors' shareholding – audited

The interests of Executive Directors and their closely associated persons in ordinary shares as at 31 December 2023, including any interests in share options and shares provisionally awarded under the VSP, are set out below:

		Outstanding share incentive awards		
		Nil-cost options		Conditional awards
	Beneficial holding in shares[4]	With performance conditions[1]	Without performance conditions[2]	Without performance conditions[3]
Patrick André	361,193	905,709	0	144,816
Mark Collis	22,344	172,574	25,771	0
Guy Young[5]	153,259	0	0	57,673

1. These are Performance Shares granted under the VSP. In the case of Mark Collis, these comprise the sum of VSP awards granted in 2023 with Vesuvius performance conditions, and those granted as buy-out awards and subject to John Wood Group plc vesting performance, as detailed in the Buy-out share awards section on page 126. The awards were all granted subject to performance conditions.
2. These are buy-out share awards, awarded to Mark Collis, which are not subject to any additional performance conditions, as detailed on page 129.
3. These are awards granted under the Deferred Share Bonus Plan in the cases of Patrick André and Guy Young.
4. Mark Collis's beneficial shareholding includes 1,370 shares, awarded as part of his buy-out shared awards, and comprising 1,349 shares plus 21 dividend-equivalent shares, which vested on 20 June 2023. These were exercised on 25 August 2023 at a market value of 432.8 pence per share.
5. The shareholding detail quoted for Guy Young is effective/correct as at the date of his departure from the Company, 17 February 2023.

Additional notes:

6. All outstanding share incentive awards are nil-cost options except awards made under the Deferred Share Bonus Plan which are conditional awards.
7. No awards vested without being exercised during the year, and indeed no nil-cost options at all have vested without being exercised. For further details please see the Appendix: Supplementary share-related information section on pages 134 and 135.
8. None of the other Directors, nor their spouses, nor their minor children, held non-beneficial interests in the ordinary shares of the Company during the year.
9. There were no changes in the interests of Patrick André and Mark Collis in the ordinary shares of the Company in the period from 1 January 2023 to the date of this Report.
10. For Guy Young, there were no changes in these interests in the period from 1 January 2023 to his date of leaving, 17 February 2023.
11. All awards under the VSP are subject to performance conditions and continued employment until the relevant vesting date. Full details of VSP award allocations are set out on page 135.
12. Full details of Directors' shareholdings and incentive awards are given in the Company's Register of Directors' Interests, which is open to inspection at the Company's registered office during normal business.

Shareholding guidelines – audited

The Remuneration Committee encourages Executive Directors to build and hold a shareholding in the Company. Under the 2023 Remuneration Policy, the required holding is 200% of salary for all Executive Directors. Executive Directors are required to retain at least 50% (measured as the value after tax) of any shares received through the operation of share schemes; in addition, permission to sell shares held – whether acquired through the operation of share schemes or otherwise – will not be given, other than in exceptional circumstances, if, following the disposal, the shareholding requirement is not achieved or is not maintained.

Compliance with the shareholding policy is tested at the end of each year for application in the following year. Under the 2023 Remuneration Policy, the valuation of any holding is taken at the higher of: (1) the share price on the date of vesting of any shares derived from a share award, in respect of those shares only; and (2) the average of the closing prices of a Vesuvius ordinary share for the trading days in that December.

As at 31 December 2023, the Executive Directors' shareholdings against the shareholding guidelines contained in the Directors' Remuneration Policy in force on that date (using the Company's share price averaged over the trading days of the period 1 December to 31 December 2023, of 462.66 pence per share) were as follows:

Director	Actual share ownership as a percentage of salary at 31 Dec 2023	Policy share ownership as a percentage of salary	Policy met?
Patrick André	246%	200%	Yes
Mark Collis	25%	200%	In the build-up period

Annual Report on Directors' Remuneration continued

Payments to past Directors and loss of office payments – audited

There were no payments made to any Director for loss of office during the year ended 31 December 2023. External, professional services support was provided in 2023 to former Chief Executive, François Wanecq, in the form of international tax advice relating to his retirement, in line with the commitment to cover such reasonable costs, as specified in the Section 430(2B) statement referenced in the Company's 2017 Annual Report. Total costs amounted to £6,745 (exclusive of VAT). No other payments were made to any other past Directors of the Company during the year ended 31 December 2023.

Non-executive Directors

Single total figure table – audited

The table below sets out the total remuneration received by Non-executive Directors in the financial year under review:

	2023			2022		
(£000)	Total fees[1]	Taxable benefits[2]	Total	Total fees	Taxable benefits[2]	Total
Carl-Peter Forster	262	4	266	40	2	42
Carla Bailo[3]	84	4	89	–	–	–
Kath Durrant	86	6	92	75	7	82
Dinggui Gao	83	7	90	60	0	60
Friederike Helfer	67	1	68	60	2	62
Jane Hinkley[4]	28	3	31	70	3	73
Douglas Hurt	96	1	97	85	3	88
Robert MacLeod[5]	25	1	26	–	–	–
Total Non-executive Director remuneration	731	27	759	390	17	407

1. Effective from 2023, total fees for Non-executive Directors now include any stipend fees paid as a result of intercontinental travel on Vesuvius business.
2. The UK regulations require the inclusion of benefits for Directors where these would be taxable in the UK on the assumption that the Director is tax resident in the UK. The figures in the table therefore include expense reimbursement and associated tax relating to travel, accommodation and subsistence for the Director (and, where appropriate, their spouse) in connection with attendance at Board meetings and other corporate business during the year, which are considered by HMRC to be taxable in the UK.
3. Carla Bailo joined the Board on 1 February 2023.
4. Jane Hinkley retired from the Board on 18 May 2023.
5. Robert MacLeod joined the Board on 1 September 2023.

Additional notes:

6. John McDonough, who retired from the Board in December 2022 and is thus not shown in the table above, was reported to have a taxable benefits single figure of £9k in the 2022 Annual Report. This figure included certain estimated costs at the time of publication of that Annual Report, including in relation to a leaving gift offered to John. During 2023, the actual costs were finalised and John's actual taxable benefits single figure for 2022 was calculated as £10k.

Fee structure in 2024

The fee for the Chairman was also reviewed by the Committee during the year and the fees for the Non-executive Directors by the Board. Following an assessment of time commitment, roles and responsibilities it was decided that the fees would increase with effect from 1 January 2024. The Chairman's fee was increased to £262,500; the Non-executive Directors' fees were increased to £66,150. Supplementary fees were also increased, with the supplementary Senior Independent Director fee increasing to £11,000; supplementary fee for the Chairs of the Audit and Remuneration Committees to £16,000; and supplementary fee for the Non-executive Director responsible for workforce engagement to £11,000. The stipend of £4,000, payable to Non-executive Directors in respect of each overseas, intercontinental trip they undertake on Vesuvius business, remains in place, with the stipend continuing to be payable for a maximum of five such trips in any calendar year.

Statement of Non-executive Directors' shareholding – audited

The interests of Non-executive Directors and their closely associated persons in ordinary shares as at 31 December 2023 are set out below:

	Beneficial holding in shares
Carl-Peter Forster	–
Carla Bailo[1]	–
Kath Durrant	–
Friederike Helfer[2]	–
Dinggui Gao	–
Jane Hinkley[3]	12,000
Douglas Hurt	18,000
Robert MacLeod[4]	–

1. Carla Bailo was appointed as a Non-executive Director effective 1 February 2023.
2. Friederike Helfer is a Partner of, and has a financial interest in, Cevian Capital which held 57,249,896 ordinary shares (21.16% of Vesuvius' issued share capital) as at 31 December 2023 and 21.29% as at the date of this Report.
3. Jane Hinkley's shareholding is effective as at her retirement date, 18 May 2023.
4. Robert MacLeod was appointed as a Non-executive Director effective 1 September 2023.

Additional notes:

5. None of the other Directors, nor their spouses, nor their minor children, held non-beneficial interests in the ordinary shares of the Company during the year.
6. There were no changes in the interests of the Non-executive Directors in the ordinary shares of the Company in the period from 1 January 2023 to the date of this Report.
7. Full details of Directors' shareholdings are given in the Company's Register of Directors' Interests, which is open to inspection at the Company's registered office during normal business hours.

Other regulatory disclosure requirements

Annual changes in Executive Directors' pay versus employee pay

Executive Directors' pay comparison

The London headquartered salaried employee workforce is presented as a voluntary disclosure of the representative comparator group for the Vesuvius Group parent company as there is only one non-Director employee in the parent company.

Year-on-year change in pay for Directors compared to the London headquartered employee average

	2023			2022			2021			2020		
	Salary[2]	Bonus[3]	Benefits[5]	Salary[2]	Bonus[3]	Benefits[5]	Salary[2,4]	Bonus[3]	Benefits[5,6]	Salary[2,4]	Bonus[3]	Benefits[5]
London headquartered employee average[1]	13%	14%	33%	(8%)	(12%)	3%	19%	236%	120%	0%	165%	18%
Executive Directors												
Patrick André	12%	29%	(22%)	4%	(16%)	11%	11%	469%	(6%)	(7%)	183%	(25%)
Mark Collis	n/a	–	n/a	n/a	–	n/a	n/a	–	n/a	n/a	–	n/a
Guy Young	0%	n/a	(79%)	9%	(100%)	1%	11%	442%	9%	(1%)	155%	(14%)
Non-executive Directors[11]												
Carl-Peter Forster[7]	0%	–	97%	n/a	–	n/a	n/a	–	n/a	n/a	–	n/a
Kath Durrant[8]	15%	–	(14%)	25%	–	117%	19%	–	100%	n/a	–	n/a
Friederike Helfer	12%	–	(36%)	20%	–	(31%)	11%	–	969%	(10%)	–	(60%)
Dinggui Gao[9]	38%	–	121%	20%	–	100%	n/a	–	n/a	n/a	–	n/a
Jane Hinkley[10]	5%	–	(9%)	26%	–	40%	(5%)	–	63%	(10%)	–	(60%)
Douglas Hurt	13%	–	(52%)	21%	–	275%	11%	–	24%	(10%)	–	–

1. This is the average percentage change, excluding the Executive Directors. Salaries, bonus and benefits relate to the relevant financial reporting year.
2. Calculated using annualised salaries/fees. Note that, as of 2023, Non-executive Director fees reflect the inclusion of travel stipends payable for up to five intercontinental trips on Vesuvius business per year.
3. Calculated using data from the single figure table in the Annual Report.
4. During 2020, all Executive and Non-executive Directors took a voluntary 20% pay reduction for six months. Other senior employees in London headquarters also took a pay reduction between 10% and 20%, depending on their level of seniority. Therefore, the total percentage increase for the Executive Directors between 2021 and 2022 was higher than their agreed salary increases, as these increases are compared with actual, partly-reduced salary paid during 2020 rather than full, contractual base salary.
5. Calculated using data from the audited Directors' Emoluments. Benefits relate to taxable travel benefits, and Company pensions in the case of Executive Directors. It is calculated as the percentage increase or decrease on the actual figures year-on-year and not annualised or prorated for any new starters.
6. Calculations of 2021 benefits changes have been restated as compared with the 2021 Annual Report, to ensure correct alignment with single figure remuneration tables.
7. Carl-Peter Forster joined the Board on 1 November 2022 and took over as Chairman on 1 December 2022.
8. Kath Durrant joined on 1 December 2020 and then became the Remuneration Committee Chair following the 2021 AGM, and it is this change that accounts for the proportionally higher increase in her salary in 2021.
9. Dinggui Gao joined on 1 April 2021.
10. Jane Hinkley stood down as the Remuneration Committee Chair following the 2021 AGM, which accounts for her net reduction in year-on-year change in 2021.
11. The Non-executive Directors' fees were reviewed and increased in 2015, 2019, 2022 and 2023.

Annual Report on Directors' Remuneration continued

CEO pay ratio

The UK employee workforce is the representative comparator group to the Chief Executive, Patrick André, who is based in the UK (albeit with a global role and responsibilities). Levels of pay vary widely across the Group depending on geography and local market conditions.

Year	Method	25th percentile	50th percentile (median)	75th percentile
2019	Option A ratio	35:1	28:1	17:1
2020	Option A ratio	32:1	24:1	13:1
2021	Option A ratio	53:1	41:1	21:1
2022	Option A ratio	60:1	46:1	24:1
2023	Option A ratio	57:1	43:1	22:1
2023	Total pay and benefits (£)	41,367	53,938	108,893
2023	Salary (£)	31,491	47,956	91,324

The table above shows the Chief Executive pay ratios versus our UK employees for 2019, 2020, 2021, 2022 and 2023. The pay ratios compare amounts disclosed in the single total figure table for the Group Chief Executive to the annual full-time equivalent remuneration of our UK employees for 2019, 2020, 2021, 2022 and 2023. The Remuneration Committee is comfortable that the ratios reported reflect the remuneration principles applied and represent a valid basis for comparison of remuneration.

The ratios for 2022 have been adjusted versus what was reported in the 2022 Annual Report, after some previous estimates were updated in the associated calculations. A significant proportion of the Chief Executive's remuneration is based on performance-related pay, which affects said remuneration disproportionately when compared with others. This is reflected in the variation in pay ratio shown over the past five years.

The data has been calculated in accordance with 'Option A' in the Companies (Miscellaneous Reporting) Regulations 2018, because it allows the Company to show the total annualised full-time equivalent remuneration (salary, incentives, allowances, fees, taxable benefits) and percentiles across the financial year as at 31 December 2019, 2020, 2021, 2022 and 2023.

Amounts have been annualised for those who joined part way through the year or who are on part-time arrangements and exclude those who left the organisation during the reporting period.

The approach to calculating the pay ratios is consistent with the prior year and there have not been any changes to the compensation models in the reporting period.

The Committee is comfortable that the principles applied and the quantum of compensation are appropriate across the Group's employee base. These are regularly benchmarked to ensure market competitiveness. There is a consistent approach of measuring against both business and personal performance for all those who participate in incentive programmes. The Group continues to monitor the effectiveness of all compensation practices to identify future opportunities to ensure they remain fair, consistent and in line with best practice.

Annual spend on employee pay[1] versus shareholder distributions[2]

The charts below show the annual spend on all employees (including Executive Directors) compared with distributions made and proposed to be made to shareholders for 2022 and 2023:

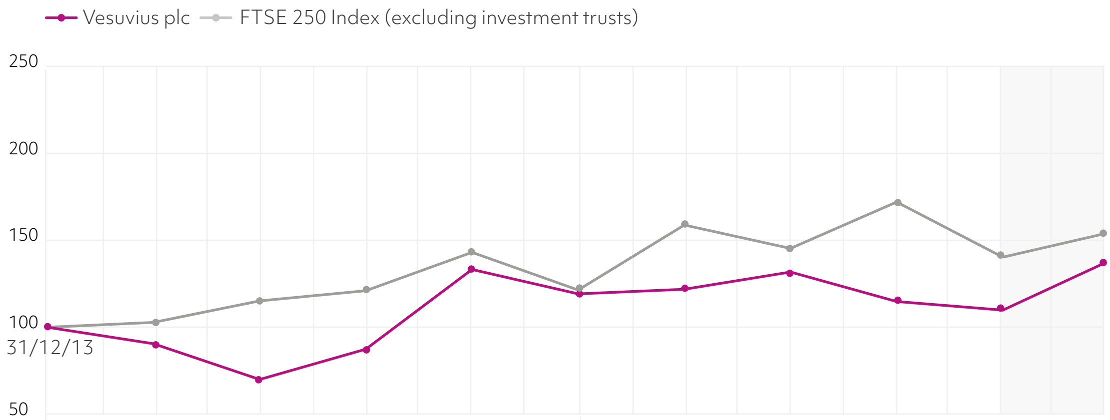
	2023 (£m)	2022 (£m)	Change
Employee pay[1]	**475.1**	441.3	7.7%
Dividends[2] (based on final proposed dividend) and share buybacks	**63.8**	59.9	6.5%

1. Employee pay includes wages and salaries, social security, share-based payments and pension costs, and other post-retirement benefits. See Note 7 to the Group Financial Statements.
2. Shareholder distributions/dividends includes interim and final dividends paid in respect of each financial year. In addition, figure quoted for 2023 also reflects share buybacks. See Note 23 of the Group Financial Statements.

TSR performance and Chief Executive pay

The TSR performance graph compares Vesuvius' TSR performance with that of the same investment in the FTSE 250 Index (excluding investment trusts). This index has been chosen as the comparator index to reflect the size, international scope and diversity of the Company. TSR is the measure of the returns that a company has provided for its shareholders, reflecting share price movements and assuming reinvestment of dividends.

Vesuvius's total shareholder return compared against total shareholder return of the FTSE 250 (excluding investment trusts) index over the past ten years



Chief Executive pay – financial year ended	François Wanecq[1]				Patrick André[2]					
	31/12/14	31/12/15	31/12/16	31/12/17	31/12/18	31/12/19	31/12/20	31/12/21	31/12/22	**31/12/23**
Total remuneration (single figure (£000))	£1,519	£752	£1,173	£1,675[1] £465[2]	£2,022	£1,220	£936	£1,706	£2,225	**£2,412**
Annual variable pay (% of maximum)	64%	0%	50%	81%[1] 85%[2]	83%	11%	20%	94%	76%	**75%**
Long-term variable pay (% of maximum)	27%	0%	0%	43.7%[1] n/a[2]	100%	63%	0%	0%	48%	**50%**

1. Amounts shown in respect of François Wanecq for 2017 reflect payments in respect of his service as Chief Executive from 1 January 2017 to 31 August 2017 and the full value of his VSP award in relation to the performance period 2015–2017.
2. Amounts shown in respect of Patrick André for 2017 reflect payments in respect of his service as Chief Executive from 1 September 2017 to 31 December 2017.

Shareholder voting on remuneration resolutions

The Directors' Remuneration Policy and Annual Report on Remuneration were approved by Shareholders at the AGM held on 18 May 2023, with the following votes:

	Votes for	Votes against	Votes withheld
Approval of the Directors' Remuneration Policy 2023 AGM	234,279,589 (96.7%)	7,890,060 (3.3%)	8,514
Approval of the Annual Report on Remuneration (excluding the Directors' Remuneration Policy) 2023 AGM	196,827,568 (82.2%)	42,633,878 (17.8%)	2,716,717

The Directors' Remuneration Report has been approved by the Board and is signed on its behalf by:

Kath Durrant
Chair of the Remuneration Committee
28 February 2024

Directors' Remuneration Report

Appendix: Supplementary share-related information

Share usage

Under the rules of the VSP, the Company has the discretion to satisfy awards either by the transfer of Treasury shares or other existing shares, or by the allotment of newly issued shares. Awards made under the Deferred Share Bonus Plan to satisfy shares awarded to Directors in respect of their Annual Incentive, and awards made to management of the Company over shares pursuant to the Medium Term Incentive Plan, must be satisfied out of Vesuvius shares held for this purpose by the Company's Employee Benefit Trust (EBT).

The decision on how to satisfy awards is taken by the Remuneration Committee, which considers the most prudent and appropriate sourcing arrangement for the Company.

At 31 December 2023, the Company held 7,271,174 ordinary shares in Treasury and the EBT held 1,956,030 ordinary shares. No additional shares were purchased between 31 December 2023 and the date of this report.

The EBT can be gifted Treasury shares by the Company, can purchase shares in the open market or can subscribe for newly issued shares, as required, to meet obligations to satisfy options and awards that vest.

The VSP complies with the current Investment Association guidelines on headroom which provide that overall dilution under all plans over a rolling ten-year period should not exceed 10% of the Company's issued share capital, with a further limitation over a rolling ten-year period of 5% for discretionary share schemes. These limits remain available in full as headroom for the issue of new shares or the transfer of Treasury shares for the Company. No Treasury shares were transferred, or newly issued shares allotted under the VSP during the year under review.

Deferred Share Bonus Plan allocations – audited

33% of the Annual Incentives earned by Patrick André and Guy Young in respect of their periods of service as Directors of Vesuvius plc were deferred into shares under the Company's Deferred Share Bonus Plan. The following table sets out details of outstanding awards:

Grant and type of award	Total share allocations as at 1 Jan 2023	Additional shares allocated during the year	Allocations lapsed during the year	Shares vested during the year	**Total share allocations as at 31 Dec 2023**	Market price of the shares on the day before award (p)	Earliest vesting/ release date
Patrick André							
12 March 2020[1] Deferred Bonus Shares	7,044	–	–	(7,044)	**0**	391.8	12 Mar 2023
18 March 2021[2] Deferred Bonus Shares	9,430	–	–	–	**9,430**	538	18 Mar 2024
17 March 2022[3] Deferred Bonus Shares	75,207	–	–	–	**75,207**	385	17 Mar 2025
06 April 2023[4] Deferred Bonus Shares	–	60,179	–	–	**60,179**	386	06 Apr 2026
Total	91,681	60,179	–	(7,044)	**144,816**		
Guy Young[5]							
12 March 2020[1] Deferred Bonus Shares	5,345	–	–	(5,345)	**0**	391.8	12 Mar 2023[5]
18 March 2021[2] Deferred Bonus Shares	6,093	–	–	(6,093)	**0**	538	18 Mar 2024[5]
17 March 2022[3] Deferred Bonus Shares	46,235	–	–	(46,235)	**0**	385	17 Mar 2025[5]
Total	57,673	–	–	(57,673)	**0**		

1. In 2020, Patrick André and Guy Young were awarded Annual Incentive bonuses in respect of their service as Directors of Vesuvius plc in 2019 of £83,775 and £63,569 respectively. 33% of each bonus was awarded in deferred shares (conditional awards). The allocations of shares were made on 12 March 2020 and were calculated based upon the average closing mid-market price of Vesuvius' shares on the five dealing days before the award was made, being £3.9248. The total value of these awards based on this share price was £27,646 and £20,978 respectively. There were no additional performance conditions applicable to these awards, therefore these shares vested in full on the third anniversary of their award date for Patrick André.
2. In 2021, Patrick André and Guy Young were awarded Annual Incentive bonuses in respect of their service as Directors of Vesuvius plc in 2020 of £153,419 and £99,138 respectively. 33% of each bonus was awarded in deferred shares (conditional awards). The allocations of shares were made on 18 March 2021 and were calculated based upon the average closing mid-market price of Vesuvius' shares on the five dealing days before the award was made, being £5.3690. The total value of these awards based on this share price was £50,628 and £32,715 respectively. There are no additional performance conditions applicable to these awards, which will therefore vest in full for Patrick André on the third anniversary of their award date.
3. In 2022, Patrick André and Guy Young were awarded Annual Incentive bonuses in respect of their service as Directors of Vesuvius plc in 2021 of £873,604 and £537,075 respectively. 33% of each bonus was awarded in deferred shares (conditional awards). The allocations of shares were made on 17 March 2022 and were calculated based upon the average closing mid-market price of Vesuvius' shares on the five dealing days before the award was made, being £3.872. The total value of these awards based on this share price was £291,202 and £179,022 respectively. There are no additional performance conditions applicable to these awards, which will therefore vest in full for Patrick André on the third anniversary of their award date.
4. In 2023, Patrick André was awarded an Annual Incentive bonus in respect of his service as a Director of Vesuvius plc in 2022 of £731,091. 33% of this bonus was awarded in deferred shares (conditional awards). The allocation of shares was made on 6 April 2023 and was calculated based upon the average closing mid-market price of Vesuvius' shares on the 30 dealing days before the award was made, being £4.0495. The total value of this award based on this share price was £243,695. There are no additional performance conditions applicable to this award, which will therefore vest in full for Patrick André on the third anniversary of its award date.
5. Following his departure from the Company on 17 February 2023, Guy Young's outstanding awards vested in full.

Additional note:

6. Mark Collis did not receive an Annual Incentive bonus in 2023, therefore no bonus was awarded in deferred shares during the year.
7. The mid-market closing price of Vesuvius' shares during 2023 ranged between 385.6 pence and 482.6 pence per share, and on 29 December 2023, the last dealing day of the year, was 481.2 pence per share.

Vesuvius Share Plan award allocations – audited

The following table sets out outstanding awards that were allocated to Patrick André, Mark Collis and Guy Young under the VSP. All Performance Share awards detailed below were granted in the form of nil-cost options. For Mark Collis, this table excludes the buy-out share awards granted during the year, which are detailed on page 129 of this report:

Grant and type of award	Total share allocations as at 1 Jan 2023	Additional shares allocated during the year	Allocations lapsed during the year	Shares vested and exercised during the year including dividends	**Total share allocations as at 31 Dec 2023**	Market price of the shares on the day before award (p)	Performance period	Earliest vesting date	End of holding period[1]
Patrick André									
12 March 2020[2] Performance Shares	282,772	–	(146,844)	(151,027)*	**–**	391.8	1 Jan 20–31 Dec 22	12 Mar 2023	12 Mar 2025
18 March 2021[3] Performance Shares	230,210	–	–	–	**230,210**	538	1 Jan 21–31 Dec 23	18 Mar 2024	18 Mar 2026
17 March 2022[4] Performance Shares	319,900	–	–	–	**319,900**	385	1 Jan 22–31 Dec 24	17 Mar 2025	17 Mar 2027
6 April 2023[5] Performance Shares	–	355,599	–	–	**355,599**	386	1 Jan 23–31 Dec 25	6 Apr 2026	6 Apr 2028
Total	832,882	355,599	(146,844)	(151,027)*	**905,709**				

* Total shares exercised included 15,099 dividend-equivalent shares. Shares were exercised at the point of vesting, at a market value of 406.0 pence per share.

Grant and type of award	Total share allocations as at 1 Jan 2023	Additional shares allocated during the year	Allocations lapsed during the year	Shares vested and exercised during the year including dividends	**Total share allocations as at 31 Dec 2023**	Market price of the shares on the day before award (p)	Performance period	Earliest vesting date	End of holding period[1]
Mark Collis									
6 April 2023[5] Performance Shares	–	142,799	–	–	**142,799**	386	1 Jan 23–31 Dec 25	6 Apr 2026	6 Apr 2028
Total	–	142,799	–	–	**142,799**				
Guy Young[6]									
12 March 2020[2] Performance Shares	132,120	–	(132,120)	–	**–**	391.8	1 Jan 20–31 Dec 22	12 Mar 2023	12 Mar 2025
18 March 2021[3] Performance Shares	107,562	–	(107,562)	–	**–**	538	1 Jan 21–31 Dec 23	18 Mar 2024	18 Mar 2026
17 March 2022[4] Performance Shares	156,716	–	(156,716)	–	**–**	385	1 Jan 22–31 Dec 24	17 Mar 2025	17 Mar 2027
Total	396,398	–	(396,398)	–	**–**				

1. Performance Shares granted from 2019 onwards are subject to a further two-year holding period.
2. In 2020, Patrick André and Guy Young were entitled to receive allocations of Performance Shares worth 200% and 150% of their base salaries respectively. In light of the volatile share price, the Committee applied its discretion so that the number of shares in these allocations were capped at a level based upon the average closing mid-market price of Vesuvius' shares on the five dealing days before the February 2020 Remuneration Committee meeting of £4.371. As a result, Patrick André received an award of 282,772 shares which, at grant, was equivalent in value to 180% of his base salary (£1,109,823*) and Guy Young received an award of 132,120 shares which, at grant, was equivalent in value to 135% of his base salary (£518,544*). In addition, the Remuneration Committee determined that Patrick André was entitled to receive 15,099 additional shares, equivalent in value to the dividends that would have been paid on the number of vested shares in respect of dividend record dates occurring during the period between the award date and the date of vesting.

* Grant values are based on the average closing mid-market price of Vesuvius' shares on the five dealing days prior to grant (£3.9248).

3. In 2021, Patrick André and Guy Young were entitled to receive allocations of Performance Shares worth 200% and 150% of their base salaries respectively. These allocations were calculated based upon the average closing mid-market price of Vesuvius' shares on the five dealing days before the award was made, being £5.3690. The total value of these awards based on this share price was £1,235,997 and £577,500 respectively.
4. In 2022, Patrick André and Guy Young were entitled to receive allocations of Performance Shares worth 200% and 150% of their base salaries respectively. In light of the volatile share price, the Committee applied its discretion so that the number of shares in these allocations were capped at a level based upon the average closing mid-market price of Vesuvius' shares on the five dealing days before the February 2022 Remuneration Committee meeting of £4.02. As a result, Patrick André received an award of 319,900 shares which, at grant, was equivalent in value to 193% of his base salary (£1,239,653**) and Guy Young received an award of 156,716 shares which, at grant, was equivalent in value to 144% of his base salary (£606,804**).

** Grant values are based on the average closing mid-market price of Vesuvius' shares on the five dealing days prior to grant (£3.872).

5. In 2023, Patrick André and Mark Collis were entitled to receive allocations of Performance Shares worth 200% and 138% of their base salaries respectively***. The award was made on 6 April 2023 and was calculated based upon the average closing mid-market price of Vesuvius' shares on the 30 dealing days before the award was made, being £4.0495. As a result, Patrick André received an award of 355,599 shares which, at grant, was equivalent in value to 200% of his base salary (£1,439,998) and Mark Collis received an award of 142,799 shares which, at grant, was equivalent in value to 138% of his base salary (£578,265).

*** Mark Collis's entitlement in 2023, of 138%, is reflective of a pro-rated calculation of the Chief Financial Officer's normal 150% entitlement, reflecting his date of joining the Company (1 April 2024), and therefore reflecting omission of the first three months of the three-year performance period related to the award.

6. Guy Young's outstanding awards lapsed in full on his departure from the Company on 17 February 2023.

Additional notes:

7. If the respective performance conditions for Patrick André's and Mark Collis's awards are not met, then the awards will lapse. If the threshold level of either of the two performance conditions applicable to awards granted prior to 2022 is met, then 12.50% of the awards will vest. For awards granted in 2022 and 2023, threshold level performance on TSR would entail 12.5% vesting, while threshold performance on other conditions entails 0% vesting.
8. The Remuneration Committee also has the discretion to award cash or shares equivalent in value to the dividend that would have been paid during the vesting period on the number of shares that vest.
9. The mid-market closing price of Vesuvius' shares during 2023 ranged between 385.6 pence and 482.6 pence per share, and on 29 December 2023, the last dealing day of the year, was 481.2 pence per share.

Directors' Report

The Directors submit their Annual Report together with the consolidated financial statements of the Group and of the Company, Vesuvius plc, registered in England and Wales No. 8217766, for the year ended 31 December 2023.

The Companies Act 2006 requires the Company to provide a Directors' Report for Vesuvius plc for the year ended 31 December 2023.

Information incorporated by reference

The information that fulfils this requirement and which is incorporated by reference into, and forms part of, this report is included in the following sections of the Annual Report:

- The Section 172(1) Statement
- The Non-Financial and Sustainability Information Statement
- The Governance section, including the Corporate Governance Statement
- Financial instruments: the information on financial risk management objectives and policies contained in Note 24 to the Group Financial Statements

This Directors' Report and the Strategic Report contained on pages 1 to 78 together represent the management report for the purpose of compliance with DTR 4.1.8 R of the Financial Conduct Authority's Disclosure and Transparency Rules.

Going concern	Information on the business environment in which the Group operates, including the factors that are likely to impact the future prospects of the Group, is included in the Strategic Report. The principal risks and uncertainties that the Group faces throughout its global operations are shown on pages 77 and 78. The financial position of the Group, its cash flows, liquidity position and debt facilities are also described in the Strategic Report. In addition, the Group's Viability Statement is set out within the Strategic Report on page 76. Note 24 to the Group Financial Statements sets out the Group's objectives, policies and processes for managing its capital; financial risks; financial instruments and hedging activities; and its exposures to credit, market (both currency and interest rate related) and liquidity risk. Further details of the Group's cash balances and borrowings are included in Notes 12, 13 and 24 to the Group Financial Statements. The Directors have prepared profit and loss, balance sheet and cash flow forecasts for the Group for a period in excess of 12 months from the date of approval of the 2023 financial statements. On the basis of the exercise described above, the Directors have prepared a going concern statement which can be found on page 76.
Events since the balance sheet date	Since 31 December 2023, there have been no material items to report.
Future developments	A full description of the activities of the Group, including performance, significant events affecting the Group in the year and indicative information in respect of the likely future developments in the Group's business, can be found in the Strategic Report.
Financial instruments	Information on Vesuvius' financial risk management objectives and policies can be found in Note 24 to the Group Financial Statements.
Research and development	The Group's investment in research and development (R&D) during the year under review amounted to £37m (representing approximately 1.9% (2022: 1.8%) of Group revenue). Further details of the Group's R&D activities can be found in the Operating reviews and Sustainability section of the Strategic Report.
Political and charitable donations	In accordance with Vesuvius policy, the Group did not make any political donations or incur any political expenditure in relation to any UK or non-UK political parties during 2023 (2022: nil). The Company made no charitable donations of more than £2,500 (2022: £0.5m) in the UK in 2023.
Task Force on Climate-related Financial Disclosures (TCFD)	The Group has reported its climate-related information in accordance with the TCFD framework. The majority of this information is included in the Non-financial and Sustainability Information Statement in the Strategic Report. A schedule of disclosure is included on page 36.

Energy consumption and efficiency/greenhouse gas emissions	Information on our reporting of greenhouse gas emissions, and the methodology used to record these, is set out on pages 51 and 52 of the Strategic Report. Details of the Group's energy usage for 2023, and the efficiency initiatives currently being undertaken, can be found in the Non-financial and Sustainability Information Statement in the Strategic Report on pages 39–55.
Branches	A number of the Group's subsidiary undertakings maintain branches; further details of these can be found in Note 32.1 to the Group Financial Statements.
Dividends	An interim dividend of 6.8 pence (2022: 6.5 pence) per Vesuvius ordinary share was paid on 15 September 2023 to shareholders on the register at the close of business on 4 August 2023. The Board is recommending a final dividend in respect of 2023 of 16.2 pence (2022: 15.75 pence) per ordinary share which, if approved, will be paid on 31 May 2024 to shareholders on the register at 19 April 2024. The Trustee of the Group's employee benefit trust has waived the right to receive any dividends.
Accountability and audit	A responsibility statement of the Directors and a statement by the Auditors about their reporting responsibilities can be found on pages 143, and 144–151, respectively. The Directors fulfil the responsibilities set out in their statement within the context of an overall control environment of central strategic direction and delegated operating responsibility. As at the date of this report, as far as each Director of the Company is aware, there is no relevant audit information of which the Company's Auditors are unaware and each Director hereby confirms that they have taken all the steps that they ought to have taken as a Director in order to make themselves aware of any relevant audit information and to establish that the Company's Auditors are aware of that information.
Auditors' reappointment	PricewaterhouseCoopers LLP (PwC) were reappointed as External Auditors for Vesuvius plc for the year ended 31 December 2023, at the 2023 AGM. PwC have been Vesuvius' External Auditors since 2017 and have expressed their willingness to continue in office as Auditors of the Company for the year ending 31 December 2024. Consequently, resolutions for the reappointment of PwC as External Auditors of the Company and to authorise the Directors to determine their remuneration are to be proposed at the 2024 AGM.
Directors	The current Directors of the Company are Patrick André, Carla Bailo, Mark Collis, Kath Durrant, Carl-Peter Forster, Dinggui Gao, Friederike Helfer, Douglas Hurt and Robert MacLeod. Guy Young resigned from the Board and as Chief Financial Officer on 17 February 2023. Mark Collis was appointed to the Board on 1 April 2023 and succeeded Guy Young as Chief Financial Officer. Carla Bailo and Robert MacLeod joined the Board as Non-executive Directors on 1 February 2023 and 1 September 2023 respectively. Jane Hinkley retired from the Board at the close of the 2023 AGM on 18 May 2023. The proposed appointment of Eva Lindqvist as a Non-executive Director of the Company was announced on 15 February 2024. Eva Lindqvist will be appointed to the Company´s Board with effect from the close of the AGM on 15 May 2024, subject to her election being approved by the Company´s shareholders at the 2024 AGM. Douglas Hurt retires from the Board at the close of the 2024 AGM and subject to her appointment, Eva Lindqvist will succeed Douglas Hurt as the Senior Independent Director. Robert MacLeod will succeed Douglas Hurt as Chairman of the Audit Committee from the close of the 2024 AGM. All the current Directors, with the exception of Douglas Hurt, will offer themselves for election or re-election at the 2024 AGM. Biographical information for the Directors is given on pages 80 and 81. Further information on the remuneration of, and contractual arrangements for, the Executive and Non-executive Directors is given on pages 108-133 in the Directors' Remuneration Report. The Non-executive Directors do not have service agreements.
Directors' indemnities	The Directors have been granted qualifying third-party indemnity provisions by the Company and the Directors of the Group's UK Pension Plans Trustee Board (none of whom is a Director of Vesuvius plc) have been granted qualifying pension scheme indemnity provisions by Vesuvius Pension Plans Trustees Limited. The indemnities for Directors of Vesuvius plc have been in force since the date of their appointments. The Pension Trustee indemnities were in force throughout the last financial year and remain in force.

Directors' Report continued

Annual General Meeting	The Annual General Meeting of the Company will be held at the offices of Linklaters LLP, One Silk Street, London EC2Y 8HQ on Wednesday 15 May 2024 at 11.00 am.
Amendments of Articles of Association	The Company may make amendments to the Articles by way of special resolution in accordance with the Companies Act. The Articles were last amended at the 2021 AGM, to reflect changes in the law and developments in market practice and technology.
Share capital	As at the date of this report, the Company had an issued share capital of 276,157,367 ordinary shares of 10 pence each; 7,271,174 of these ordinary shares are held in Treasury. Therefore, the total number of Vesuvius plc shares with voting rights is 268,886,193. Further information relating to the Company's issued share capital can be found in Note 9 to the Company Financial Statements. The Company's Articles specify that, subject to the authorisation of an appropriate resolution passed at a General Meeting of the Company, Directors can allot relevant securities under Section 551 of the Companies Act up to the aggregate nominal amount specified by the relevant resolution. In addition, the Articles state that the Directors can seek the authority of shareholders in a General Meeting to allot equity securities for cash, without first being required to offer such shares to existing ordinary shareholders in proportion to their existing holdings under Section 561 of the Companies Act, in connection with a rights issue and in other circumstances up to the aggregate nominal amount specified by the relevant resolution. At the AGM on 18 May 2023, the Directors were authorised to issue relevant securities up to an aggregate nominal amount of £9,040,463, and, in connection with a rights issue, to issue relevant securities up to a further aggregate nominal amount of £9,040,463. In addition, the Directors were empowered to allot equity securities, or sell Treasury Shares, for cash in connection with a rights issue or other pre-emptive offer without first being required to offer such shares to existing shareholders in proportion to their existing holdings. The Directors were also empowered to allot equity securities, and/or sell Treasury Shares, for cash in any case other than in connection with a rights issue or other pre-emptive offer up to an aggregate nominal value of £2,712,138, or a follow-on offer, without first being required to offer such shares to existing shareholders in proportion to their existing holdings, and for the purposes of financing (or refinancing, if the authority is to be used within 12 months after the original transaction) a transaction which the Board of the Company determines to be an acquisition or other capital investment, to allot equity securities, or sell Treasury Shares, for cash on a non-pre-emptive basis up to an additional nominal amount of £2,712,138. Each of the authorities given in these resolutions expires on 30 June 2024 or the date of the AGM to be held in 2024, whichever is the earlier. The resolutions were all tabled in accordance with the revised terms of the Pre-Emption Group's Statement of Principles. The Directors propose to table updated resolutions at the 2024 AGM. In the year ahead, other than potentially in respect of Vesuvius' ability to satisfy rights granted to employees under its various share-based incentive arrangements, the Directors have no present intention of issuing any share capital of Vesuvius plc.

Authority for purchase of own shares	Subject to the provisions of company law and any other applicable regulations, the Company may purchase its own shares. At the AGM on 18 May 2023, Vesuvius shareholders gave authority to the Company to make market purchases of up to 27,121,389 Vesuvius ordinary shares, representing 10% of the Company's issued ordinary share capital as at the latest practicable day prior to the publication of the Notice of AGM. On 4 December 2023, the Company announced, consistent with its capital allocation policy to return surplus cash to shareholders, the commencement of a share buyback programme of up to £50 million (the 'Programme') to end no later than 4 December 2024. The sole purpose of the Programme is to reduce Vesuvius' share capital and the ordinary shares purchased pursuant to the Programme are being cancelled. The Board considered the views of the Company's shareholders and the impact that the purchase would have on other investors, concluding that it would send a positive public signal that the Company was performing well and would benefit all of the Group's stakeholders. A buyback was chosen over, for example, a tender offer or special dividend, reflecting the preference of shareholders and advice from brokers, as a structure that equally benefits all shareholders over a sustained period. Over the course of the programme, the buy-back is expected to be modestly EPS accretive and as such will enhance TSR in the event that our trading valuation multiple is maintained. The impact of the buyback is recognised in the Company's budget and as such it is reflected in the Group's incentive targets. From 4 December 2023 to the end of the financial year on 31 December 2023, the Company had purchased 675,707 ordinary shares of 10 pence, representing a nominal value of £67,571 and 0.24% of the Company's issued share capital. 630,647 of these ordinary shares were cancelled by 31 December 2023, the 45,060 remaining ordinary shares were cancelled on 2 and 3 January 2024. The cost of the shares purchased was £3.1 million excluding transaction costs. A further 1,734,259 shares, representing a nominal value of £173,426 and 0.6% of the Company's issued share capital, have been purchased between 1 January 2024 and the date of this report at a cost of £8.3 million excluding transaction costs. The average cost of shares purchased to date is £4.746 per share. In 2013, the Company acquired 7,271,174 ordinary shares, representing a nominal value of £727,117 and 2.6% of the entire called up share capital of the Company prior to the purchase. These shares were purchased pursuant to the Board's commitment to return the majority of the net proceeds of the disposal of the Precious Metals Processing Division to shareholders. These shares are currently held as Treasury shares and are not eligible to participate in dividends and do not carry any voting rights. The Company has not subsequently disposed of any of the repurchased shares designated as Treasury shares. The Company does not have a lien over any of its shares. Further details of Treasury Shares and the Programme are set out in Note 9 to the Company Financial Statements. The Directors' purchase of own shares authority expires on 30 June 2024 or the date of the AGM to be held in 2024, whichever is the earlier. The Directors will seek renewal of this authority at the 2024 AGM.
Share plans	Vesuvius operates a number of share-based incentive plans. Under these plans, the Group can satisfy entitlements by the acquisition of existing shares, the transfer of Treasury shares or by the issue of new shares. Existing shares are held in an employee benefit trust (EBT). The Trustee of the EBT purchases shares in the open market as required to enable the Group to meet liabilities for the issue of shares to satisfy awards that vest. The Trustee does not register votes in respect of these shares at the Company's Annual General Meetings and has waived the right to receive any dividends. At 31 December 2022, the EBT held 2,454,110 ordinary shares of 10p each in the Company. During 2023, the EBT sold/transferred 784,952 ordinary shares to satisfy the vesting of awards under the Company's share-based incentive plans. It also purchased 286,872 ordinary shares in Vesuvius with a nominal value of £28,687 at a total cost, including transaction costs, of approximately £1.1m, to hold to satisfy the future vesting of awards under the Company's share incentive plans. As at 31 December 2023, the EBT held 1,956,030 ordinary shares. The total purchases during the year represented <1% of the Company's called up share capital. As at the date of this report the EBT held 1,945,219 ordinary shares.

Directors' Report continued

Restrictions on transfer of shares and voting

The Company's Articles do not contain any specific restrictions on the size of a holding or on the transfer of shares. The Directors are not aware of any agreements between holders of the Company's shares that may result in restrictions on the transfer of securities or voting rights.

No person has any special rights with regard to the control of the Company's share capital and all issued shares are fully paid. This is a summary only and the relevant provisions of the Articles should be consulted if further information is required.

Change of control provisions

The terms of the Group's committed bank facility and US Private Placement Loan Notes contain provisions entitling the counterparties to exercise termination or other rights in the event of a change of control on takeover of the Company. A number of the arrangements to which the Company and its subsidiaries are party, such as other debt arrangements and share incentive plans, may also alter or terminate on a change of control in the event of a takeover. In the context of the Group as a whole, these other arrangements are not considered to be significant.

Interests in the Company's shares

The Company has been advised in accordance with DTR 5 of the Disclosure and Transparency Rules of the following notifiable interests of 3%, or more, of its issued ordinary shares:

	As at date of notification	As at 31 Dec 2023[1]	As at 28 Feb 2024[2]
Cevian Capital	21.11%	21.16%	**21.29%**
GLG Partners LP	6.26%	6.28%	**6.32%**
Martin Currie	4.83%	4.84%	**4.88%**
BlackRock Inc	5%	5%	**5.1%**
Aberforth Partners	4.93%	4.94%	**4.97%**

1. The notifiable interests have been restated to reflect the change in issued share capital as at 31 December 2023 resulting from the Share Buyback Programme.
2. The notifiable interests have been restated to reflect the change in issued share capital as at 28 February 2024 resulting from the Share Buyback Programme.

The interests of Directors and their connected persons in the ordinary shares of the Company as disclosed in accordance with the Listing Rules of the Financial Conduct Authority are as set out on pages 129 and 130 of the Directors' Remuneration Report and details of the Directors' Deferred Share Bonus Plan and Vesuvius Share Plan are set out on pages 134 and 135.

Suppliers, customers and others

Information summarising how the Directors have regard to the need to foster the Company's business relationships with suppliers, customers and others is included in the Group's Section 172(1) Statement on pages 68–71. This also details how that regard impacted the principal decisions taken by the Directors during the year.

Our approach to business places a significant number of Vesuvius Steel employees at customer sites on a permanent basis. In the Foundry Division, our success is built on our deep understanding of customer processes and technical requirements, and our ability to assist them in delivering the greatest efficiency from their operations.

During the year, our supplier audit programme covered the operations of 157 suppliers. This approach allows Vesuvius to gain a deep understanding of our suppliers' operations to ensure sustainability and quality of supply.

Vesuvius agrees payment terms with its suppliers and seeks to pay in accordance with those terms.

Equal opportunities employment

Vesuvius is an equal opportunities employer, and decisions on recruitment, development, training and promotion, and other employment-related issues are made solely on the grounds of individual ability, achievement, expertise and conduct. These principles are operated on a non-discriminatory basis, without regard to race, colour, nationality, culture, ethnic origin, religion, belief, gender, sexual orientation, age, disability or any other reason not related to job performance or prohibited by applicable law. In cases where employees are injured or disabled during employment with the Group, support, including appropriate training, is provided to those employees and workplace adjustments are made as appropriate in respect of their duties and working environment, supporting recovery and continued employment.

Employee engagement

Information on the mechanisms through which Vesuvius engages with its workforce is included in the Section 172(1) Statement on pages 68–71 and in the Sustainability section on pages 60–63.

Pensions	In each country in which the Group operates, the pension arrangements in place are considered to be consistent with good employment practice in that particular area. Independent advisers are used to ensure that the plans are operated in accordance with local legislation and the rules of each plan. Group policy prohibits direct investment of pension fund assets in the shares of Vesuvius plc. The majority of the ongoing pension plans are defined contribution plans, where our only obligation is to make contributions, with no further commitments on the level of post-retirement benefits. During 2023, cash contributions of £12.1m (2022: £10.8m) were made into the defined contribution plans and charged to trading profit. The Group's principal defined benefit pension plans are in the UK and the US, the benefits of which are based upon the final pensionable salaries of plan members. The assets of these plans are held separately from the Group in trustee-administered funds. The Trustees are required to act in the best interests of the plans' beneficiaries. The Group also has defined benefit pension plans in other territories but, except for those in Germany, these are not individually material in relation to the Group. Vesuvius continues to seek ways to de-risk its existing pension plans through a combination of asset matching, buy-in opportunities and, where prudent, voluntary cash contributions. The total gross defined benefit obligations at 31 December 2023 were £416.3m funded (2022: £416.0m funded) and £62.8m unfunded (2022: £60.2m unfunded). After asset funding there was a net deficit of £46.3m (2022: £56.1m) representing a decrease of £9.8m. The Group's UK defined benefits plan (the 'UK Plan') and the main US defined benefits plans are closed to new entrants and have ceased providing future benefits accrual, with all eligible employees instead being provided with benefits through defined contribution arrangements. For the Group's closed UK Plan, a Trustee Board exists comprising employees, former employees and an independent trustee. The Board currently comprises six trustee Directors, of whom two are member-nominated. The administration of the UK Plan is outsourced. The Company is mindful of its obligations under the Pensions Act 2004 and of the need to comply with the guidance issued by the Pensions Regulator. Regular dialogue is maintained between the Company and the Trustee Board of the UK Plan to ensure that both the Company and Trustee Board are apprised of the same financial and other information about the Group and the UK Plan. This is pertinent to each being able to contribute to the effective functioning of the UK Plan. In November 2021, the Trustee of the Vesuvius Pension Plan signed a pension insurance buy-in agreement with Pension Insurance Corporation plc (PIC). This buy-in secured an insurance asset from PIC that matches the remaining pension liabilities of the UK Plan, with the result that the Company no longer bears any investment, longevity, interest rate or inflation risks in respect of the UK Plan. All benefits in the UK Plan (with the exception of a small amount of benefits expected to arise in future as a result of guaranteed minimum pensions (GMP) equalisation) are now insured with PIC. The Group has several defined benefit pension plans in the US, providing retirement benefits based on final salary or a fixed benefit. The Group's principal US defined benefit pension plans are closed to new members and to future benefit accrual for existing members. The Group has several defined benefit pension arrangements in Germany which are unfunded, as is common practice in that country. In 2016, the main German defined benefit plan was closed for new entrants and existing members were offered a buy-out of their benefits under this plan. Those who accepted this buy-out then joined the new defined contribution plan.

Listing Rule 9.8.4C R Disclosures

The following disclosures are made in compliance with the Financial Conduct Authority's Listing Rule 9.8.4C R:

Disclosure requirement under LR 9.8.4 R	Reference/Location
(1) Interest capitalised by the Group during the year	None
(2) Publication of unaudited financial information	Not applicable
(3) Details of any long-term incentive schemes	Pages 123 and 124
(4) Director waiver of emoluments	Not applicable
(5) Director waiver of future emoluments	Not applicable
(6) Allotment for cash of equity securities made during the year	Not applicable
(7) Allotment for cash of equity securities made by a major unlisted subsidiary during the year	Not applicable
(8) Details of participation of parent undertaking in any placing made during the year	Not applicable
(9) Details of relevant material contracts in which a Director or controlling shareholder was interested during the year	Not applicable
(10) Contracts for the provision of services by a controlling shareholder during the year	Not applicable
(11) Details of any arrangement under which a shareholder has waived or agreed to waive any dividends	Vesuvius plc holds 7,271,174 of its 10 pence ordinary shares as Treasury shares. No dividends are payable on these shares. The Trustee of the Company's EBT has agreed to waive, on an ongoing basis, any dividends payable on shares it holds in trust for use under the Company's Employee Share Plans, details of which can be found on pages 134, 135 and 139
(12) Details of where a shareholder has agreed to waive future dividends	See above
(13) Statements relating to controlling shareholders and ensuring company independence	Not applicable

The Directors' Report has been approved by the Board and is signed, by order of the Board, by the Secretary of the Company.

Henry Knowles
Company Secretary
28 February 2024

Statement of Directors' Responsibilities in respect of the Financial Statements

The Directors are responsible for preparing the Annual Report and Financial Statements in accordance with applicable law and regulation.

Company law requires the Directors to prepare financial statements for each financial year. Under that law, the Directors have prepared the Group financial statements in accordance with UK-adopted international accounting standards and the Company financial statements in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 'Reduced Disclosure Framework', and applicable law).

Under company law, the Directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the Group and Company and of the profit or loss of the Group for that period. In preparing the financial statements, the Directors are required to:

- Select suitable accounting policies and then apply them consistently
- State whether applicable UK-adopted international accounting standards have been followed for the Group financial statements and United Kingdom Accounting Standards, comprising FRS 101, have been followed for the Company financial statements, subject to any material departures disclosed and explained in the financial statements
- Make judgements and accounting estimates that are reasonable and prudent
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the Group and Company will continue in business

The Directors are also responsible for safeguarding the assets of the Group and Company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the Group's and Company's transactions and disclose with reasonable accuracy at any time the financial position of the Group and Company and enable them to ensure that the financial statements and the Directors' Remuneration Report comply with the Companies Act 2006.

The Directors are responsible for the maintenance and integrity of the Company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Directors' confirmations

The Directors consider that the Annual Report and Financial Statements, taken as a whole, is fair, balanced and understandable and provides the information necessary for shareholders to assess the Group and Company's position and performance, business model and strategy.

Each of the Directors, whose names and functions are listed below, confirm that, to the best of their knowledge:

- The Company financial statements, which have been prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 Reduced Disclosure Framework, and applicable law), give a true and fair view of the assets, liabilities and financial position of the Company
- The Group financial statements, which have been prepared in accordance with UK-adopted international accounting standards, give a true and fair view of the assets, liabilities, financial position and profit of the Group
- The Strategic Report includes a fair review of the development and performance of the business and the position of the Group and Company, together with a description of the principal risks and uncertainties that the Group faces

The names and functions of the Directors of Vesuvius plc as at the date of signing these financial statements are as follows:

Carl-Peter Forster	Chairman
Patrick André	Chief Executive
Mark Collis	Chief Financial Officer
Douglas Hurt	Non-executive Director, Senior Independent Director and Chair of the Audit Committee
Carla Bailo	Non-executive Director
Kath Durrant	Non-executive Director and Chair of the Remuneration Committee
Dinggui Gao	Non-executive Director
Friederike Helfer	Non-executive Director
Robert MacLeod	Non-executive Director

On behalf of the Board

Mark Collis
Chief Financial Officer
28 February 2024

Independent auditors' report to the members of Vesuvius plc

Report on the audit of the financial statements

Opinion

In our opinion:

- Vesuvius plc's Group financial statements and Company financial statements (the "financial statements") give a true and fair view of the state of the Group's and of the Company's affairs as at 31 December 2023 and of the Group's and Company's profit and the Group's cash flows for the year then ended;
- the Group financial statements have been properly prepared in accordance with UK-adopted international accounting standards;
- the Company financial statements have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, including FRS 101 "Reduced Disclosure Framework", and applicable law); and
- the financial statements have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements, included within the Annual Report, which comprise: the Group and Company Balance Sheets as at 31 December 2023; the Group Income Statement, the Group Statement of Comprehensive Income, the Group Statement of Cash Flows and the Group and Company Statements of Changes in Equity for the year then ended; and the notes to the financial statements, comprising material accounting policy information and other explanatory information.

Our opinion is consistent with our reporting to the Audit Committee.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) ("ISAs (UK)") and applicable law. Our responsibilities under ISAs (UK) are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We remained independent of the Group in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, which includes the FRC's Ethical Standard, as applicable to listed public interest entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

To the best of our knowledge and belief, we declare that non-audit services prohibited by the FRC's Ethical Standard were not provided.

Other than those disclosed in Note 5.2 of the financial statements, we have provided no non-audit services to the Company in the period under audit.

Our audit approach

Overview

Audit scope

- Our audit included full scope audits of 17 components and specific audit procedures on certain balances and transactions for 15 additional components.
- Taken together, the components at which either full scope audit work or specified audit procedures were performed enabled us to get coverage on 72% of revenue, and 74% of profit before tax.

Key audit matters

- Impairment of goodwill (Group)
- Provisions for exposures (Legacy matter lawsuits) (Group)
- Impairment of investment in subsidiaries (Company)

Materiality

- Overall Group materiality: £8.5 million (2022: £10.3 million) based on 5% of a 3 year average of profit before tax (2022: based on approximately 4.7% of profit before tax and separately reported items (headline profit before tax).
- Overall Company materiality: £8.5 million (2022: £10.3 million) based on 1.0% of total assets, capped at the level of overall Group materiality.
- Performance materiality: £6.4 million (2022: £7.7 million) (Group) and £6.4 million (2022: £7.7 million) (Company).

The scope of our audit

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements.

Key audit matters

Key audit matters are those matters that, in the auditors' professional judgement, were of most significance in the audit of the financial statements of the current period and include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by the auditors, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. These matters, and any comments we make on the results of our procedures thereon, were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

This is not a complete list of all risks identified by our audit.

The key audit matters below are consistent with last year.

Independent auditors' report to the members of Vesuvius plc continued

Key audit matter	How our audit addressed the key audit matter

Impairment of goodwill (Group)
 	
At 31 December 2023, the carrying value of goodwill is £630.9 million (2022: £657.9 million). Goodwill arising from acquisitions has an indefinite expected useful life and so is not amortised but rather is tested for impairment at least annually at the cash-generating unit ("CGU") level. Management has determined its CGUs to align with the operating segments, which are Steel Advanced Refractories, Steel Flow Control and Foundry. Steel Sensors and Probes goodwill was previously impaired and is fully written down.
 	
Management prepares a Value in Use (VIU) model (discounted cash flow) to test for impairment of the carrying value of the above CGUs. This is based on a Board approved budget and 2 year forecast, on which a terminal value is calculated based on long term growth rates. The VIU model requires estimation of projected future cash flows and involves making key assumptions of revenue and trading profit growth rates, an appropriate discount rate and long term growth rates for each of the CGUs. In making such future assumptions there is an inherent level of estimation uncertainty to consider.
 	
The Group also considered a valuation from its market capitalisation and other market data to determine a Fair Value Less Costs of Disposal ('FVLCD') for the Group.
 	
We focused on the valuation of the goodwill due to its material carrying value, and with regard to the estimation uncertainties arising from the factors set out above.
 	
Refer to Intangible Assets (Note 15), Impairment of Tangible and Intangible Assets (Note 16), Critical Accounting Judgements and Estimates (Note 3) and Significant issues and material judgements in the Audit Committee report.
	Our audit procedures included:
	
	– We obtained management's VIU models and FVLCD analysis. We ensured the calculations were mathematically accurate and that the valuation methodology conformed with the requirements of IAS 36 'Impairment of Assets'.
	
	– For key assumptions made by management in respect of forecast revenue and trading profit growth:
	
	  – We obtained management's supporting evidence such as the approved budgets and 2 year forecasts. We agreed the forecast cash flows and underlying assumptions to these and assessed historical evidence of CGU growth rates. We also challenged the extent to which climate change considerations had been reflected in management's forecast cash flows;
	
	  – We obtained evidence through our own independent research. This included evidence of forecast production and demand levels for the CGU's end customer markets, climate change driven trends and recovery and growth in cyclical end-markets; and
	
	  – We considered market valuation evidence such as current and target share price, as well as other market data such as valuation multiples.
	
	– We utilised internal valuations experts to support our audit procedures over the discount rate and long term growth rate assumptions used in the VIU model and sensitised the impacts of changes in the discount rate within our view of a reasonable range.
	
	– We sensitised key assumptions including, free cash flow average annual growth rate, discount rate and long term growth rate and established the impact of reasonably possible changes to these assumptions. We ensured these sensitivities were appropriately disclosed in accordance with IAS 36, 'Impairment of assets'.
	
	We also instructed our component audit teams to evaluate the appropriateness of management impairment indicator assessments performed within the components and to also assess any material impacts of climate change. Our component teams, under our supervision, did not identify any additional impairments required or inconsistent findings to our Group level assessment in respect of climate change.
	
	Our findings were discussed with the Audit Committee.

Provisions for exposures (Legacy matter lawsuits) (Group) The Group holds a provision for 'Disposal, closure and environmental costs' (which includes provisions relating to legacy matter lawsuits for closed businesses) amounting to £51.9 million (2022: £57.7 million). Determining the quantum of this provision involves modelling and estimation of expected future legal claim periods, volumes, settlement amounts and associated legal costs. We specifically focused on the provision in respect of legacy matter lawsuits due to the material quantum of the provision and the judgement and estimates involved in determining its valuation. Refer to Critical Accounting Judgements and Estimates (Note 3), Provisions (Note 29), Contingent Liabilities (Note 31) and Significant issues and material judgements in the Audit Committee report.	Our audit procedures included: – Obtained management's model of the estimated provision and tested the mathematical accuracy and integrity of this model; – We challenged claims arising, settlements made and expected trends with management's in-house and external legal experts; – We tested the accuracy of historical source data which is used to determine estimates of future trends of claim volumes, types of future claims and settlement amounts and legal costs associated with claims, to supporting claim documentation; and – We utilised our internal valuations expert to support our audit of the key assumptions and to independently determine a reasonable range for the provision estimate based on reasonably possible changes in significant assumptions due to the estimation uncertainty involved. We reviewed the financial statement disclosures for the appropriate disclosure made in relation to significant assumptions. Our findings were discussed with the Audit Committee.

Key audit matter	How our audit addressed the key audit matter
Impairment of investment in subsidiaries (Company) The Company holds investments in subsidiaries with a total carrying amount of £1,778.0 million at 31 December 2023 (2022: £1,778.0 million). IAS 36 'Impairment of assets' requires management to consider whether there are any indicators of impairment in respect of non-financial assets. Due to the quantum of the carrying amount, levels of estimation uncertainty that exist similar to assumptions used in testing for impairment of goodwill (Group) and the market capitalisation of the Group this was an area of focus for the audit of the Company. Consistent with the prior year management performed an impairment test utilising cash flow forecasts used for testing for impairment of the Group's goodwill together with additional considerations of cash flows relevant to the subsidiaries that the Company owns. The judgements and estimates required to determine the cash flow forecasts are aligned with those set out in 'Impairment of goodwill (Group)' above. Refer to Investments (Note 7) and Critical Accounting Judgements and Estimates (Note 3) in the Company financial statements, and Significant issues and material judgements in the Audit Committee report.	Our audit procedures included: – Assessing the results of the VIU model and FVLCD analysis used for the impairment test for goodwill, together with adjustments made to reflect cash inflows to subsidiaries due from the Company. – Testing of the Group VIU model, including procedures performed over management's model and evidence obtained in respect of key assumptions made is set out in Key audit matter 'Impairment of goodwill (Group)'. We also compared the carrying value of the investment in subsidiaries and the Group Value in Use to the market capitalisation and market valuation expectations. Our findings were discussed with the Audit Committee.

How we tailored the audit scope

We tailored the scope of our audit to ensure that we performed enough work to be able to give an opinion on the financial statements as a whole, taking into account the structure of the Group and the Company, the accounting processes and controls, and the industry in which they operate.

The Vesuvius Group (Vesuvius plc (Company) together with its subsidiaries) has operations in 40 countries, including 68 sales offices and has 55 production sites. The Group consolidates financial information through reporting from its components which include divisions and functions at these sites.

Our audit scope was determined by considering the significance of the component's contribution to profit before tax. We also evaluated contribution to revenue and to other individual financial statement line items, with specific consideration to obtaining sufficient coverage over areas of heightened risk and locations.

We identified one component (2022: one) as financially significant in 2023. The audit scope comprised a further 16 components for which we determined that full scope audits would need to be performed and 15 components for which specific audit procedures on certain balances and transactions were performed by either component teams or the Group team. This collectively provided audit coverage of 72% of the Group's revenue and 74% of the Group's profit before tax. This, together with the additional procedures performed at the Group level, including testing the consolidation process, gave us the evidence we needed for our opinion on the financial statements as a whole.

In establishing the overall approach to the Group audit, we determined the type of work that needed to be performed by us, as the Group audit team, or by component auditors (involving experts and specialists where required) in both PwC network firms and other audit firms. Where the work was performed by component auditors, we determined the level of involvement and oversight we needed to have in the audit work at those components to be able to conclude whether sufficient appropriate audit evidence had been obtained as a basis for our opinion on the financial statements as a whole. This was achieved through:

- Issuance of formal instructions and regular communications with the component auditors throughout the audit, including visits to 3 components by senior Group team members;
- Attendance at audit clearance meetings by senior Group team members;
- Interactions with local component management;
- Our direction and supervision of the audit approach and review of audit findings;
- Review of selected audit workpapers of certain in-scope components; and
- Engagement of experts and specialists where required and review of their output.

The Group audit team also performed the audit of the Company and other procedures over those components of the Group not subject to full scope audits.

The impact of climate risk on our audit

The 'Sustainability' section of the Strategic report sets out the Group's climate change risk assessment, the climate related targets set and an evaluation of the potential financial impacts. In planning and executing our audit we considered management's risk assessment and analysis of impacts to the financial statements. We made enquiries of management to understand the process adopted by management to assess the extent of the potential impact of climate related risk and targets established by management on the Group's financial statements and support the disclosures made within the 'Non-financial and sustainability information' section of the Strategic Report and Note 2.6 of the financial statements. Management has made commitments to achieve net zero for the Group's Scope 1 and Scope 2 carbon emissions by 2050 as disclosed in the 'Sustainability' section of the Strategic report of the Annual Report. Management considers the impact of climate risk gives rise to a potential material financial statement impact in the moderate to long term (between 2035 and 2050).

Independent auditors' report to the members of Vesuvius plc continued

We understood the key impacts to the Group could include potential increases in costs from carbon pricing mechanisms, costs and benefits of technology transition in Iron and Steelmaking and the conversion of manufacturing processes to clean energy. This would most likely impact the financial statement line items and estimates associated with future cash flows because the impact of climate change for the Vesuvius Group is expected to become more notable in the medium to long term. We considered the following areas to potentially be materially impacted by climate risk and consequently we focused our audit work in these areas: carrying value and the estimation of useful lives of property, plant and equipment, and goodwill and intangibles, with impairment of goodwill (Group) determined to be a key audit matter for the year ended 31 December 2023.

Additionally, we considered the consistency of the disclosures in relation to climate change (including the disclosures in the Task Force on Climate-related Financial Disclosures (TCFD) related reporting within the 'Sustainability' section of the Strategic report, with the financial statements and our knowledge obtained from our audit. This included considering whether the assumptions made by management in the TCFD scenario analysis are consistent with the assumptions used elsewhere in the financial statements.

We have not noted any issues as part of this work which contradict the disclosures in the Annual Report or materially impact the financial statements, or our key audit matters for the year ended 31 December 2023.

Materiality

The scope of our audit was influenced by our application of materiality. We set certain quantitative thresholds for materiality. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and in evaluating the effect of misstatements, both individually and in aggregate on the financial statements as a whole.

Based on our professional judgement, we determined materiality for the financial statements as a whole as follows:

	Financial statements – Group	Financial statements – Company
Overall materiality	£8.5 million (2022: £10.3 million).	£8.5 million (2022: £10.3 million).
How we determined it	5.0% of 3 year average of profit before tax (2022: based on approximately 4.7% of profit before tax and separately reported items 'headline profit before tax')	1.0% of total assets, capped at the level of overall Group materiality.
Rationale for benchmark applied	We believe that profit before tax provides us with an appropriate basis for determining our overall Group audit materiality given it is a key measure for users of the financial statements. We have applied 5.0% to a 3 year average profit before tax to take into consideration the fluctuation in results over the past 3 years.	We believe that total assets is an appropriate basis for determining materiality for the Company, given this entity is an investment holding Company and this is an accepted audit benchmark. The materiality was capped to the level of Group overall materiality. The Company is not an in-scope component for our Group audit. (2022: 1.0% of total assets, capped at the level of overall Group materiality).

For each component in the scope of our Group audit, we allocated a materiality that is less than our overall Group materiality. The range of materiality allocated across components was £0.7 million and £6.0 million. Certain components were audited to a local statutory audit materiality that was also less than our overall Group materiality.

We use performance materiality to reduce to an appropriately low level the probability that the aggregate of uncorrected and undetected misstatements exceeds overall materiality. Specifically, we use performance materiality in determining the scope of our audit and the nature and extent of our testing of account balances, classes of transactions and disclosures, for example in determining sample sizes. Our performance materiality was 75.0% (2022: 75.0%) of overall materiality, amounting to £6.4 million (2022: £7.7 million) for the Group financial statements and £6.4 million (2022: £7.7 million) for the Company financial statements.

In determining the performance materiality, we considered a number of factors – the history of misstatements, risk assessment and aggregation risk and the effectiveness of controls - and concluded that an amount at the upper end of our normal range was appropriate.

We agreed with the Audit Committee that we would report to them misstatements identified during our audit above £425,000 (Group audit) (2022: £515,000) and £425,000 (Company audit) (2022: £515,000) as well as misstatements below those amounts that, in our view, warranted reporting for qualitative reasons.

Conclusions relating to going concern

Our evaluation of the directors' assessment of the Group's and the Company's ability to continue to adopt the going concern basis of accounting included:

- Evaluating management's base case and severe but plausible downside case for liquidity and available financial resources and obtaining supporting evidence for key assumptions. This included agreeing the underlying cash flow projections to the Board approved forecast, assessing how these forecasts were compiled and assessing the historical accuracy of the forecasts. We also evaluated current performance and available financing facilities and related liquidity headroom;
- Checking management's covenant calculations to ensure that the covenant thresholds and definitions were consistent with the financing agreements;
- Testing the accuracy of cash flow models used to assess available liquidity during the going concern period disclosed;
- Determining alternative sensitivity scenarios to ascertain the impact of changes in assumptions. These included scaling back forecasts and increasing working capital as a percentage of forecast revenue; and
- Reading management's disclosures in the financial statements and relevant 'other information' in the Annual Report, and assessing consistency with the financial statements and our knowledge based on our audit.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the Group's and the Company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

In auditing the financial statements, we have concluded that the directors' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

However, because not all future events or conditions can be predicted, this conclusion is not a guarantee as to the Group's and the Company's ability to continue as a going concern.

In relation to the directors' reporting on how they have applied the UK Corporate Governance Code, we have nothing material to add or draw attention to in relation to the directors' statement in the financial statements about whether the directors considered it appropriate to adopt the going concern basis of accounting.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report.

Reporting on other information

The other information comprises all of the information in the Annual Report other than the financial statements and our auditors' report thereon. The directors are responsible for the other information. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except to the extent otherwise explicitly stated in this report, any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If we identify an apparent material inconsistency or material misstatement, we are required to perform procedures to conclude whether there is a material misstatement of the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report based on these responsibilities.

With respect to the Strategic report and Directors' report, we also considered whether the disclosures required by the UK Companies Act 2006 have been included.

Based on our work undertaken in the course of the audit, the Companies Act 2006 requires us also to report certain opinions and matters as described below.

Strategic report and Directors' report

In our opinion, based on the work undertaken in the course of the audit, the information given in the Strategic report and Directors' report for the year ended 31 December 2023 is consistent with the financial statements and has been prepared in accordance with applicable legal requirements.

In light of the knowledge and understanding of the Group and Company and their environment obtained in the course of the audit, we did not identify any material misstatements in the Strategic report and Directors' report.

Directors' Remuneration

In our opinion, the part of the Directors' Remuneration Report to be audited has been properly prepared in accordance with the Companies Act 2006.

Independent auditors' report to the members of Vesuvius plc continued

Corporate governance statement

The Listing Rules require us to review the directors' statements in relation to going concern, longer-term viability and that part of the corporate governance statement relating to the Company's compliance with the provisions of the UK Corporate Governance Code specified for our review. Our additional responsibilities with respect to the corporate governance statement as other information are described in the Reporting on other information section of this report.

Based on the work undertaken as part of our audit, we have concluded that each of the following elements of the corporate governance statement is materially consistent with the financial statements and our knowledge obtained during the audit, and we have nothing material to add or draw attention to in relation to:

- The directors' confirmation that they have carried out a robust assessment of the emerging and principal risks;
- The disclosures in the Annual Report that describe those principal risks, what procedures are in place to identify emerging risks and an explanation of how these are being managed or mitigated;
- The directors' statement in the financial statements about whether they considered it appropriate to adopt the going concern basis of accounting in preparing them, and their identification of any material uncertainties to the Group's and Company's ability to continue to do so over a period of at least twelve months from the date of approval of the financial statements;
- The directors' explanation as to their assessment of the Group's and Company's prospects, the period this assessment covers and why the period is appropriate; and
- The directors' statement as to whether they have a reasonable expectation that the Company will be able to continue in operation and meet its liabilities as they fall due over the period of its assessment, including any related disclosures drawing attention to any necessary qualifications or assumptions.

Our review of the directors' statement regarding the longer-term viability of the Group and Company was substantially less in scope than an audit and only consisted of making inquiries and considering the directors' process supporting their statement; checking that the statement is in alignment with the relevant provisions of the UK Corporate Governance Code; and considering whether the statement is consistent with the financial statements and our knowledge and understanding of the Group and Company and their environment obtained in the course of the audit.

In addition, based on the work undertaken as part of our audit, we have concluded that each of the following elements of the corporate governance statement is materially consistent with the financial statements and our knowledge obtained during the audit:

- The directors' statement that they consider the Annual Report, taken as a whole, is fair, balanced and understandable, and provides the information necessary for the members to assess the Group's and Company's position, performance, business model and strategy;
- The section of the Annual Report that describes the review of effectiveness of risk management and internal control systems; and
- The section of the Annual Report describing the work of the Audit Committee.

We have nothing to report in respect of our responsibility to report when the directors' statement relating to the Company's compliance with the Code does not properly disclose a departure from a relevant provision of the Code specified under the Listing Rules for review by the auditors.

Responsibilities for the financial statements and the audit

Responsibilities of the directors for the financial statements

As explained more fully in the Statement of Directors' Responsibilities, the directors are responsible for the preparation of the financial statements in accordance with the applicable framework and for being satisfied that they give a true and fair view. The directors are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group or the Company or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below.

Based on our understanding of the Group and industry, we identified that the principal risks of non-compliance with laws and regulations related to international trade restrictions, health and safety, environmental, anti-bribery, relevant employment laws and data protection legislation, and we considered the extent to which non-compliance might have a material effect on the financial statements. We also considered those laws and regulations that have a direct impact on the financial statements such as Companies Act 2006, tax legislation and Listing Rules of the Financial Conduct Authority (FCA). We evaluated management's incentives and opportunities for fraudulent manipulation of the financial statements (including the risk of override of controls), and determined that the principal risks were related to posting inappropriate journal entries and management bias in accounting estimates. The Group engagement team shared this risk assessment with the component auditors so that they could include appropriate audit procedures in response to such risks in their work. Audit procedures performed by the Group engagement team and/or component auditors included:

- Inquiries of Group and local management, those charged with governance, internal audit and the Group's legal counsel (internal and, where relevant, external), including consideration of known or suspected instances of non-compliance with laws and regulations and fraud;
- Evaluating items raised through the Group's whistle-blowing arrangements and the results of management's investigation of such matters;
- Inspecting management reports and Board minutes in relation to health and safety and other compliance matters;
- Reading and assessing key correspondence with regulatory authorities;
- Testing assumptions and judgements made by management in their critical accounting estimates, in particular relating to impairment of goodwill (Group), provisions for exposures (Legacy matter lawsuits) (Group) and impairment of investment in subsidiaries (Company) (see related key audit matters section of this report); and
- Identifying and testing journal entries, in particular any journal entries posted with unusual account combinations including in respect of journals posted to revenue.

There are inherent limitations in the audit procedures described above. We are less likely to become aware of instances of non-compliance with laws and regulations that are not closely related to events and transactions reflected in the financial statements. Also, the risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error, as fraud may involve deliberate concealment by, for example, forgery or intentional misrepresentations, or through collusion.

Our audit testing might include testing complete populations of certain transactions and balances, possibly using data auditing techniques. However, it typically involves selecting a limited number of items for testing, rather than testing complete populations. We will often seek to target particular items for testing based on their size or risk characteristics. In other cases, we will use audit sampling to enable us to draw a conclusion about the population from which the sample is selected.

A further description of our responsibilities for the audit of the financial statements is located on the FRC's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditors' report.

Use of this report

This report, including the opinions, has been prepared for and only for the Company's members as a body in accordance with Chapter 3 of Part 16 of the Companies Act 2006 and for no other purpose. We do not, in giving these opinions, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

Other required reporting

Companies Act 2006 exception reporting

Under the Companies Act 2006 we are required to report to you if, in our opinion:

- we have not obtained all the information and explanations we require for our audit; or
- adequate accounting records have not been kept by the Company, or returns adequate for our audit have not been received from branches not visited by us; or
- certain disclosures of directors' remuneration specified by law are not made; or
- the Company financial statements and the part of the Directors' Remuneration Report to be audited are not in agreement with the accounting records and returns; or
- a corporate governance statement has not been prepared by the Company.

We have no exceptions to report arising from this responsibility.

Appointment

Following the recommendation of the Audit Committee, we were appointed by the members on 10 May 2017 to audit the financial statements for the year ended 31 December 2017 and subsequent financial periods. The period of total uninterrupted engagement is 7 years, covering the years ended 31 December 2017 to 31 December 2023.

Other matter

As required by the Financial Conduct Authority Disclosure Guidance and Transparency Rule 4.1.14R, these financial statements form part of the ESEF-prepared annual financial report filed on the National Storage Mechanism of the Financial Conduct Authority in accordance with the ESEF Regulatory Technical Standard ('ESEF RTS'). This auditors' report provides no assurance over whether the annual financial report has been prepared using the single electronic format specified in the ESEF RTS.

Darryl Phillips (Senior Statutory Auditor)
for and on behalf of PricewaterhouseCoopers LLP
Chartered Accountants and Statutory Auditors
London
28 February 2024

Financial Statements

Group Income Statement

For the year ended 31 December 2023

		2023			2022		
	Note(s)	Headline performance[1] £m	Separately reported items[1] £m	Total £m	Headline performance[1] £m	Separately reported items[1] £m	Total £m
Revenue	4, 35	**1,929.8**	**–**	**1,929.8**	2,047.4	–	2,047.4
Manufacturing costs		**(1,391.9)**	**–**	**(1,391.9)**	(1,475.9)	–	(1,475.9)
Administration, selling and distribution costs		**(337.5)**	**–**	**(337.5)**	(344.3)	–	(344.3)
Trading profit[2]	4	**200.4**	**–**	**200.4**	227.2	–	227.2
Amortisation of acquired intangible assets	15	**–**	**(10.3)**	**(10.3)**	–	(10.4)	(10.4)
Operating profit	5	**200.4**	**(10.3)**	**190.1**	227.2	(10.4)	216.8
Finance expense	8	**(28.2)**	**–**	**(28.2)**	(20.8)	–	(20.8)
Finance income	8	**16.6**	**–**	**16.6**	9.4	–	9.4
Net finance costs	8	**(11.6)**	**–**	**(11.6)**	(11.4)	–	(11.4)
Share of post-tax profit of joint ventures and associates	32	**0.9**	**–**	**0.9**	1.2	–	1.2
Profit before tax		**189.7**	**(10.3)**	**179.4**	217.0	(10.4)	206.6
Income tax charge	9	**(51.9)**	**3.1**	**(48.8)**	(57.2)	39.1	(18.1)
Profit after tax		**137.8**	**(7.2)**	**130.6**	159.8	28.7	188.5
Profit attributable to:							
Owners of the Parent	10	**125.7**	**(7.2)**	**118.5**	152.4	28.7	181.1
Non-controlling interests		**12.1**	**–**	**12.1**	7.4	–	7.4
Profit after tax		**137.8**	**(7.2)**	**130.6**	159.8	28.7	188.5
Earnings per share – pence	10						
Total operations – basic				**44.0**			67.2
– diluted				**43.6**			66.7

1. Headline performance and Separately reported items are non-GAAP measures. Headline performance is defined in Note 35.1 and separately reported items is defined in Note 2.5.
2. Trading profit is a non-GAAP measure and is defined in Note 35.4.

The above results were derived from continuing operations. Manufacturing costs are costs of goods sold. The pre-tax separately reported items would form part of Administration, selling and distribution costs if classified within headline performance, which including these amounts would total £347.8m (2022: £354.7m).

Group Statement of Comprehensive Income

For the year ended 31 December 2023

	Note	2023 £m	2022 £m
Profit		**130.6**	188.5
Items that will not subsequently be reclassified to Income Statement			
Remeasurement of defined benefit liabilities/assets	25.6	**8.4**	27.4
Income tax relating to items not reclassified	9.4	**(2.0)**	(8.2)
Items that may subsequently be reclassified to Income Statement			
Exchange differences on translation of the net assets of foreign operations		**(84.3)**	96.7
Exchange differences on translation of net investment hedges	22	**7.9**	(20.7)
Net change in costs of hedging		**0.4**	–
Change in the fair value of the hedging instrument		**(4.2)**	8.3
Amounts reclassified from Net finance costs		**3.5**	(7.5)
Other comprehensive (loss)/income, net of income tax		**(70.3)**	96.0
Total comprehensive income		**60.3**	284.5
Total comprehensive income attributable to:			
Owners of the Parent		**51.7**	276.5
Non-controlling interests		**8.6**	8.0
Total comprehensive income		**60.3**	284.5

The above results were derived from continuing operations.

Group Statement of Cash Flows

For the year ended 31 December 2023

	Note(s)	2023 £m	2022 £m
Cash flows from operating activities			
Cash generated from operations	11	**272.0**	268.3
Interest paid		**(16.8)**	(15.6)
Interest received		**14.1**	6.3
Income taxes paid		**(52.8)**	(47.9)
Net cash inflow from operating activities		**216.5**	211.1
Cash flows from investing activities			
Capital expenditure		**(92.6)**	(89.2)
Proceeds from the sale of property, plant and equipment		**5.4**	3.1
Acquisition of subsidiaries and joint ventures, net of cash acquired	19	**–**	(3.5)
Dividends received from joint ventures		**1.0**	1.3
Net cash outflow from investing activities		**(86.2)**	(88.3)
Net cash inflow before financing activities		**130.3**	122.8
Cash flows from financing activities			
Proceeds from borrowings	13	**–**	18.7
Repayment of borrowings	13	**(37.1)**	(41.1)
Payment of lease liabilities	13, 28	**(24.2)**	(14.6)
Purchase of ESOP shares	21	**(1.1)**	(6.9)
Share buyback		**(3.1)**	–
Dividends paid to equity shareholders	23	**(60.7)**	(58.1)
Dividends paid to non-controlling shareholders		**(2.1)**	(3.2)
Net cash outflow from financing activities		**(128.3)**	(105.2)
Net increase in cash and cash equivalents	13	**2.0**	17.6
Cash and cash equivalents at 1 January		**179.8**	162.4
Effect of exchange rate fluctuations on cash and cash equivalents	13	**(21.0)**	(0.2)
Cash and cash equivalents at 31 December	12	**160.8**	179.8

Alternative performance measure (non-statutory):

	Notes	2023 £m	2022 £m
Free cash flow	35.11		
Net cash inflow from operating activities		**216.5**	211.1
Capital expenditure		**(92.6)**	(89.2)
Proceeds from the sale of property, plant and equipment		**5.4**	3.1
Dividends received from joint ventures		**1.0**	1.3
Dividends paid to non-controlling shareholders		**(2.1)**	(3.2)
Free cash flow[1]	35.11	**128.2**	123.1

1. For definitions of alternative performance measures, refer to Note 35.

Group Balance Sheet

As at 31 December 2023

	Note	2023 £m	2022 £m
Assets			
Property, plant and equipment	14	**460.8**	417.6
Intangible assets	15	**706.0**	737.5
Employee benefits – surpluses	25	**34.6**	26.2
Interests in joint ventures and associates	32	**11.3**	13.0
Investments	24	**0.3**	0.5
Deferred tax assets	9	**114.6**	110.6
Other receivables	17	**26.8**	33.7
Derivative financial instruments	24	**0.6**	2.7
Total non-current assets		**1,355.0**	1,341.8
Cash and short-term deposits	12	**164.2**	184.2
Inventories	18	**291.0**	316.0
Trade and other receivables	17	**460.5**	476.9
Income tax receivable	9	**11.5**	15.3
Derivative financial instruments	24	**–**	0.1
Total current assets		**927.2**	992.5
Total assets		**2,282.2**	2,334.3
Equity			
Issued share capital	20	**27.7**	27.8
Retained earnings	21	**2,691.2**	2,623.8
Other reserves	22	**(1,464.6)**	(1,391.4)
Equity attributable to the owners of the Parent		**1,254.3**	1,260.2
Non-controlling interests		**65.9**	59.4
Total equity		**1,320.2**	1,319.6
Liabilities			
Interest-bearing borrowings	24	**326.4**	327.2
Employee benefits – liabilities	25	**80.9**	82.3
Other payables	27	**9.1**	13.8
Provisions	29	**47.6**	49.3
Deferred tax liabilities	9	**23.5**	11.9
Derivative financial instruments	24	**–**	–
Total non-current liabilities		**487.5**	484.5
Interest-bearing borrowings	24	**75.8**	114.7
Trade and other payables	27	**377.8**	378.4
Income tax payable	9	**9.8**	19.6
Provisions	29	**11.0**	17.4
Derivative financial instruments	24	**0.1**	0.1
Total current liabilities		**474.5**	530.2
Total liabilities		**962.0**	1,014.7
Total equity and liabilities		**2,282.2**	2,334.3

Company number 8217766

The Financial Statements on pages 153 to 210 were approved and authorised for issue by the Directors on 28 February 2024 and signed on their behalf by:

Patrick André
Chief Executive

Mark Collis
Chief Financial Officer

Group Statement of Changes in Equity

For the year ended 31 December 2023

	Issued share capital £m	Other reserves £m	Retained earnings £m	Owners of the Parent £m	Non-controlling interests £m	Total equity £m
As at 1 January 2022	**27.8**	**(1,467.6)**	**2,483.4**	**1,043.6**	**54.6**	**1,098.2**
Profit	**–**	**–**	**181.1**	**181.1**	**7.4**	**188.5**
Remeasurement of defined benefit liabilities/assets	–	–	27.4	27.4	–	27.4
Income tax relating to items not reclassified	–	–	(8.2)	(8.2)	–	(8.2)
Exchange differences on translation of the net assets of foreign operations	–	96.1	–	96.1	0.6	96.7
Exchange differences on translation of net investment hedges	–	(20.7)	–	(20.7)	–	(20.7)
Net change in costs of hedging	–	–	–	–	–	–
Change in the fair value of the hedging instrument	–	8.3	–	8.3	–	8.3
Amounts reclassified from the Income Statement	–	(7.5)	–	(7.5)	–	(7.5)
Other comprehensive income net of income tax	**–**	**76.2**	**19.2**	**95.4**	**0.6**	**96.0**
Total comprehensive income	**–**	**76.2**	**200.3**	**276.5**	**8.0**	**284.5**
Recognition of share-based payments	–	–	5.1	5.1	–	5.1
Purchase of ESOP shares	–	–	(6.9)	(6.9)	–	(6.9)
Dividends paid (Note 23)	–	–	(58.1)	(58.1)	(3.2)	(61.3)
Total transactions with owners	**–**	**–**	**(59.9)**	**(59.9)**	**(3.2)**	**(63.1)**
As at 31 December 2022	**27.8**	**(1,391.4)**	**2,623.8**	**1,260.2**	**59.4**	**1,319.6**
As at 1 January 2023	**27.8**	**(1,391.4)**	**2,623.8**	**1,260.2**	**59.4**	**1,319.6**
Profit	**–**	**–**	**118.5**	**118.5**	**12.1**	**130.6**
Remeasurement of defined benefit liabilities/assets	–	–	8.4	8.4	–	8.4
Income tax relating to items not reclassified	–	–	(2.0)	(2.0)	–	(2.0)
Exchange differences on translation of the net assets of foreign operations	–	(80.8)	–	(80.8)	(3.5)	(84.3)
Exchange differences on translation of net investment hedges	–	7.9	–	7.9	–	7.9
Net change in costs of hedging	–	0.4	–	0.4	–	0.4
Change in the fair value of the hedging instrument	–	(4.2)	–	(4.2)	–	(4.2)
Amounts reclassified from Net finance costs	–	3.5	–	3.5	–	3.5
Other comprehensive income/(loss) net of income tax	**–**	**(73.2)**	**6.4**	**(66.8)**	**(3.5)**	**(70.3)**
Total comprehensive income/(loss)	**–**	**(73.2)**	**124.9**	**51.7**	**8.6**	**60.3**
Recognition of share-based payments	–	–	7.3	7.3	–	7.3
Purchase of ESOP shares	–	–	(1.1)	(1.1)	–	(1.1)
Share buyback	(0.1)	–	(3.0)	(3.1)	–	(3.1)
Dividends paid (Note 23)	–	–	(60.7)	(60.7)	(2.1)	(62.8)
Total transactions with owners	**(0.1)**	**–**	**(57.5)**	**(57.6)**	**(2.1)**	**(59.7)**
As at 31 December 2023	**27.7**	**(1,464.6)**	**2,691.2**	**1,254.3**	**65.9**	**1,320.2**

Notes to the Group Financial Statements

1. General Information

Vesuvius plc ('Vesuvius' or 'the Company') is a public company limited by shares. It is incorporated and domiciled in England and Wales, United Kingdom, and listed on the London Stock Exchange. The nature of the operations and principal activities of the Company and its subsidiary and joint venture companies ('the Group') is set out in the Strategic Report on pages 1 to 78. The address of its registered office is 165 Fleet Street, London EC4A 2AE.

2. Basis of Preparation

2.1 Basis of accounting

The Group financial statements have been prepared in accordance with UK-adopted international accounting standards (IFRS) and with the requirements of the Companies Act 2006 as applicable to companies reporting under those standards. The financial statements have been prepared under the historical cost convention, with the exception of fair value measurement applied to defined benefit pension plans, investments and derivative financial instruments.

2.2 Basis of consolidation

The Group financial statements incorporate the financial statements of the Company and entities controlled directly and indirectly by the Company (its 'subsidiaries'). Control exists when the Company has the power to direct the relevant activities of an entity that significantly affect the entity's return so as to have rights to the variable return from its activities. In assessing whether control exists, potential voting rights that are currently exercisable are taken into account. The results of subsidiaries acquired or disposed of during the year are included in the Group Income Statement from the effective date of acquisition or up to the effective date of disposal, as appropriate.

The principal accounting policies applied in the preparation of these Group financial statements are set out in the Notes. These policies have been consistently applied to all of the years presented, unless otherwise stated. Where necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with those detailed herein to ensure that the Group financial statements are prepared on a consistent basis. All intra-Group transactions, balances, income and expenses are eliminated on consolidation.

Non-controlling interests in the net assets of consolidated subsidiaries are identified separately from the Group's interest therein. Non-controlling interests consist of the amount of those interests at the date of the original business combination together with the non-controlling interests' share of profit or loss, each component of other comprehensive income, less dividends paid since the date of the combination. Total comprehensive income is attributed to the non-controlling interests, even if this results in the non-controlling interests having a deficit balance.

2.3 Going concern

The Group's available committed liquidity stood at £488m at year-end 2023, down from £494m at year-end 2022. The Directors have prepared cash flow forecasts for the Group for the period to 30 June 2025. These forecasts reflect an assessment of current and future end-market conditions, which are expected to be challenging in 2024 and to recover thereafter, (as set out in the 'outlook' statement in the Chief Executive's Strategic Review in this document), and their impact on the Group's future trading performance.

The Directors have also considered a severe but plausible downside scenario, based on an assumed volume decline and loss of profitability over the period. This downside scenario assumes:

- a reduction in trading profit by 35%, equating to £70m in both 2024 and 2025 relative to 2023. This is through an assumed decline in revenue of 4% and a reduction in the Return on Sales margin by 3.3%, from 10.4% to 7.1 %, and;
- working capital as a percentage of sales deteriorating by 0.6% compared to 2023.

The Group has two covenants; net debt/EBITDA (under 3.25x) and an interest cover requirement of at least 4.0x. In this downside scenario, the forecasts show that the Group's maximum net debt/EBITDA (pre-IFRS 16 in-line with the covenant calculation) does not exceed 1.6x, compared to a leverage covenant of 3.25x, and the minimum interest cover reached is 18x compared to a covenant minimum of 4x.

The forecasts show that the Group will be able to operate within the current committed debt facilities and show continued compliance with the Company's financial covenants. On the basis of the exercise described above and the Group's available committed debt facilities, the Directors consider that the Group and the Company have adequate resources to continue in operational existence for a period of at least 12 months from the date of signing of these financial statements and that there is no material uncertainty in respect of going concern. Accordingly, they continue to adopt a going concern basis in preparing the financial statements of the Group and the Company.

2.4 Functional and presentation currency

The financial statements are presented in millions of pounds sterling, which is the functional currency of the Company, and rounded to one decimal place. Foreign operations are included in accordance with the policies set out in Note 24.1.

2. Basis of Preparation continued

2.5 Disclosure of separately reported items

Columnar presentation

The Group has adopted a columnar presentation for its Group Income Statement, to separately identify headline performance results, as the Directors consider that this gives a useful view of the core results of the ongoing business. As part of this presentation format, the Group has adopted a policy of disclosing separately on the face of its Group Income Statement, within the column entitled 'Separately reported items', the effect of any components of financial performance for which the Directors consider separate disclosure would assist users both in a useful understanding of the financial performance achieved for a given year and in making projections of future results.

Separately reported items

Both materiality and the nature of the components of income and expense are considered in deciding upon such presentation. Such items may include, inter alia, the financial effect of exceptional items which occur infrequently, such as major restructuring activity (which may require more than one year to complete), significant movement in the Group's deferred tax balances, such as that caused by the material recognition of previously unrecognised deferred tax assets, items reported separately for consistency, such as amortisation charges relating to acquired intangible assets, profits or losses arising on the disposal of continuing or discontinued operations and the taxation impact of the aforementioned items reported separately.

The amortisation charge in respect of intangible assets recognised on business combinations is excluded from the trading results of the Group since they are non-cash charges and are not considered reflective of the core trading performance of the Group.

In its adoption of this policy, the Company applies an even-handed approach to both gains and losses and aims to be both consistent and clear in its accounting and disclosure of such items.

2.6 Consideration of climate change

As well as considering the implications of climate change on the Group's operations and activities, the Directors have considered the impact on the financial statements in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. In preparing the financial statements, we have considered the impact of climate change, particularly in the context of the disclosures included in the Sustainability Report this year.

Further detail on our sustainability and climate change-based management incentives is included in the Board oversight section of our Sustainability Report.

Climate change is not considered to have a material impact on the Group's financial reporting judgements and estimates, nor is it expected to have a detrimental impact on the viability of the Group in the medium term.

Specifically, we note that we have considered the impact of climate change on the carrying value and the estimation of useful lives of property, plant and equipment (see Note 14) and goodwill and intangibles (see Note 15). The impact of climate change on impairment of goodwill is disclosed in Note 15.2.

2.7 Changes in accounting policies

There have been no changes in accounting policies during the year.

2.8 New and revised IFRS

Certain new accounting standards and interpretations have been published that are not mandatory for 31 December 2023 reporting periods and have not been early adopted by the Group. The Group's assessment of the impact of these new standards and interpretations is that they are not expected to have a significant impact on the Group's financial position, performance, cash flows and disclosures.

IFRS 17 Insurance Contracts

This standard replaces IFRS 4, which currently permits a wide variety of practices in accounting for insurance contracts. The Group has assessed the impact of IFRS 17 Insurance Contracts to ensure compliance. It does not have a material impact on the financial statements and no additional disclosures are required.

OECD Pillar 2 model

On 19 July 2023, the UK Endorsement Board adopted the Amendments to IAS 12 International Tax Reform: Pillar 2 Model Rules, issued by the IASB in May 2023. The Amendments introduce a temporary mandatory exception from accounting for deferred taxes arising from the Pillar 2 model rules and the Group has applied this exception to recognising and disclosing information about deferred tax assets and liabilities related to Pillar 2 income taxes.

Notes to the Group Financial Statements continued

3. Critical Accounting Judgements and Estimates

Determining the carrying amount of some assets and liabilities and amounts recognised as reported profit requires judgement and/or estimation of the effect of uncertain future events. The major sources of judgement and estimation uncertainty that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities and amounts recognised as reported profit are noted below. As part of the evaluation of critical accounting judgements and key sources of estimation uncertainty, the Group has considered the implications of climate change on its operations and activities. All other accounting policies are included within the respective Notes to the Financial Statements.

3.1 Separately reported items (judgement)

In accordance with IAS 1, the Group has adopted a policy of disclosing separately on the face of its Group Income Statement, within the column entitled 'Separately reported items', the effect of any components of financial performance for which the Directors consider separate disclosure would assist both in a useful understanding of the financial performance achieved for a given year and in making projections of future results. The judgement considers both materiality and the nature of the components of income and expense in deciding upon such presentation. Such items may include, inter alia, the financial effect of exceptional items which occur infrequently, such as major restructuring activity, and items reported separately for consistency, such as amortisation charges relating to acquired intangible assets, profits or losses arising on the disposal of continuing or discontinued operations and the taxation impact of the aforementioned exceptional items and other items reported separately.

3.2 Deferred tax asset recognition (judgement and estimate)

The level of deferred tax recognised is dependent on subjective judgements as to the interpretation of complex international tax regulations together with the ability of the Group to utilise tax attributes within the time limits imposed by the relevant tax legislation. The value of deferred tax assets and liabilities is an area involving inherent uncertainty and estimation and balances are therefore subject to risk of change as a result of underlying assumptions and judgements. In recognising deferred tax assets, the Group considers the future profitability based upon approved budgets and business plans, and the Group models proportionate increases and decreases in relation to future income to determine future deferred tax recoverability. It is impractical to disclose the extent of the possible effects of profitability assumptions on the Group's deferred tax assets. It is reasonably possible that to the extent that actual outcomes differ from management's estimates, material income tax charges or credits, and changes in current and deferred tax assets or liabilities, may arise within the next financial years and in future periods.

3.3 Reportable segments for continuing operations (judgement)

The Group's operating segments are determined taking into consideration how the Group's components are reported to the Group's Chief Executive, who makes the key operating decisions and is responsible for allocating resources and assessing performance of the component. Taking into account the Group's management and internal reporting structure, the operating segments are Steel Flow Control, Steel Advanced Refractories, Steel Sensors & Probes, and the Foundry Division. The principal activities of each of these segments are described in the Strategic Report.

The Steel Flow Control, Steel Advanced Refractories, and Steel Sensors & Probes operating segments are aggregated into the Steel reportable segment. In determining that aggregation is appropriate, judgement is applied which takes into account the economic characteristics of these operating segments, which include a similar nature of products, customers, production processes and margins.

3.4 Employee benefits (estimate)

The Group's financial statements include the costs and obligations associated with the provision of pension and other post-retirement benefits to current and former employees. It is the Directors' responsibility to set the assumptions used in determining the key elements of the costs of meeting such future obligations. These assumptions are set after consultation with the Group's actuaries and include those used to determine regular service costs and the financing elements related to the plans' assets and liabilities. Whilst the Directors believe that the assumptions used are appropriate, a change in the assumptions could affect the Group's profit and financial position. The pension obligations are most sensitive to a change in the discount rate and mortality assumptions and therefore could materially change in the next financial year if the discount rate changes significantly. Sensitivity disclosures are included in Note 25.3.

3. Critical Accounting Judgements and Estimates continued

3.5 Impairment testing of goodwill (estimate)

Determining whether goodwill is impaired requires an estimation of the recoverable amount, which is the higher of value in use and fair value less cost to sell, of the cash-generating units to which these assets have been allocated. The value in use calculation requires estimation of future cash flows expected to arise for the cash-generating unit, the selection of suitable discount rates and the estimation of long-term growth rates. As determining such assumptions is inherently uncertain and subject to future factors, there is the potential these may differ in subsequent periods and therefore materially change the conclusions reached. In light of this, consideration is made each year as to whether sensitivity disclosures are required for reasonably possible changes to assumptions. Sensitivity disclosures are included in Note 16.2.

3.6 Provisions (judgement and estimate)

Vesuvius has extensive international operations and is subject to various legal and regulatory regimes, including those covering taxation and environmental matters. Some of the Group's subsidiaries are parties to legacy matter and other lawsuits, certain of which are insured claims, which have arisen in the ordinary course of the operations of the company involved. Some of these provisions relate to businesses that are closed or have been disposed of. Provisions are made for the expected amounts payable in respect of known or probable costs resulting both from these third-party lawsuits or other regulatory requirements. To the extent insurance is in place, an asset is recognised in other receivables in respect of associated insurance reimbursements.

As the resolution of many of the potential obligations for which provision is made is subject to legal or other regulatory process, it requires estimation of the timing, quantum and amount of associated outflows, which are subject to some uncertainty. The Directors use their judgement, using historical evidence, current information and expert experience, to determine whether to recognise a provision, and make appropriate estimates of provisions in the financial statements for amounts relating to such matters. Assessment of claim costs is considered to be a critical estimate. Associated assets for insurance recoverable are recognised, which involves assessing the likelihood of insurance being paid, which is a critical judgement. The Directors have considered the available cover and the historical evidence to determine whether this is virtually certain. Estimating the amount of provisions and insurance receivable is subject to estimation uncertainty. See Note 29 for further information.

In 2019 there was a significant increase in the volume of water run-off at a disused property in the US. Charges related to remediation and unavoidable associated and ongoing running costs were recorded as a provision in 2020. The Directors use their judgement to determine the period for which these unavoidable and ongoing running costs will continue to be incurred. Estimating the amount of provision required is therefore subject to estimation uncertainty.

4. Segment Information

The segment information contained in this Note refers to several alternative performance measures, definitions of which can be found in Note 35. The Group has considered climate change in making segmental and revenue disclosures. Opportunities and risks for the reported segments are further explained in the Sustainability section.

4.1 Business segments

Operating segments for continuing operations

The Group's operating segments are determined taking into consideration how the Group's components are reported to the Group's Chief Executive, who makes the key operating decisions and is responsible for allocating resources and assessing performance of the component. Taking into account the Group's management and internal reporting structure, the operating segments are Steel Flow Control, Steel Advanced Refractories, Steel Sensors & Probes, and the Foundry Division. The principal activities of each of these segments are described in the Strategic Report.

The Steel Flow Control, Steel Advanced Refractories, and Steel Sensors & Probes operating segments are aggregated into the Steel reportable segment. In determining that aggregation is appropriate, judgement is applied which takes into account the economic characteristics of these operating segments which include a similar nature of products, customers, production processes and margins.

Segment revenue represents revenue from external customers (inter-segment revenue is not material). Trading profit includes items directly attributable to a segment as well as those items that can be allocated on a reasonable basis.

4.2 Accounting policy – revenue recognition

The Group derives all of its revenue from contracts with customers. The Group enters into contracts to provide one or multiple products to customers in the steel, foundry and other industries globally.

Revenue recognition at a point in time

Where the Group provides consumable products only, one performance obligation is present. The performance obligation is to deliver consumables to the customer and is satisfied upon delivery of these items. Similarly, where a contract is for the supply of standard equipment, there is one performance obligation and revenue is primarily recognised at a point in time, being upon delivery of these items. The form of a contract is typically a purchase order from a customer.

Notes to the Group Financial Statements continued

4. Segment Information continued

4.2 Accounting policy – revenue recognition continued

Revenue recognition at a point in time continued

The Group also enters into some contracts with customers in the steel industry under which it primarily provides consumable items, but also equipment and/or technical assistance ('service contracts') to facilitate these customers' steel production processes.

The customer benefits from the combined output of these contracts, being the use of Vesuvius consumables, equipment and technicians to support the customer's production of steel. The individual elements of these contracts are not distinct because Vesuvius is compensated by the efficient use of refractory material, optimised through a combination of the consumable itself and its application by experienced technicians. The performance obligations are therefore bundled into a single performance obligation and Revenue is recognised at a point in time, on confirmation of steel production volume by customers.

Approximately 86% (2022: 87%) of the aforementioned revenue relates to the sale of consumables and equipment only. Approximately 14% (2022: 13%) of revenue relates to contracts that contain multiple performance obligations, which are bundled into a single performance obligation and revenue is recognised over the course of the contract as the customer consumes and benefits from Vesuvius products.

Revenue recognition over time

The Group enters into bespoke equipment design and build (and installation in some cases) contracts with customers. Performance obligations are usually defined by milestones agreed with the customers in the contract. The customer usually does not have a right to a refund as work progresses towards achieving the milestones in the contract. Revenue is recognised over time by measuring the progress of completion or achievement of a milestone for each performance obligation identified within the contract, usually with reference to cost inputs incurred against overall estimated costs for the contract. This does not typically entail estimation or judgements as the contracts are usually not material in isolation and do not span more than 12 months. This approach to revenue recognition is considered to reflect faithfully the value and timing of goods or services transferred and the rights of Vesuvius to revenue.

Determining and allocating the transaction price to performance obligations

For revenue recognised at a point in time, the transaction price is determined and allocated with reference to the individual prices of consumables or equipment specified in the contract or customer purchase order. If a stand-alone selling price is not available, the Group will estimate the selling price with reference to the price that would be charged for the goods or services if they were sold separately. This estimate is not considered complex.

For service contracts the bundled performance obligation is deemed to be the provision of consumables and, in some cases, labour to facilitate production of customer steel. The transaction price is determined and allocated with reference to either an agreed price list for each of the consumables input or, for some contracts, the transaction price is determined and allocated as an amount per unit of customer steel output.

For revenue recognised over time, the transaction price is determined with reference to the prices set out in the contract. For bespoke equipment builds, the transaction price is allocated to performance obligations (milestones) within the contract and the payment schedules agreed with the customer that align to these milestones. For installations, the transaction price is allocated with reference to the progress of completion. Where payment schedules include customer advance payments (i.e. not aligned with a milestone/performance obligation), the amounts received are included within contract liabilities until the performance obligation to which they relate is satisfied.

Contracts are to be settled in cash. They do not typically contain any variable consideration, discounts, refunds, rebates, warranties or significant financing components.

4. Segment Information continued

4.2 Accounting policy – revenue recognition continued

Duration and costs of obtaining contracts

The duration of the Group's contracts with customers is typically less than one year and accordingly the Group has taken the practical expedient within IFRS 15 to not disclose the transaction price allocated to unsatisfied (whole or partially) performance obligations as of the end of the reporting period. Service contracts may span over more than one year as they remain in effect up to a specified level of customer production of steel. However, the choice to purchase from Vesuvius under the contract remains with the customer and therefore there is no commitment for the customer/Vesuvius to purchase/produce up to the specified level.

Costs of obtaining contracts are not considered significant and these are expensed as incurred.

Customer credit risk and payment terms

The Group assesses customer credit risk and recognises revenue when such risk is considered low and the consideration cash flows due are reasonably expected to flow to the Group. Typically, the Group will not transact with customers where credit risk concerns are identified and therefore there is no material unrecognised revenue as a result of credit risk. For trade receivables and contract assets in respect of revenue recognised, an expected credit loss allowance is determined.

Customer payment terms are set out in revenue contracts and do not exceed one year. Customer payments typically follow the satisfaction of performance obligations at which point revenue is recognised and invoiced. Accordingly, trade receivables and contract assets are expected to derive cash inflows for the Group within less than 12 months.

Contract assets and contract liabilities

A contract asset is recorded when revenue is recognised but an invoice has not been raised to the customer. Contract assets are short-term and typically are invoiced in the following month.

Customer advance payments are included in contract liabilities. These are typically not material and relate to over time revenue projects as set out further above.

Uncertainties

There are no uncertainties involving economic factors, estimation or judgements (other than as disclosed above) in respect of revenue recognition. Credit risk relating to the collection of cash inflows from revenue recognised is addressed through an allowance for expected credit losses, as set out in the trade and other receivables accounting policy.

The following table provides information about receivables, contract assets and contract liabilities from contracts with customers.

	2023 £m	2022 £m
Receivables, which are included in 'Trade and other receivables'	**356.9**	380.8
Contract assets, which are included in 'Trade and other receivables'	**1.6**	1.5
Contract liabilities, which are included in 'Trade and other payables'	**2.3**	2.5

Contract liabilities of £2.3m (2022: £2.5m) include advances received from customers that precede the satisfaction of performance obligations by the Group. £2.5m of the contract liabilities recognised in the prior year was recognised as revenue in 2023.

Notes to the Group Financial Statements continued

4. Segment Information continued

4.3 Segmental analysis

The reportable segment results from continuing operations for 2023 and 2022 are presented below.

	Note	2023 Flow Control £m	Advanced Refractories £m	Sensors & Probes £m	Total Steel £m	Foundry £m	Total £m
Segment revenue		**793.0**	**567.9**	**39.1**	**1,400.0**	**529.8**	**1,929.8**
– at a point in time					***1,396.6***	***529.8***	***1,926.4***
– over time					***3.4***	**–**	***3.4***
Segment adjusted EBITDA					**187.9**	**70.3**	**258.2**
Segment depreciation and amortisation					**(40.3)**	**(17.5)**	**(57.8)**
Segment trading profit					**147.6**	**52.8**	**200.4**
Return on sales margin					*10.5%*	*10.0%*	*10.4%*
Amortisation of acquired intangible assets							**(10.3)**
Operating profit							**190.1**
Net finance costs							**(11.6)**
Share of post-tax profit of joint ventures							**0.9**
Profit before tax							**179.4**
Capital expenditure additions					93.2	32.1	125.3
Inventory	18				239.5	51.5	291.0
Trade debtors	17				267.6	89.3	356.9
Trade payables	27				(177.7)	(58.7)	(236.4)

	Note	2022 Flow Control £m	Advanced Refractories £m	Sensors & Probes £m	Total Steel £m	Foundry £m	Total £m
Segment revenue		**810.9**	**645.3**	**40.2**	**1,496.4**	**551.0**	**2,047.4**
– at a point in time					***1,493.7***	***551.0***	***2,044.7***
– over time					***2.7***	**–**	***2.7***
Segment adjusted EBITDA					**210.6**	**72.1**	**282.7**
Segment depreciation and amortisation					**(37.9)**	**(17.6)**	**(55.5)**
Segment trading profit					**172.7**	**54.5**	**227.2**
Return on sales margin					*11.5%*	*9.9%*	*11.1%*
Amortisation of acquired intangible assets							**(10.4)**
Operating profit							**216.8**
Net finance costs							**(11.4)**
Share of post-tax profit of joint ventures							**1.2**
Profit before tax							**206.6**
Capital expenditure additions					85.2	18.7	103.9
Inventory	18				259.6	56.4	316.0
Trade debtors	17				288.0	92.8	380.8
Trade payables	27				(177.2)	(62.3)	(239.5)

The Chief Operating Decision Maker does not review non-current assets at a segmental level so these disclosures are not included.

4. Segment Information continued

4.4 Geographical analysis

	External revenue		Non-current assets	
	2023 £m	2022 £m	**2023 £m**	2022 £m
EMEA	**669.6**	741.6	**515.8**	500.0
Asia	**565.6**	565.2	**233.0**	237.2
North America	**528.7**	549.1	**404.1**	384.3
South America	**165.9**	191.5	**52.1**	44.3
Revenue	**1,929.8**	2,047.4	**1,205.0**	1,165.8

External revenue disclosed in the table above is based upon the geographical location from which the products and services are invoiced. Non-current assets exclude employee benefits net surpluses and deferred tax assets. Information relating to the Group's products and services is given in the Strategic Report. The Group is not dependent on any single customer for its revenue and no single customer, for either of the years presented in the table above, accounts for more than 10% of the Group's total external revenue. £66.5m (2022: £70.9m) of revenue was generated from the UK, and total non-current assets in the UK amounted to £101.5m (2022: £93.9m).

5. Operating Profit

5.1 Operating profit is stated after charging/(crediting)

	Notes(s)	**2023 £m**	2022 £m
Cost of materials recognised as an expense	18	**853.5**	923.1*
Research and development		**37.4**	35.9
Employee expenses	7	**475.1**	441.3
Depreciation	14	**57.4**	55.2
Amortisation	15	**10.7**	10.7
Operating lease charges	28	**3.0**	2.3
Expected credit loss allowances (credit)/charge	17, 24.2	**(2.6)**	9.9
Other expenses		**305.1**	352.2

* 2022 comparatives for cost of materials recognised as an expense have been restated following review during 2023 where an arithmetic error was identified. This restatement did not impact the Income Statement or the balance sheet, it was purely a disclosure item.

Other expenses mainly include energy costs, repairs and maintenance costs, travel costs, external consulting and information technology costs.

The expected credit loss allowance credit of £2.6m in 2023 (2022: charge of £9.9m) is largely due to increased cash collection in Asia.

5.2 Amounts payable to PricewaterhouseCoopers LLP and their associates

	2023 £m	2022 £m
Fees payable to the Company's auditors and their associates for the audit of the Parent Company and Consolidated Financial Statements	**1.0**	1.1
Fees payable to the Company's auditors and their associates for other services:		
Audit of the Company's subsidiaries	**1.1**	1.0
Audit-related assurance services	**0.2**	0.2
Total auditors' remuneration	**2.3**	2.3

Total auditors' remuneration of £2.3m in 2023 all related to continuing operations, of which £2.1m related to audit fees and £0.2m to non-audit fees, in respect of the Group's half-year financial statements, quarterly reviews and tax form audits in India and Mexico (2022: £2.3m, including £2.1m of audit fees and £0.2m of non-audit fees, the latter in respect of the Group's half-year review fee and quarterly reviews and tax form audits in India, as required by regulation). In 2023 a total of £0.2m of audit overruns were incurred in respect of 2022 year-end audit and not included in the total auditors' remuneration of £2.3m for 2022. It is the Group's policy not to use the Group's auditors for non-audit services other than for audit-related services that are required to be performed by auditors.

5.3 Amounts payable to Mazars LLP

Mazars LLP acts as external auditors of the non-material entities and three material entities within the Group. Total remuneration for the audit of these entities was £1.0m (2022: £0.9m). This amount is not included in the table above.

Notes to the Group Financial Statements continued

6. Restructuring Charges

There were no restructuring charges in 2023 (2022: £nil).

Cash costs of £0.8m (2022: £1.5m) (Note 11) were incurred in the year in respect of previously announced restructuring programmes, leaving provisions made but unspent of £2.4m (Note 29) as at 31 December 2023 (2022: £3.6m).

7. Employees

7.1 Employee expenses

	Note	2023 £m	2022 £m
Wages and salaries		**392.2**	365.8
Social security costs		**58.3**	54.0
Share-based payments	26	**7.3**	5.1
Pension costs – defined contribution pension plans	25	**12.1**	10.8
– defined benefit pension plans	25	**4.7**	5.2
Other post-retirement benefits	25	**0.5**	0.4
Total employee expenses		**475.1**	441.3

7.2 Monthly average number of employees

	2023 no.	2022 no.
Steel	**9,057**	8,720
Foundry	**2,455**	2,470
Total monthly average number of employees	**11,512**	11,190

As at 31 December 2023, the Group had 11,376 employees (2022: 11,134).

7.3 Remuneration of key management personnel

The remuneration of the Directors, who are 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. Further information about the remuneration of individual Directors is provided in the audited part of the Directors' Remuneration Report on pages 122 to 135.

	2023 £m	2022 £m
Short-term employee benefits	2.5	1.9
Post-employment benefits	0.2	0.3
Share-based payments	1.5	0.6
Total remuneration of key management personnel	4.2	2.8

8. Net Finance Costs

	2023 £m	2022 £m
Interest payable on borrowings		
Loans and overdrafts	**20.1**	15.4
Interest on lease liabilities	**2.4**	1.9
Amortisation of capitalised arrangement fees	**1.0**	1.0
Total interest payable on borrowings	**23.5**	18.3
Interest on net retirement benefit obligations	**2.3**	1.4
Adjustment to discounts on provisions and other liabilities	**2.4**	1.1
Adjustment to discounts on receivables	**(1.3)**	(0.6)
Finance income	**(15.3)**	(8.8)
Total net finance costs	**11.6**	11.4

Within the table above, total finance costs are £28.2m (2022: £20.8m) and total finance income is £16.6m (2022: £9.4m).

9. Income Tax Charge

9.1 Accounting policy

Tax expense represents the sum of current tax and deferred tax. Current and deferred tax are recognised in profit or loss except to the extent that they relate to items charged or credited in the Group Statement of Comprehensive Income or Group Statement of Changes in Equity, in which case the associated tax is also recognised in those statements.

Current tax

Current tax is based on taxable profit for the year. Taxable profit differs from profit before tax as reported in the Group Income Statement because it excludes items of income or expense that are taxable or deductible in other years and it further excludes items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates and laws that have been enacted, or substantively enacted, by the balance sheet date.

A provision is recognised when the Group considers it has a present tax obligation as the result of a past event and it is probable that the Group will be required to settle that obligation. Provisions established for such uncertain tax positions are made using a best estimate of the tax expected to be paid, based on a qualitative and quantitative assessment of all relevant information. Such a provision is typically required where the underlying tax issue is subject to interpretation and remains to be agreed, and therefore is uncertain as to outcome. Principally, the uncertain tax positions for which a provision is made relate to the interpretation of tax legislation and guidance regarding transfer pricing arrangements that have been entered into in the normal course of business. In accordance with IAS 12, tax provisions are included as income tax payable on the face of the Group Balance Sheet, and movements in tax provisions are included within income tax charges or credits in the Group Income Statement.

In assessing any appropriate provision requirements for uncertain tax items, the Group considers progress made in discussions with the tax authorities, expert advice on the likely outcome and any recent developments in case law. Due to the uncertainty associated with such tax items, it is possible that at a future date, on conclusion of the open matters, the final outcome may vary materially. Any such variations will affect the financial results in the year in which such a determination is made.

Deferred tax

Deferred tax is recognised on differences between the carrying amounts of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable profit, and is accounted for using the balance sheet liability method. Deferred tax liabilities are generally recognised for all taxable temporary differences and deferred tax assets are recognised to the extent that it is probable that taxable profits will be available against which deductible temporary differences can be utilised. Such assets and liabilities are not recognised if the temporary difference arises from the initial recognition of goodwill or from the initial recognition (other than in a business combination) of other assets and liabilities in a transaction that affects neither the taxable profit nor the accounting profit. Deferred tax is calculated at the tax rates that are expected to apply in the period when the liability is settled or the asset is realised, based on tax rates and laws that have been enacted, or substantively enacted, by the balance sheet date.

Deferred tax liabilities are recognised for taxable temporary differences arising on investments in subsidiaries and interests in joint ventures, except where the Group is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. The carrying amount of deferred tax assets is reviewed at each balance sheet date and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered. Deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when they relate to income taxes levied by the same taxation authority and the Group intends to settle its current tax assets and liabilities on a net basis.

Notes to the Group Financial Statements continued

9. Income Tax Charge continued

9.2 Income tax charge

	2023 £m	2022 £m
Current tax		
Overseas taxation	38.9	43.6
Adjustments in respect of prior years	6.7	(1.1)
Total current tax, continuing operations	45.6	42.5
Deferred tax		
Origination and reversal of temporary taxable differences	6.2	(23.6)
Adjustments in respect of prior years	(3.0)	(0.8)
Total deferred tax, continuing operations	3.2	(24.4)
Total income tax charge	48.8	18.1
Total income tax charge attributable to:		
Continuing operations – headline performance	51.9	57.2
– separately reported	(3.1)	(39.1)
Total income tax charge	48.8	18.1

Included in the Group's total income tax charge are charges and credits meeting the criteria set out in Note 2.5 to be treated as separately reported items, as analysed in the following table:

Separately reported items	2023 £m	2022 £m
Additional recognition of UK deferred tax asset	–	(37.8)
Amortisation and utilisation of acquired intangibles	(2.7)	(2.7)
Recognition of deferred tax asset on acquired intangibles	(0.4)	–
Additional derecognition/(recognition) of US deferred tax asset	–	1.4
Total tax credit separately reported	(3.1)	(39.1)

As a result of the expected future profitability of the UK business, the Group decided in 2022 to partially recognise UK deferred tax assets totalling £37.8m that have no expiry date. In recognising these assets, the Group has considered the future profitability of the UK business from approved budgets and business plans and an extrapolation from them if profits continue to grow at a rate consistent with those plans. The Group has also carried out an exercise to reflect scenarios where the business plan does not materialise as expected. The Group has modelled proportionate increases and decreases in relation to the expected taxable income based on the approved budget and the results do not have a material impact on the deferred tax asset balance. These assets are available for carry-forward indefinitely and can be offset against taxable income generated in the UK.

The net tax debit reflected in the Group Statement of Comprehensive Income in the year amounted to a £2.0m charge (2022: £8.2m charge), comprising a £2.0m charge (2022: £6.7m charge) related to tax on net actuarial gains and losses on the employee benefits plan and a £nil charge (2022: £1.5m charge) relating to deferred tax rate changes.

The Group operates in a number of countries that have differing tax rates, laws and practices. Changes in any of these areas could, adversely or positively, impact the Group's tax charge in the future. Continuing losses, or insufficiency of taxable profit to absorb all expenses, in any subsidiary, could have the effect of increasing tax charges in the future as headline effective tax relief may not be available for those losses or expenses. Other significant factors affecting the tax charge are described in Notes 9.1 and 9.6.

9.3 Reconciliation of income tax charge to profit before tax

	2023 £m	2022 £m
Profit before tax	179.4	206.6
Tax at the UK corporation tax rate of 23.5% (2022: 19.0%)	42.1	39.2
Overseas tax rate differences	0.6	16.5
Withholding taxes	6.4	2.8
(Income)/expenses not (taxable)/deductible for tax purposes	(4.6)	0.8
Utilisation of previously unrecognised tax losses	–	(0.8)
US deferred tax asset not previously recognised	–	(5.7)
UK deferred tax asset not previously recognised	–	(37.8)
Deferred tax assets not recognised	0.6	–
Deferred tax rate changes	–	1.1
Adjustments in respect of prior years	3.7	2.0
Total income tax charge	48.8	18.1

9. Income Tax Charge continued

9.4 Deferred tax

	Interest £m	Other operating losses £m	Pension costs £m	Intangible assets £m	Other temporary differences £m	Total £m
As at 1 January 2022	34.4	15.5	13.4	(23.8)	35.1	74.6
Exchange adjustments	4.1	1.3	1.2	(0.9)	2.2	7.9
Other net charge to Group Statement of Comprehensive Income	–	–	(6.7)	–	(1.5)	(8.2)
Other net credit/(charge) to Group Income Statement	0.1	37.2	0.2	2.9	(1.1)	39.3
Other net credit/(charge) to Group Income Statement US	2.7	(7.6)	(1.4)	(0.8)	(7.8)	(14.9)
As at 31 December 2022	**41.3**	**46.4**	**6.7**	**(22.6)**	**26.9**	**98.7**
Exchange adjustments	**(1.8)**	**0.6**	**(0.2)**	**0.8**	**(1.8)**	**(2.4)**
Other net charge to Group Statement of Comprehensive Income	**–**	**–**	**(2.0)**	**–**	**–**	**(2.0)**
Other net (charge)/credit to Group Income Statement	**(5.7)**	**(4.3)**	**(1.5)**	**3.7**	**4.6**	**(3.2)**
As at 31 December 2023	**33.8**	**42.7**	**3.0**	**(18.1)**	**29.7**	**91.1**

	2023 £m	2022 £m
Recognised in the Group Balance Sheet as:		
Non-current deferred tax assets	**114.6**	110.6
Non-current deferred tax liabilities	**(23.5)**	(11.9)
Net total deferred tax assets	**91.1**	98.7

Included in these deferred tax assets and liabilities are amounts expected to be utilised in 2024 as follows:

	2023 £m	2022 £m
Deferred tax assets	**8.9**	18.2
Deferred tax liabilities	**(2.7)**	(2.7)

As a result of the expected future profitability of the UK business, the Group decided in 2022 to recognise certain UK deferred tax assets that have no expiry date. Included in non-current deferred tax assets is £34.4m (2022: £37.8m) in respect of the partial recognition of temporary differences arising in the UK computed in accordance with the policy set out in Note 9.1 above. The Group has also carried out an exercise to reflect scenarios where the business plan does not materialise as expected. The Group has modelled proportionate increases and decreases in relation to the expected taxable income based on the approved budget and the results do not have a material impact on the deferred tax asset balance. The Group remains confident of the recovery of these assets.

Tax loss carry-forwards and other temporary differences with a tax value of £22.0m (2022: £9.5m) were recognised by jurisdictions reporting a loss. Based on approved business plans of these subsidiaries, the Directors consider it probable that the tax loss carry-forwards and temporary differences can be offset against future taxable profits of these subsidiaries.

The total deferred tax assets not recognised as at 31 December 2023 were £161.8m (2022: £175.1m), as analysed below. In accordance with the accounting policy in Note 9.1, these items have not been recognised as deferred tax assets on the basis that their future economic benefit is not probable. In total, there was a decrease of £13.3m (2022: £34.5m decrease) in net unrecognised deferred tax assets during the year, primarily driven by the recognition of UK deferred tax assets. All UK unrecognised deferred tax assets are now reported at the 25% rate.

	2023 £m	2022 £m
Operating losses (further described below)	**91.6**	100.6
Unrelieved US interest (may be carried forward indefinitely)	**0.7**	–
Capital losses available to offset future UK capital gains (may be carried forward indefinitely)	**45.5**	46.2
UK ACT credits (may be carried forward indefinitely)	**19.3**	19.3
Other temporary differences	**4.7**	9.0
Total deferred tax assets not recognised	**161.8**	175.1

Notes to the Group Financial Statements continued

9. Income Tax Charge continued

9.4 Deferred tax continued

The Group has significant net operating losses with a tax value of £134.3m (2022: £147.0m), only £42.7m (2022: £46.4m) of which meet the criteria set out in Note 9.1 to be recognised on the Group Balance Sheet.

	Operating losses recognised 2023 £m	Operating losses not recognised 2023 £m	Total 2023 £m	Operating losses recognised 2022 £m	Operating losses not recognised 2022 £m	Total 2022 £m
UK (may be carried forward indefinitely)	**34.4**	**72.1**	**106.5**	37.8	79.1	116.9
US (due to expire 2024–2031)	**1.4**	**–**	**1.4**	2.6	–	2.6
ROW (may be carried forward indefinitely)	**6.9**	**19.5**	**26.4**	6.0	21.5	27.5
	42.7	**91.6**	**134.3**	46.4	100.6	147.0

The £26.4m (2022: £27.5m) operating losses available to set against future income in the rest of the world arise in a number of countries, reflecting the spread of the Group's operations.

A liability of £0.7m (2022: £0.8m) has been recognised in respect of withholding taxes that will be due on a repatriation of funds from the Group's Chinese subsidiaries.

Deferred tax is not recognised in respect of the value of the Group's investments in subsidiaries and interests in joint ventures where we are able to control the timing of the reversal of the temporary differences and it is probable that such differences will not reverse in the foreseeable future. The amount of these temporary differences for which deferred tax liabilities have not been recognised was £16.5m (2022: £11.8m).

Developments in the Group tax position

In December 2021, the Organisation for Economic Co-operation and Development published rules relating to global minimum taxation called 'Pillar 2 rules', currently timetabled to apply in the UK to accounting periods beginning on or after 1 January 2024 (year ended 31 December 2024 for Vesuvius). The Group will continue to monitor the development and future implementation of these rules globally. Vesuvius is actively working to fully understand the impact of the new rules and developing processes to enable compliance. Based upon our latest understanding, the current estimate of additional tax payable is not expected to have a material impact on the Group.

9.5 Income tax payable and recoverable

	2023 £m	2022 £m
Liabilities for income tax payable	**3.5**	12.8
Provisions for uncertain tax positions	**6.3**	6.8
	9.8	19.6
Less: Income tax recoverable within one year	**11.5**	15.3
Net (asset)/liability	**(1.7)**	4.3

Provisions for uncertain tax positions are calculated in accordance with the policy outlined in Note 9.1, and are treated as income tax payable in accordance with IAS 12.

These provisions cover litigated tax matters as well as provisions for other risks where the Group believes it is more likely than not that there would be a successful challenge by a tax authority to positions it has taken in its tax filings. By its nature, litigation can result in sharp fluctuations in cash flow, both in and out, relating to taxes. Currently, management does not expect any material adjustments to these provisions in 2024.

During the year the provisions for uncertain tax positions have reduced to £6.3m (2022: £6.8m). The decrease of £0.5m (2022: £0.1m) can be explained by the expiration of the statute of limitations on certain other exposures, £1.3m (2022: £1.3m), a £0.3m credit (2022: 0.5m charge) in relation to an Indonesian tax audit, £nil (2022: £0.4m) charge on a Spanish tax audit, a £1.3m charge (2022: £nil) following a Polish tax audit and foreign exchange movements on the remaining balances, £0.2m credit (2022: £0.3m charge).

9. Income Tax Charge continued

9.6 Key factors impacting the sustainability of the headline effective tax rate are as follows:

Material changes in the geographic mix of profits

The Group's headline effective tax rate is sensitive to changes in the geographic mix of profits and level of profits and reflects a combination of higher rates in certain jurisdictions such as Brazil, Germany, India, Mexico and the US and a lower headline effective tax rate in jurisdictions like China and Poland.

Changes in tax rates, tax reform and its interpretation

Changes in tax rates and laws in the jurisdictions in which the Group operates could have a material effect on the Group's headline effective tax rate.

Availability of tax advantaged rates

Vesuvius in China qualifies for a tax advantaged rate of 15% (rather than the headline rate of 25%) on part of its profits due to the high-technology nature of its business. Eligibility for this rate is reviewed on a regular basis by the Chinese tax authority and was worth approximately £0.8m in 2023 (2022: £0.4m). Without that benefit, the Group's headline effective tax rate on headline performance would have been 0.4% higher in 2023 (2022: 0.2%).

Resolution of tax judgements

At any one time, the Group can be subject to a number of challenges by tax authorities in the jurisdictions in which it operates. The outcome of these challenges is inherently uncertain, potentially resulting in a different tax charge from the amounts initially provided.

10. Earnings per Share (EPS)

10.1 Earnings for EPS

Basic and diluted EPS from continuing operations are based upon the profit attributable to owners of the Parent, as reported in the Group Income Statement. The table below reconciles these different profit measures.

	2023 £m	2022 £m
Profit attributable to owners of the Parent	**118.5**	181.1
Adjustments for separately reported items:		
Amortisation of acquired intangible assets	**10.3**	10.4
Restructuring charges	**–**	–
Vacant site remediation costs	**–**	–
Guaranteed minimum pensions (GMP) equalisation charge	**–**	–
Income tax credit	**(3.1)**	(39.1)
Headline profit attributable to owners of the Parent	**125.7**	152.4

10.2 Weighted average number of shares

	2023 millions	2022 millions
For calculating basic and headline EPS	**269.1**	269.6
Adjustment for potentially dilutive ordinary shares	**3.0**	1.9
For calculating diluted and diluted headline EPS	**272.1**	271.5

For the purposes of calculating diluted and diluted headline EPS, the weighted average number of ordinary shares is adjusted to include the weighted average number of ordinary shares that would be issued on the conversion of all potentially dilutive ordinary shares expected to vest, relating to the Company's share-based payment plans. Potential ordinary shares are only treated as dilutive when their conversion to ordinary shares would decrease EPS or increase loss per share.

Notes to the Group Financial Statements continued

10. Earnings per Share (EPS) continued

10.3 Per share amounts

	2023 pence	2022 pence
Earnings per share		
– reported basic	**44.0**	67.2
– reported diluted	**43.6**	66.7
– headline basic	**46.7**	56.5
– headline diluted	**46.2**	56.1

11. Cash Generated from Operations

	Notes	2023 £m	2022 £m
Operating profit		**190.1**	216.8
Adjustments for:			
Amortisation of acquired intangible assets	15	**10.3**	10.4
Restructuring charges		**–**	–
Vacant site remediation costs		**–**	–
Trading profit		**200.4**	227.2
Gain on disposal of non-current assets		**(2.5)**	(0.1)
Depreciation and amortisation	14	**57.8**	55.5
Defined benefit retirement plans net charge		**5.2**	5.6
Net decrease in inventories	18	**9.9**	2.2
Net decrease/(increase) in trade receivables	17	**2.6**	(9.2)
Net increase/(decrease) in trade payables	27	**8.3**	(28.0)
Net (increase)/decrease in other working capital		**(0.5)**	24.7
Outflow related to restructuring charges	6	**(0.8)**	(1.5)
Defined benefit retirement plans cash outflows	25	**(7.4)**	(6.3)
Vacant site remediation costs paid		**(1.0)**	(1.8)
Cash generated from operations		**272.0**	268.3

12. Cash and Cash Equivalents

12.1 Accounting policy

Cash and short-term deposits in the Group balance sheet consist of cash at bank and in hand, and short-term deposits with original maturity of three months or less. Bank overdrafts that are repayable on demand and form an integral part of the Group's cash management are included as a component of cash and cash equivalents for the purpose of the Group Statement of Cash Flows.

	2023 £m	2022 £m
Cash at bank and in hand	**164.2**	184.2
Bank overdrafts	**(3.4)**	(4.4)
Cash and cash equivalents in the Group Statement of Cash Flows	**160.8**	179.8

Cash is held both centrally and in operating territories. There is no restricted cash. For certain territories including Argentina, China, Egypt, India and Russia cash is more readily used locally than for broader Group purposes.

13. Reconciliation of Movement in Net Debt

	Balance as at 1 January 2023 £m	Foreign exchange adjustments £m	Fair value losses £m	Non-cash movements* £m	Cash flow £m	Balance as at 31 December 2023 £m
Cash and cash equivalents						
Cash at bank and in hand	184.2	(21.1)	–	–	1.1	164.2
Bank overdrafts	(4.4)	0.1	–	–	0.9	(3.4)
	179.8	(21.0)	–	–	2.0	160.8
Borrowings, excluding bank overdrafts	(440.2)	11.9	–	(33.6)	61.3	(400.6)
Capitalised arrangement fees	2.7	–	–	(0.9)	–	1.8
Derivative financial instruments	2.7	–	(2.2)	–	–	0.5
Net debt	(255.0)	(9.1)	(2.2)	(34.5)	63.3	(237.5)

	Balance as at 1 January 2022 £m	Foreign exchange adjustments £m	Fair value gains £m	Non-cash movements* £m	Cash flow £m	Balance as at 31 December 2022 £m
Cash and cash equivalents						
Cash at bank and in hand	169.1	0.1	–	–	15.0	184.2
Bank overdrafts	(6.7)	(0.3)	–	–	2.6	(4.4)
	162.4	(0.2)	–	–	17.6	179.8
Borrowings, excluding bank overdrafts	(440.3)	(25.4)	–	(11.5)	37.0	(440.2)
Capitalised arrangement fees	3.3	–	–	(0.6)	–	2.7
Derivative financial instruments	(2.5)	–	5.2	–	–	2.7
Net debt	(277.1)	(25.6)	5.2	(12.1)	54.6	(255.0)

* £31.2m (2022: £11.5m) of new leases were entered into during the year.

Net debt is a measure of the Group's net indebtedness to banks and other external financial institutions and comprises the total of cash and short-term deposits, current and non-current interest-bearing borrowings, derivative financial instruments and lease liabilities.

14. Property, Plant and Equipment

14.1 Accounting policy

Freehold land and construction in progress are carried at cost less accumulated impairment losses. Other items of property, plant and equipment are carried at cost less accumulated depreciation and accumulated impairment losses. Costs are capitalised only when it is probable that they will result in future economic benefits flowing to the Group and when they can be measured reliably. Costs are capitalised to construction in progress where an asset is being developed. This is then transferred to the relevant asset class and depreciated when the asset is ready for use. All other repairs and maintenance expenditures are charged to the Group Income Statement in the period in which they are incurred.

Freehold land is not depreciated as it has an infinite life. Depreciation on other items of property, plant and equipment begins when the asset is available for use and is charged to the Group Income Statement on a straight-line basis so as to write off the cost less the estimated residual value of the asset over its estimated useful life as follows:

Notes to the Group Financial Statements continued

14. Property, Plant and Equipment continued

14.1 Accounting policy continued

Asset category		Estimated useful life
Freehold property		between 10 and 50 years
Leasehold property		the term of the lease
Right-of-use assets		shorter of the asset's useful life and lease term
Plant and equipment	– motor vehicles and information technology equipment	between 1 and 5 years
	– other	between 3 and 15 years

The depreciation method used, residual values and estimated useful lives are reviewed annually and changed, if appropriate. As described in Note 16.1, an asset's carrying amount is immediately written down to its recoverable amount if its carrying amount is greater than its estimated recoverable amount. Gains and losses arising on disposals are determined by comparing sales proceeds with carrying amount and are recognised in the Group Income Statement.

14.2 Movement in net book value

	Freehold property £m	Leasehold property £m	Right-of-use assets – land & buildings (Note 28.2) £m	Right-of-use assets – plant & equipment (Note 28.2) £m	Plant and equipment £m	Construction in progress £m	Total £m
Cost							
As at 31 December 2021 and 1 January 2022	245.0	0.7	39.1	29.0	572.7	41.2	927.7
Exchange adjustments	16.0	–	1.7	1.9	37.1	3.8	60.5
Capital expenditure additions	7.3	–	3.3	8.1	20.8	59.9	99.4
Acquisitions through business combinations	1.1	–	2.2	–	0.2	–	3.5
Disposals	(1.6)	–	(1.1)	(3.4)	(14.9)	(0.5)	(21.5)
Reclassifications	1.3	–	–	(0.2)	27.4	(28.6)	(0.1)
As at 31 December 2022 and 1 January 2023	**269.1**	**0.7**	**45.2**	**35.4**	**643.3**	**75.8**	**1,069.5**
Exchange adjustments	**(8.3)**	**–**	**(3.3)**	**(1.7)**	**(22.6)**	**(0.8)**	**(36.7)**
Capital expenditure additions	**15.8**	**–**	**15.3**	**16.0**	**45.6**	**24.6**	**117.3**
Disposals	**(3.9)**	**(0.6)**	**(3.6)**	**(6.2)**	**(18.8)**	**(0.2)**	**(33.3)**
Reclassifications	**6.1**	**–**	**–**	**–**	**10.1**	**(16.2)**	**–**
As at 31 December 2023	**278.8**	**0.1**	**53.6**	**43.5**	**657.6**	**83.2**	**1,116.8**
Accumulated depreciation and impairment losses							
As at 31 December 2021 and 1 January 2022	117.8	0.7	10.1	16.1	430.5	–	575.2
Exchange adjustments	8.0	–	0.4	1.0	29.0	–	38.4
Depreciation charge	7.3	–	5.7	6.8	35.4	–	55.2
Impairment	0.9	–	0.5	–	0.1	–	1.5
Disposals	(0.4)	–	(1.1)	(2.9)	(13.9)	–	(18.3)
Reclassifications	3.9	–	–	(0.1)	(3.9)	–	(0.1)
As at 31 December 2022 and 1 January 2023	**137.5**	**0.7**	**15.6**	**20.9**	**477.2**	**–**	**651.9**
Exchange adjustments	**(3.3)**	**–**	**(1.5)**	**(1.0)**	**(17.1)**	**–**	**(22.9)**
Depreciation charge	**7.6**	**–**	**5.8**	**8.4**	**35.6**	**–**	**57.4**
Impairment	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Disposals	**(2.9)**	**(0.6)**	**(3.4)**	**(5.3)**	**(18.2)**	**–**	**(30.4)**
Reclassifications	**1.7**	**–**	**–**	**–**	**(1.7)**	**–**	**–**
As at 31 December 2023	**140.6**	**0.1**	**16.5**	**23.0**	**475.8**	**–**	**656.0**
Net book value as at 31 December 2023	**138.2**	**–**	**37.1**	**20.5**	**181.8**	**83.2**	**460.8**
Net book value as at 31 December 2022	131.6	–	29.6	14.5	166.1	75.8	417.6
Net book value as at 31 December 2021	127.2	–	29.0	12.9	142.2	41.2	352.5

14. Property, Plant and Equipment continued

14.2 Movement in net book value continued

Capital expenditure on customer-installation assets was £8.4m (2022: £7.5m).

Capital commitments as at 31 December 2023 were £25.9m (31 December 2022: £36.8m).

The impact of climate change has been considered in the review of carrying values to consider whether there are indications of material impairment arising from the potential physical risks arising from climate change. We have not impaired any assets this year as a result of this exercise. We have also considered the impact of climate change on the estimation of useful lives and no material impacts were noted.

15. Intangible Assets

Intangible assets comprise goodwill, other intangible assets that have been acquired through business combinations, and software costs.

15.1 Accounting policy

(a) Goodwill

Goodwill arising in a business combination is initially recognised as an asset at cost, measured as the excess of the aggregate of the acquisition-date fair value of the consideration transferred and the amount of any non-controlling interest acquired over the net of the acquisition-date fair value amounts of the identifiable assets acquired and liabilities assumed. When the excess is negative, a bargain purchase gain is recognised immediately in profit or loss. Goodwill is subsequently measured at cost less accumulated impairment losses, with impairment testing carried out annually, or more frequently when there is an indication that the cash-generating unit (CGU) to which the goodwill has been allocated may be impaired. On disposal of a business, the attributable amount of goodwill is included in the calculation of the profit or loss on disposal.

(b) Other intangible assets

Intangible assets other than goodwill are recognised on business combinations if they are separable, or if they arise from contractual or other legal rights, and their value can be measured reliably. They are initially measured at cost, which is equal to the acquisition-date fair value, and subsequently measured at cost less accumulated amortisation charges and accumulated impairment losses. Other intangible assets are subject to impairment testing when there is an indication that an impairment loss may have been incurred and are amortised over their estimated useful lives.

(c) Research and development costs

The Group's research activity involves long-range, 'blue sky' investigation, the findings from which may be used in the future to develop new or substantially improved products. Expenditure on research activities is recognised in the Group Income Statement as an expense in the year in which it is incurred.

Development is the application of research findings for the production of new or substantially improved products, processes and services before the start of commercial production. Development expenditure is capitalised only if the expenditure can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable and the Group intends to and has sufficient resources to complete development and to use or sell the asset. Otherwise, it is recognised in the Group Income Statement as an expense in the year in which it is incurred. Capitalised development expenditure, where there is any, is stated at cost less accumulated amortisation and impairment losses.

In determining whether development expenditure is capitalised as an intangible asset, management considers whether the strict intangible asset recognition criteria set out in IAS 38 Intangible Assets have been met at the time the expenditure is incurred. In making this determination, management recognises that a significant amount of the development expenditure undertaken by the Group is focused on dealing with local customer technical support issues and incremental developments to existing products as opposed to new or substantially improved products, and that at the time the feasibility of the project is determined, a significant proportion of the development expenditure for that project has already been incurred. In 2023 and 2022 no projects met the criteria for IAS 38 capitalisation.

(d) Software

The costs of ERP system implementations, including the purchase cost of the software and the time costs of employees directly involved in the implementation work is capitalised and amortised over a period of no more than ten years.

Notes to the Group Financial Statements continued

15. Intangible Assets continued

15.2 Movement in net book value

	Note	Goodwill £m	Other acquired intangible assets £m	Software £m	2023 total £m	Goodwill £m	Other acquired intangible assets £m	Software £m	2022 total £m
Cost									
As at 1 January		**657.9**	**292.9**	**10.8**	**961.6**	614.2	285.7	6.7	906.6
Reclassification of non-compete agreements to goodwill*		–	–	–	–	0.9	(0.9)	–	–
Exchange adjustments		**(27.0)**	**(5.6)**	**0.2**	**(32.4)**	42.4	8.1	0.5	51.0
Capital expenditure additions		–	–	**8.0**	**8.0**	–	–	4.5	4.5
Disposals		–	–	**(0.2)**	**(0.2)**	–	–	(0.9)	(0.9)
Business combinations	19	–	–	–	–	0.4	–	–	0.4
Reclassifications		–	–	–	–	–	–	–	–
As at 31 December		**630.9**	**287.3**	**18.8**	**937.0**	657.9	292.9	10.8	961.6
Accumulated amortisation and impairment losses									
As at 1 January		–	221.1	3.0	224.1	–	206.7	3.1	209.8
Exchange adjustments		–	(3.4)	(0.2)	(3.6)	–	4.0	0.2	4.2
Amortisation charge for the year		–	10.3	0.4	10.7	–	10.4	0.3	10.7
Impairment		–	–	–	–	–	–	0.3	0.3
Disposals		–	–	(0.2)	(0.2)	–	–	(0.9)	(0.9)
Reclassifications		–	–	–	–	–	–	–	–
As at 31 December		–	228.0	3.0	231.0	–	221.1	3.0	224.1
Net book value as at 31 December		630.9	59.3	15.8	706.0	657.9	71.8	7.8	737.5

* The values and useful lives of URI intangibles in the 2021 Annual Report and Financial Statements were provisional. Further valuation work in 2022 determined that there were no non-compete agreements that could be separately identified from goodwill.

Of the £18.8m (2022: £10.8m) software cost as at 31 December 2023, £14.2m (2022: £6.8m) was in the course of construction.

Amortisation charge of £10.3m (2022: £10.4m) in respect of other acquired intangible assets includes £5.3m (2022: £5.4m) recognised in respect of Foseco customer relationships, £3.6m (2022: £3.6m) in respect of the Foseco trade name and £1.4m (2022: £1.4m) in respect of North American Advanced Refractories intangible assets.

The impact of climate change has been considered in the review of carrying values to consider whether there are indications of material impairment arising from risks of climate change. We have not impaired any intangible assets this year as a result of this exercise. We have also considered the impact of climate change on the estimation of useful lives and no material impacts were noted.

15.3 Analysis of goodwill by cash-generating unit (CGU)

Goodwill acquired in a business combination is allocated to each of the Group's CGUs expected to benefit from the synergies of the combination. For the purposes of impairment testing, the Directors consider that the Group has four CGUs: Steel Advanced Refractories, Steel Flow Control, Steel Sensors & Probes, and the Foundry Division. These CGUs represent the lowest level within the Group at which goodwill is monitored (Note 16.2).

	2023 £m	2022 £m
Steel Flow Control	**275.1**	286.8
Steel Advanced Refractories	**146.1**	152.5
Foundry	**209.7**	218.6
Total goodwill	**630.9**	657.9

15. Intangible Assets continued

15.4 Analysis of other acquired intangible assets

Other acquired intangible assets are amortised on a straight-line basis over their estimated useful lives. The assets acquired and their remaining useful lives are shown below.

	Remaining useful life years	Net book value as at 31 Dec 2023 £m	Net book value as at 31 Dec 2022 £m
Steel Flow Control, Steel Advanced Refractories & Foundry			
– Foseco customer relationships (useful life: 20 years)	4.3	**22.5**	28.9
– Foseco trade name (useful life: 20 years)	4.3	**15.4**	19.0
Steel Advanced Refractories			
– URI customer relationships (useful life: 20 years)	18.0	**5.9**	6.6
– URI know-how (useful life: 20 years)	18.0	**4.7**	5.2
– CCPI customer relationships (useful life: 20 years)	15.2	**10.8**	12.1
Total		**59.3**	71.8

15.5 Analysis of software

Software comprises Enterprise Resource Planning tools in use and being developed. The software is installed on Vesuvius' servers and the Group has complete ownership of the assets.

16. Impairment of Tangible and Intangible Assets

16.1 Accounting policy

The Directors regularly review the performance of the business and the external business environment to determine whether there is any indication that the Group's tangible and intangible assets have suffered an impairment loss. If such indication exists, the higher of the value in use and the fair value less costs to sell off the asset is estimated and compared with the carrying value in order to determine the extent, if any, of the impairment loss. Where it is not feasible to estimate the recoverable amount of an individual asset, the Directors estimate the recoverable amount of the CGU to which the asset belongs. In addition, goodwill is tested for impairment on an annual basis. Goodwill acquired in a business combination is allocated to each of the Group's CGUs expected to benefit from the synergies of the combination and the Directors carry out annual impairment testing of the carrying value of each CGU, to assess the need for any impairment of the carrying value of the associated goodwill and other intangible and tangible assets.

For the purpose of impairment testing, the recoverable amount of an asset or CGU is the higher of (i) its fair value less costs to sell and (ii) its value in use. If the recoverable amount of a CGU is less than its carrying amount, the resulting impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the CGU and then to the other assets of the CGU pro rata on the basis of the carrying amount of each asset in the CGU. An impairment loss recognised for goodwill is not reversed in a subsequent period. An impairment loss recognised in a prior year for an asset other than goodwill may be reversed where there has been a sustained change in the estimates used to measure the asset's recoverable amount since the impairment loss was recognised.

16.2 Key assumptions and methodology

The key assumptions in determining value in use are projected cash flows, growth rates and discount rates. These are disclosed as critical accounting estimates in Note 3.5.

Projected cash flows for the next three years have been based on the latest Board-approved budgets and strategic plans. They reflect management's expectations of revenue, EBITDA growth, capital expenditure, working capital and adjusted operating cash flows, based on past experience and future expectations of business performance, and take into account the cyclicality of the business in which the CGU operates. Cash flows beyond the period of the strategic plans have been extrapolated using a perpetuity growth rate of 2.5% (2022: 2.5%). The growth rate has been calculated using GDP growth forecasts published by the International Monetary Fund for the Group's end-markets. These GDP growth forecasts have been weighted to reflect the Group's weighted average sales in each end-market during 2023.

The cash flows have been discounted to their current value using pre-tax discount rates, that reflect current market assessments of the time value of money and the risks specific to the cash-generating unit. The assumptions used in the calculation of the discount rates for each CGU have been benchmarked to externally available data. These are industry-specific beta coefficients, risk-free rates and equity risk premiums.

Notes to the Group Financial Statements continued

16. Impairment of Tangible and Intangible Assets continued

16.2 Key assumptions and methodology continued

As a consequence of re-examining the inputs for each component, we have reduced our discount rates for 2023. The pre-tax discount rates used for the Steel Flow Control and Steel Advanced Refractories were in the range of 12.3%–12.6% (2022: 15.0%) and for the Foundry CGU was 13.6% (2022: 14.9%). There is no goodwill or intangible assets in the Steel Sensors & Probes CGU.

The Group carried out its annual goodwill impairment test as at 31 October 2023 (2022: 31 October 2022) utilising the discount rates above and applying them to the latest Board-approved cash flows to calculate a value in use ('VIU') . The Group also considered a valuation from its market capitalisation and other market data to determine a Fair Value Less Costs to Disposal ('FVLCD'). The recoverable amount (higher of VIU and FVLCD) of each CGU significantly exceeded its carrying value, therefore no impairment charges have been recognised. The recoverable amount of each CGU was also checked against its carrying value as at 31 December 2023 and no impairment triggers were identified.

The Directors have considered the impact of climate change on expected future cash flows, including the modelling of impact of climate change scenarios set out in the Sustainability section in the Strategic Report and expected capital expenditure required to achieve the Group's net zero targets and other assumptions used for goodwill impairment testing. This did not result in an impairment scenario for goodwill.

Sensitivity of impairment reviews

Steel Flow Control (FC), Steel Advanced Refractories (AR) and the Foundry Division are the key CGUs. There is no goodwill or intangible assets in the Steel Sensors & Probes CGU. The recoverable amount of all CGUs exceeded their carrying value on the basis of the assumptions set out above and any reasonably possible changes thereof, with the exception of AR where a reasonably possible change could lead to an impairment. A sensitivity analysis was carried out using reasonably possible changes to the key assumptions as set out in the table below. The following decreases to the recoverable amount of the Group's goodwill and intangible assets were observed:

Key assumption	Relevant CGU	Assumption	Sensitivity	Decrease in recoverable value, £m	Impairment arising, £m
Free cash flow average annual growth rate (3 year)	AR	67.0%	Decrease the free cash flows by 20%	(113.6)	None
Pre-tax discount rate	AR	12.3%	Increase by 3.4%	(153.1)	None
Combination of both key assumptions above	AR	67.0% and 12.3%	Combination of both sensitivities above	(236.1)	(62.7)

A 2.7% increase in pre-tax discount rate and a 10% decrease in free cash flows would result in the AR CGU having a recoverable amount equal to its carrying value.

17. Trade and Other Receivables

17.1 Accounting policy

Trade and other receivables are initially recognised at fair value and subsequently measured at amortised cost, using the effective interest method, less impairment losses. Details on impairment of financial assets are disclosed in Note 24.

17.2 Analysis of trade and other receivables (current)

	2023				2022			
	Gross £m	ECL provision £m	Net £m	ECL provision coverage[1]	Gross £m	ECL provision £m	Net £m	ECL provision coverage[1]
Trade receivables								
– current	**308.9**	**(0.7)**	**308.2**	**0.2%**	305.4	(2.3)	303.1	0.8%
– 1 to 30 days past due	**34.7**	**(0.3)**	**34.4**	**0.9%**	51.4	(1.6)	49.8	3.1%
– 31 to 60 days past due	**10.1**	**(0.7)**	**9.4**	**6.9%**	14.1	(0.6)	13.5	4.3%
– 61 to 90 days past due	**2.5**	**(0.3)**	**2.2**	**12.0%**	7.3	(0.2)	7.1	2.7%
– over 90 days past due	**27.3**	**(24.6)**	**2.7**	**90.1%**	35.4	(28.1)	7.3	79.4%
Trade receivables	**383.5**	**(26.6)**	**356.9**		413.6	(32.8)	380.8	
Other receivables			**78.4**				65.3	
Prepayments			**25.2**				30.8	
Total trade and other receivables			**460.5**				476.9	

1. ECL (Note 24.2 (c) (ii)) provision coverage is expected credit loss provision divided by gross trade receivables.

17. Trade and Other Receivables continued

17.2 Analysis of trade and other receivables (current) continued

There is no significant difference between the fair value of the Group's trade and other receivables balances and the amount at which they are reported in the Group Balance Sheet.

Historical experience has shown that the Group's trade receivable provisions are maintained at levels that are sufficient to absorb actual bad debt write-offs, without being excessive. The Group considers the credit quality of financial assets that are neither past due nor impaired as good.

Included within Other receivables are banker's drafts of £37.6m (2022: £32.5m). The majority of these notes relate to customers in China and have typical maturities of six months from the issuing date. The full amount of revenue is recognised from the customer when performance obligations are satisfied in accordance with IFRS 15. Other receivables also include VAT receivables of £28.0m (2022: £23.3m) and insurance reimbursements (see Note 29.2) of £2.2m (2022: £1.7m).

17.3 Other receivables (non-current)

Non-current other receivables of £26.8m (2022: £33.7m) include insurance reimbursements (see Note 29.2) of £21.4m (2022: £25.1m) and prepaid taxes of £1.7m (2022: £1.8m).

The Group applies the expected credit loss model under IFRS 9 to these other receivables. The expected credit loss for other receivables is immaterial.

The maximum exposure to credit risk at the end of the reporting period is the net carrying amount of these trade and other receivables.

17.4 Impairment of trade and other receivables

Details relating to the impairment of trade receivables are disclosed in Note 24.

18. Inventories

18.1 Accounting policy

Inventories are stated at the lower of cost and net realisable value. Cost comprises expenditure incurred in purchasing or manufacturing inventories together with all other costs directly incurred in bringing the inventory to its present location and condition and, where appropriate, attributable production overheads based on normal activity levels.

The standard cost method is used for measurement of the cost of inventories in some locations. Standard costs are regularly reviewed and, if necessary, revised in light of current conditions. Other locations measure the cost of inventories using actual costs. Net realisable value represents the estimated selling price less all estimated costs of completion and costs to be incurred in marketing, selling and distribution. The amount of any write-down of inventories to net realisable value is recognised as an expense in the year in which the write-down occurs.

The Group differentiates between work in progress (inventory that will be used in manufacturing processes and is not normally sold to third parties) and semi-finished goods (inventory that is considered as partially complete in end-to-end manufacturing processes and can be sold to a third party in its current state or used for further manufacturing).

18.2 Analysis of inventories

	2023 £m	2022 £m
Raw materials	**96.9**	104.6
Work in progress	**20.6**	22.0
Semi-finished goods	**24.4**	21.4
Finished goods	**149.1**	168.0
Total inventories	**291.0**	316.0

The cost of materials recognised as an expense and included in manufacturing costs of continuing operations in the Group Income Statement during the year was £853.5m (2022: £923.1m). 2022 comparatives for cost of materials recognised as an expense have been restated following review during 2023 where an arithmetic error was identified. This restatement did not impact the Income Statement or the balance sheet, it was purely a disclosure item.

The net inventories of £291.0m include a provision for obsolete stock of £19.7m (2022: £20.5m). There were inventory write-downs of £3.0m (2022: write-downs of £7.7m).

19. Acquisitions and Divestments

The Group did not acquire any material interests in any companies during the year ended 31 December 2023. There was no contingent consideration paid during the year ended 31 December 2023.

Notes to the Group Financial Statements continued

20. Issued Share Capital

20.1 Accounting policy

Equity instruments issued by the Company are recorded as the proceeds received, net of direct issue costs.

Where shares are redeemed or purchased as part of a share buyback programme, a sum equal to the amount by which the Company's share capital is diminished on cancellation of the shares is transferred to the capital redemption reserve.

20.2 Analysis of issued share capital

Allotted, issued and fully paid ordinary shares of 10p each	2023 Number m	2023 Nominal value £m	2022 Number m	2022 Nominal value £m
As at 1 January	**278.5**	**27.8**	278.5	27.8
Share buyback	**(0.6)**	**(0.1)**	–	–
As at 31 December	**277.9**	**27.7**	278.5	27.8

Further information relating to the Company's share capital is given in Note 9 to the Company's Financial Statements.

21. Retained Earnings

	Notes	Reserve for own shares £m	Share option reserve £m	Capital redemption reserve £m	Other retained earnings £m	Total retained earnings £m
As at 31 December 2021 and 1 January 2022		(34.5)	4.1	–	2,513.8	2,483.4
Profit for the year		–	–	–	181.1	181.1
Remeasurement of defined benefit liabilities/assets		–	–	–	27.4	27.4
Recognition of share-based payments		–	5.1	–	–	5.1
Release of share option reserve on exercised and lapsed options		1.2	(1.2)	–	–	–
Income tax on items recognised in other comprehensive income		–	–	–	(8.2)	(8.2)
Purchase of ESOP shares		(6.9)	–	–	–	(6.9)
Dividends paid	23	–	–	–	(58.1)	(58.1)
As at 31 December 2022 and 1 January 2023		**(40.2)**	**8.0**	–	**2,656.0**	**2,623.8**
Profit for the year		**–**	**–**	**–**	**118.5**	**118.5**
Remeasurement of defined benefit liabilities/assets		**–**	**–**	**–**	**8.4**	**8.4**
Recognition of share-based payments		**–**	**7.3**	**–**	**–**	**7.3**
Release of share option reserve on exercised and lapsed options		**3.2**	**(3.2)**	**–**	**–**	**–**
Income tax on items recognised in other comprehensive income		**–**	**–**	**–**	**(2.0)**	**(2.0)**
Purchase of ESOP shares		**(1.1)**	**–**	**–**	**–**	**(1.1)**
Share buyback		**–**	**–**	**(3.0)**	**–**	**(3.0)**
Dividends paid	23	**–**	**–**	**–**	**(60.7)**	**(60.7)**
As at 31 December 2023		**(38.1)**	**12.1**	**(3.0)**	**2,720.2**	**2,691.2**

22. Other Reserves

	Other reserves £m	Cash flow hedge reserve £m	Translation reserve £m	Total other reserves £m
As at 31 December 2021 and 1 January 2022	(1,499.3)	(1.1)	32.8	(1,467.6)
Exchange differences on translation of the net assets of foreign operations	–	–	96.1	96.1
Exchange differences on translation of net investment hedges	–	–	(20.7)	(20.7)
Net change in costs of hedging	–	–	–	–
Change in the fair value of the hedging instrument	–	8.3	–	8.3
Amounts reclassified from the Income Statement	–	(7.5)	–	(7.5)
As at 31 December 2022 and 1 January 2023	**(1,499.3)**	**(0.3)**	**108.2**	**(1,391.4)**
Exchange differences on translation of the net assets of foreign operations	**–**	**–**	**(80.8)**	**(80.8)**
Exchange differences on translation of net investment hedges	**–**	**–**	**7.9**	**7.9**
Net change in costs of hedging	**–**	**0.4**	**–**	**0.4**
Change in the fair value of the hedging instrument	**–**	**(4.2)**	**–**	**(4.2)**
Amounts reclassified from Net finance costs	**–**	**3.5**	**–**	**3.5**
As at 31 December 2023	**(1,499.3)**	**(0.6)**	**35.3**	**(1,464.6)**

Within other reserves as at 31 December 2023 is £1,499.0m (2022: £1,499.0m) arising from the demerger of Cookson Group plc, being the excess of the Vesuvius plc share capital of £1,777.9m over the total share capital and share premium of Cookson Group plc as at 14 December 2012 of £278.9m.

The translation reserve in the table above comprises foreign exchange differences attributable to the owners of the Parent. These exchange differences arise from the translation of the financial statements of foreign operations and from the translation of financial instruments that hedge the Group's net investment in foreign operations. In addition to foreign exchange differences attributable to the owners of the Parent, the Group Statement of Comprehensive Income includes foreign exchange differences attributable to non-controlling interests.

Of the closing balance in the translation reserve, an £8.5m debit (2022: £7.7m debit) relates to net investment hedging arrangements put in place on or after 1 January 2018 but discontinued as at the date of the Balance Sheet. The full closing balance in the cash flow hedge reserve relates to continuing hedges.

The cash flow hedge reserve balance includes the cost of hedging of £0.4m debit (2022: £0.9m debit).

Notes to the Group Financial Statements continued

23. Dividends paid to Equity Shareholders

	2023 £m	2022 £m
Amounts recognised as dividends and paid to equity shareholders during the year		
Final dividend for the year ended 31 December 2021 of 15.0p per ordinary share	–	40.5
Interim dividend for the year ended 31 December 2022 of 6.5p per ordinary share	–	17.6
Final dividend for the year ended 31 December 2022 of 15.75p per ordinary share	42.4	–
Interim dividend for the year ended 31 December 2023 of 6.8p per ordinary share	18.3	–
	60.7	58.1

A proposed final dividend for the year ended 31 December 2023 of £43.3m (2022: £42.3m), equivalent to 16.20 pence (2022: 15.75 pence) per ordinary share (TDIM: VSVS and ISIN: GB00B82YXW83), is subject to approval by shareholders at the Company's Annual General Meeting on 15 May 2024 and has not been included as a liability in these financial statements. If approved by shareholders, the dividend will be paid on 31 May 2024 to holders of ordinary shares on the register on 19 April 2024. The ordinary shares will be quoted ex-dividend on 18 April 2024. Any shareholder wishing to participate in the Vesuvius Dividend Reinvestment Plan needs to have submitted their election to do so by 9 May 2024.

24. Financial Risk Management

24.1 Accounting policy

(a) Valuation of financial assets and liabilities

The Group's financial assets and liabilities are measured as appropriate either at amortised cost or at fair value through other comprehensive income or at fair value through profit and loss.

IFRS 13 Fair Value Measurement requires classification of financial instruments within a hierarchy that prioritises the inputs to fair value measurement. The three levels of the fair value hierarchy are:

Level 1 – Unadjusted quoted prices in active markets for identical assets or liabilities

Level 2 – Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly

Level 3 – Inputs that are not based on observable market data

Trade receivables are amounts due from customers for goods sold or services performed in the ordinary course of business. Trade receivables are recognised initially at their fair value, which is the amount of consideration that is unconditional. The Group holds the trade receivables with the objective of collecting the contractual cash flows (held to collect) and therefore measures them at amortised cost.

Derivatives which do not meet the hedge accounting criteria are classified as fair value through profit and loss (held for trading).

The cross-currency interest rate swaps (see Note 24.2) which meet the hedging criteria are measured at fair value through other comprehensive income.

Loans and borrowings are initially recognised at fair value net of directly attributable transaction costs. After initial recognition, they are measured at amortised cost, using the effective interest method.

(b) Foreign currencies

The individual financial statements of each Group entity are prepared in their functional currency, which is the currency of the primary economic environment in which that entity operates. For the purpose of the Group Financial Statements, the results and financial position of each entity are translated into pounds sterling, which is the presentational currency of the Group.

Reporting foreign currency transactions in functional currency

Transactions in currencies other than the entity's functional currency are initially recorded at the rates of exchange prevailing at the end of the preceding month or on the date of the transaction itself. At each subsequent balance sheet date:

(i) Foreign currency monetary items are retranslated at the rates prevailing at the balance sheet date. Exchange differences arising on the settlement or retranslation of monetary items are recognised either in the Group Income Statement or the Group Statement of Comprehensive Income

(ii) Non-monetary items measured at historical cost in a foreign currency are not retranslated.

Translation from functional currency to presentational currency

When the functional currency of a Group entity is different from the Group's presentational currency, its results and financial position are translated into the presentational currency as follows:

(i) Assets and liabilities are translated using exchange rates prevailing at the balance sheet date

(ii) Income and expense items are translated at average exchange rates for the year, except where the use of such average rates does not approximate the exchange rate at the date of a specific transaction, in which case the transaction rate is used

24. Financial Risk Management continued

24.1 Accounting policy continued

(b) Foreign currencies continued

Translation from functional currency to presentational currency continued

(iii) All resulting exchange differences are recognised in other comprehensive income and presented in the translation reserve in equity and are reclassified to profit or loss in the period in which the foreign operation is disposed of or liquidated.

Net investment in foreign operations

Exchange differences arising on a monetary item that forms part of a reporting entity's net investment in a foreign operation are initially recognised in other comprehensive income and presented in the translation reserve in equity and reclassified to profit or loss on disposal of the net investment.

(c) Derivative financial instruments

The Group uses derivative financial instruments ('derivatives') to manage the financial risks associated with some of its underlying activities and the financing of those activities. Derivatives are measured at fair value using market prices at the balance sheet date. Any derivatives which form part of a hedge accounting relationship are designated as such on the date on which they are executed. Any derivatives which do not form part of a designated hedge accounting relationship are classified as 'held for trading' for accounting purposes and are accounted for at fair value through profit or loss. They are presented as current assets or liabilities to the extent they are expected to be settled within 12 months after the end of the reporting period.

(d) Cash flow hedges

Changes in the fair value of derivatives designated as cash flow hedges are recognised in other comprehensive income to the extent that the hedges are effective. Any ineffective portion would immediately be recognised in net finance costs in the profit or loss. If a forecast transaction is no longer expected to occur, the amounts previously recognised in other comprehensive income would be transferred to net finance costs in the profit or loss.

(e) Net investment hedges

The Group designates certain of its borrowings and derivatives as net investment hedges of its foreign operations. As with cash flow hedges, the effective portion of the gain or loss on hedging instruments is recognised in other comprehensive income whilst any ineffective portion would immediately be recognised in net finance costs in the profit or loss. In the event a foreign operation is disposed of or liquidated, amounts recognised in other comprehensive income are reclassified from equity to profit or loss.

24.2 Financial risk factors

The Group's Treasury department, acting in accordance with policies approved by the Board, is principally responsible for managing the financial risks faced by the Group. The Group's activities expose it to a variety of financial risks, the most significant of which are market risk and liquidity risk.

Analysis of financial instruments

The following table summarises Vesuvius' financial instruments measured at fair value and shows the level within the fair value hierarchy in which the financial instruments have been classified.

	2023		2022	
	Assets £m	Liabilities £m	Assets £m	Liabilities £m
Investments (Level 2)	**0.3**	**–**	0.5	–
Derivatives not designated for hedge accounting purposes (Level 2)	**–**	**(0.1)**	0.1	(0.1)
Derivatives designated for hedge accounting purposes (Level 2)	**0.6**	**–**	2.7	–

(a) Derivative financial instruments

The Group uses derivatives in the form of forward foreign currency contracts to manage the effects of its exposure to foreign exchange risk on trade receivables, trade payables and cash. Derivatives are only used for economic hedging purposes and not as speculative investments.

Notes to the Group Financial Statements continued

24. **Financial Risk Management** continued

24.2 **Financial risk factors** continued

(a) Derivative financial instruments continued

In 2020, the Group executed a US$86m cross-currency interest rate swap (CCIRS). The effect of this is to convert the $86m Private Placement Notes issued in 2020 into €76.6m. US dollar cash flows under the CCIRS exactly mirror those of the Private Placement Notes and the maturity date of the CCIRS matches the repayment date of the Notes. The CCIRS would by default be revalued through the Income Statement; however, as it is in a designated hedging relationship, it is revalued through other comprehensive income. The US dollar exposure is designated as a cash flow hedge of the Private Placement Notes and the euro exposure is designated as a net investment hedge of the Group's foreign operations. The CCIRS is presented as a non-current asset or liability as it is expected to be settled more than 12 months after the end of the reporting period.

With the exception of the CCIRS, the fair value of derivatives outstanding at the year-end has been booked through the Income Statement in 2023. All of the fair values shown in the table above are classified under IFRS 13 as Level 2 measurements which have been calculated using quoted prices from active markets, where similar contracts are traded and the quotes reflect actual transactions in similar instruments. All the derivative assets and liabilities not designated for hedge accounting purposes reported above will mature in 2024.

Derivative financial instruments are subject to International Swaps and Derivatives Association (ISDA) agreements. Derivatives designated for hedge accounting purposes are presented net £0.6m (2022: £2.7m), of which £0.8m are gross assets and £0.2m are gross liabilities (2022: gross assets £2.7m and gross liabilities £nil).

(b) Market risk

Market risk is the risk that either the fair values or the cash flows of the Group's financial instruments may fluctuate because of changes in market prices. The Group is principally exposed to market risk through fluctuations in exchange rates and interest rates.

Currency risk

The Group Income Statement is exposed to currency risk on monetary items that are denominated in currencies other than the functional currency of the companies in which they are held. The currency profile of these financial assets and financial liabilities is shown in the table below.

	2023			2022		
	Euro £m	US dollar £m	Other £m	Euro £m	US dollar £m	Other £m
Trade receivables	**70.3**	**56.9**	**11.6**	82.0	58.7	9.3
Cash at bank	**6.5**	**12.1**	**2.6**	10.1	9.8	0.7
Trade payables	**(43.0)**	**(38.6)**	**(17.8)**	(52.6)	(47.4)	(16.2)
Private Placement Notes	**(171.7)**	**(91.1)**	**–**	(175.2)	(120.7)	–
Bank loans and overdrafts	**(42.7)**	**–**	**–**	(44.8)	(0.1)	(0.1)
Lease liabilities	**(1.3)**	**–**	**(1.8)**	(1.5)	(0.3)	(0.8)
Cross-currency interest rate swaps	**(66.4)**	**67.6**	**–**	(67.8)	71.1	–
Foreign currency forward contracts						
– Buy foreign currency	**0.5**	**2.4**	**0.1**	0.9	4.8	–
– Sell foreign currency	**(26.5)**	**(27.6)**	**–**	(16.9)	(22.3)	–
	(274.3)	**(18.3)**	**(5.3)**	(265.8)	(46.4)	(7.1)

The Group has £(1.3)m (2022: £(1.4)m) of exchange differences recognised in the Income Statement of which £(0.3)m arose on the revaluation of derivatives (2022: £(1.8)m).

24. Financial Risk Management continued

24.2 Financial risk factors continued

The tables below show the net unhedged monetary assets and liabilities of Group companies that are not denominated in their functional currency and which could give rise to exchange gains and losses in the Group Income Statement.

	Net unhedged monetary (liabilities)/assets			
	Euro £m	US dollar £m	Other £m	Total £m
Functional currency				
Sterling	**(281.7)**	**(22.4)**	**1.5**	**(302.6)**
Other	**7.4**	**4.1**	**(6.8)**	**4.7**
As at 31 December 2023	**(274.3)**	**(18.3)**	**(5.3)**	**(297.9)**

	Net unhedged monetary (liabilities)/assets			
	Euro £m	US dollar £m	Other £m	Total £m
Functional currency				
Sterling	(286.9)	(49.3)	1.1	(335.1)
Other	21.0	2.9	(8.0)	15.9
As at 31 December 2022	(265.9)	(46.4)	(6.9)	(319.2)

As at 31 December 2023, €246.0m and $30.0m (2022: €246.0m and $60.0m) of borrowings were designated hedges of net investments in €246.0m and $30.0m (2022: €246.0m and $60.0m) worth of foreign operations. In addition, the €76.6m (2022: €76.6m) CCIRS liability has been designated as a net investment hedge of a further €76.6m (2022: €76.6m) worth of foreign operations.

As the value of the borrowings and the CCIRS liability exactly matches the designated hedged portion of the net investments, the relevant hedge ratio is 1:1. The net investment hedges are therefore highly effective. It is noted that hedge ineffectiveness would arise in the event there were insufficient euro-denominated foreign operations to be matched against the €76.6m CCIRS liability.

The total retranslation impact of the borrowings and CCIRS designated as net investment hedges was a gain of £7.9m (2022: a loss of £20.7m).

The $86.0m CCIRS asset has been designated as a cash flow hedge of the $86.0m USPP Notes issued in 2020. As all principal and interest cash flows under the CCIRS exactly mirror those under the USPP Notes, the cash flow hedge is highly effective. It is noted that hedge ineffectiveness would arise in the event of a change in the contractual terms of either the USPP Notes or the CCIRS.

Hedge effectiveness is determined at inception of the hedge relationship and through periodic effectiveness assessments, to ensure that an economic relationship exists between the hedged item and hedging instrument.

Interest rate risk

The Group's interest rate risk principally arises in relation to its borrowings. Where borrowings are held at floating rates of interest, fluctuations in interest rates expose the Group to variability in the cash flows associated with its interest payments, and where borrowings are held at fixed rates of interest, fluctuations in interest rates expose the Group to changes in the fair value of its borrowings. The Group's policy is to maintain an appropriate mix of fixed and floating rate borrowings based on the Vesuvius trading environment, market conditions and other economic factors.

Notes to the Group Financial Statements continued

24. Financial Risk Management continued

24.2 Financial risk factors continued

(b) Market risk continued

As at 31 December 2023, the Group had $116.0m, €198.0m and £28.0m (£290.8m in total) of US Private Placement (USPP) Notes outstanding (2022: $146.0m, €198.0m and £28.0m (£323.9m in total)), which carry a fixed rate of interest, representing 82% (2022: 81%) of the Group's total borrowings outstanding at that date. The interest rate profile of the Group's borrowings is detailed in the tables below.

	Financial liabilities (gross borrowings)		
	Fixed rate £m	Floating rate £m	Total £m
Sterling	**28.0**	**21.5**	**49.5**
US dollar	**91.1**	**0.1**	**91.2**
Euro	**171.7**	**43.4**	**215.1**
Capitalised arrangement fees	**(0.7)**	**(1.1)**	**(1.8)**
As at 31 December 2023	**290.1**	**63.9**	**354.0**

	Financial liabilities (gross borrowings)		
	Fixed rate £m	Floating rate £m	Total £m
Sterling	28.0	33.3	61.3
US dollar	120.7	1.9	122.6
Euro	175.2	44.8	220.0
Capitalised arrangement fees	(0.9)	(1.8)	(2.7)
As at 31 December 2022	323.0	78.2	401.2

Information in respect of the currency risk management of $86.0m of US dollar-denominated fixed rate financial liabilities is provided above in Note 24.2(a).

The floating rate financial liabilities shown in the tables above bear interest at a market convention reference rate appropriate to each currency plus a margin. The fixed rate financial liabilities of £290.8m (2022: £323.9m) have a weighted average interest rate of 3.1% (2022: 3.2%) and a weighted average period for which the rate is fixed of 4.5 years (2022: 5.2 years).

The financial assets attract floating rate interest.

Based upon the interest rate profile of the Group's financial liabilities shown in the tables above, a 1% increase in market interest rates would increase the finance costs charged in the Group Income Statement and the interest paid in the Group Statement of Cash Flows by £0.6m (2022: £0.8m), and a 1% reduction in market interest rates would decrease the finance costs charged in the Group Income Statement and the interest paid in the Group Statement of Cash Flows by £0.6m (2022: £0.8m).

(c) Credit risk

Credit risk arises from cash and cash equivalents, derivative financial assets and deposits with banks and financial institutions, as well as credit exposures to customers, including outstanding receivables and other receivables.

(i) Risk management

For banks and financial institutions, apart from certain limited circumstances, Group policy is that only independently rated entities with a minimum rating of 'A-' are accepted as counterparties. In addition, the Group's operating companies have policies and procedures in place to assess the creditworthiness of the customers with whom they do business.

(ii) Impairment of financial assets

The Group subjects trade receivables from sales of inventory and from the provision of services to the expected credit loss model.

Whilst cash and cash equivalents are also subject to the impairment requirements of IFRS 9, the identified impairment loss was immaterial.

The Group applies the IFRS 9 simplified approach to measuring expected credit losses, which uses a lifetime expected loss allowance for all trade receivables and contract assets. The expected loss rates are based on the payment profiles of sales over a period of 60 months before 31 December 2022 and the corresponding historical credit losses experienced within this period. The historical loss rates are adjusted to reflect current and forward-looking information on macroeconomic factors affecting the ability of the customers to settle the receivables. The Group has identified the current state of the economy (such as market interest rates or growth rates) and particular industry issues in the countries in which it sells its goods and services to be the most relevant factors, and accordingly adjusts the historical loss rates based on expected changes in these factors.

24. Financial Risk Management continued

24.2 Financial risk factors continued

(c) Credit risk continued

Regardless of the analysis above, a significant increase in credit risk is presumed if a debtor is more than 30 days past due in making a contractual payment. Where objective evidence exists that a trade receivable balance may be impaired, provision is made for the difference between its carrying amount and the present value of the estimated cash that will be recovered.

Evidence of impairment may include such factors as a change in credit risk profile of the customer, the customer being in default on a contract, or the customer entering bankruptcy or financial reorganisation proceedings. All significant balances are reviewed individually for evidence of impairment.

Trade receivables and contract assets are written off when there is no reasonable expectation of recovery. Indicators that there is no reasonable expectation of recovery include, amongst others, the failure of a debtor to engage in a repayment plan with the Group, and a failure to make contractual payments for a period of greater than 120 days past due. Where loans or receivables have been written off, the Company continues to engage in enforcement activity to attempt to recover the receivable due.

Where recoveries are made, these are recognised within the Income Statement.

The closing expected credit loss allowance for trade receivables as at 31 December 2023 reconciles to the opening loss allowances as follows:

	2023 £m	2022 £m
As at 1 January	**32.8**	22.7
(Decrease)/increase in expected credit loss allowance recognised in profit or loss during the year	**(2.6)**	9.9
Receivables written off during the year as uncollectable	**(2.6)**	(0.7)
Exchange adjustments	**(1.0)**	0.9
As at 31 December	**26.6**	32.8

The debit for the year shown in the table above is recorded within administration, selling and distribution costs in the Group Income Statement.

Historical experience has shown that the Group's trade receivable provisions are maintained at levels that are sufficient to absorb actual bad debt write-offs, without being excessive. The Group considers the credit quality of financial assets that are neither past due nor impaired as good.

The Group also applies the expected credit loss model under IFRS 9 to other receivables. If, at the reporting date, the credit risk of the receivables has not increased significantly since initial recognition, the Group measures the loss allowance at an amount equal to 12-month expected credit losses. If the credit risk on that receivable has increased significantly since initial recognition, the Group measures the loss allowance at an amount equal to the lifetime expected credit losses. The expected credit loss on other receivables is not material.

(d) Liquidity risk

Liquidity risk is the risk that the Group might have difficulties in meeting its financial obligations. The Group manages this by ensuring it maintains sufficient levels of committed borrowing facilities and cash and cash equivalents to meet its operational cash flow requirements and maturing financial liabilities, whilst at all times operating within its financial covenants. The level of operational headroom provided by the Group's committed borrowing facilities is reviewed at least annually as part of the Group's three-year planning process. Where this process indicates a need for additional finance, this is addressed on a timely basis by means of either additional committed bank facilities or raising finance in the capital markets.

In May 2023, the Group exercised its option to request a one-year extension to the maturity of the £38.5m component of its £385m committed bank facility not previously extended. Following the request 100% of the £385m facility now matures in August 2026. At the time of the extension the reference to USD LIBOR was replaced with reference to SOFR.

As at 31 December 2023, the Group had committed borrowing facilities of £685.8m (2022: £721.9m), of which £333.4m (2022: £322.5m) were undrawn. 100% of these undrawn facilities expire in 2026. The Group's borrowing requirements are met by USPP, a committed syndicated bank facility of £385.0m (2022: £385.0m) and a bilateral bank facility of £10.0m (2022: £13.0m) which is collateralised against a portion of the Group's cash in China.

USPP Notes issued as at 31 December 2023 amounted to £290.8m ($116.0m, €198.0m and £28.0m) and had a weighted average period to maturity of 4.5 years. $30.0m was repaid in December 2023 from existing cash resources. €15.0m and $60.0m are repayable in 2025, €100.0m and $26.0m in 2027, $30.0m in 2028, €50.0m in 2029 and €33.0m and £28.0m in 2031. The maturity analysis of the Group's gross borrowings (including interest) is shown in the tables below. The cash flows shown are undiscounted.

Notes to the Group Financial Statements continued

24. Financial Risk Management continued

24.2 Financial risk factors continued

(d) Liquidity risk continued

As at 31 December 2023	Within 1 year £m	Between 1 and 2 years £m	Between 2 and 5 years £m	Over 5 years £m	Total contractual cash flows £m	Carrying amount £m
Trade payables	236.4	–	–	–	236.4	236.4
Loans and overdrafts	22.3	68.0	196.9	103.9	391.1	355.8
Lease liabilities	13.5	12.2	17.0	19.4	62.1	48.2
Capitalised arrangement fees	–	–	–	–	–	(1.8)
Derivative liability	0.1	–	–	–	0.1	0.1
Total financial liabilities	272.3	80.2	213.9	123.3	689.7	638.7

As at 31 December 2022	Within 1 year £m	Between 1 and 2 years £m	Between 2 and 5 years £m	Over 5 years £m	Total contractual cash flows £m	Carrying amount £m
Trade payables	239.5	–	–	–	239.5	239.5
Loans and overdrafts	52.6	9.2	255.3	133.4	450.5	403.8
Lease liabilities	12.3	9.2	13.2	13.5	48.2	40.8
Capitalised arrangement fees	–	–	–	–	–	(2.7)
Derivative liability	0.1	–	–	–	0.1	0.1
Total financial liabilities	304.5	18.4	268.5	146.9	738.3	681.5

Capitalised arrangement fees shown in the tables above, which have been recognised as a reduction in borrowings in the Financial Statements, amounted to £1.8m as at 31 December 2023 (31 December 2022: £2.7m), of which £0.6m (2022: £0.9m) related to the USPP and £1.2m (2022: £1.8m) related to the Group's syndicated bank facility.

The carrying amount of lease liabilities falling due within one year was £13.5m (2022: 12.3m). The carrying amount of lease liabilities falling due after more than one year was £34.7m (2022: £28.5m).

24.3 Capital management

The Company considers its capital to be equal to the sum of its total equity, disclosed on the Group Balance Sheet, and net debt (Note 13). It monitors its capital using a number of KPIs, including free cash flow, average working capital to sales ratios, net debt to EBITDA ratios and ROIC (Note 35). The Group's objectives when managing its capital are:

- To ensure that the Group and all of its businesses are able to operate as going concerns and ensure that the Group operates within the financial covenants contained within its debt facilities
- To have available the necessary financial resources to allow the Group to invest in areas that may deliver acceptable future returns to investors
- To maintain sufficient financial resources to mitigate against risks and unforeseen events
- To maximise shareholder value through maintaining an appropriate balance between the Group's equity and net debt

The Group operated within the requirements of its debt covenants throughout the year and has sufficient liquidity headroom within its committed debt facilities. Details of the Group's covenant compliance and committed debt facilities can be found in the Strategic Report on page 76.

25. Employee Benefits

25.1 Accounting policy

The net liability or net surplus recognised in the Group Balance Sheet for the Group's defined benefit plans is the present value of the defined benefit obligation at the balance sheet date, less the fair value of the plan assets. The defined benefit obligation is calculated by independent actuaries using the projected unit credit method and by discounting the estimated future cash flows using interest rates on high-quality corporate bonds that have durations approximating the terms of the related pension liability.

Any asset recognised in respect of a surplus arising from this calculation is limited to the asset ceiling, where this is the present value of any economic benefits available in the form of refunds or reductions in future contributions in respect of the plans. The Group has an unconditional right to a refund of the UK surplus, as defined under IFRIC 14, and considers that the possibility that a surplus could be reduced or extinguished by discretionary actions by the Trustee does not affect the existence of the asset at the end of the reporting period. The Group therefore recognises a pension asset with respect to the scheme valued on an IAS 19 basis. No liability is recognised with respect to further funding contributions.

The expense for the Group's defined benefit plans is recognised in the Group Income Statement as shown in Note 25.8. Actuarial gains and losses arising on the assets and liabilities of the plans are reported within the Group Statement of Comprehensive Income; and gains and losses arising on settlements and curtailments are recognised in the Group Income Statement in the same line as the item that gave rise to the settlement or curtailment or, if material, separately reported as a component of operating profit.

25.2 Group post-retirement plans

The Group operates a number of pension plans around the world, both defined benefit and defined contribution, and accounts for them in accordance with IAS 19. There are also some jubilee arrangements (other long-term benefits plans) which, while they do not need to be included in the detailed disclosures under IAS 19, have been included in the analysis below.

The Group's principal defined benefit pension plans are in the UK and the US, the benefits of which are based upon the final pensionable salaries of plan members. The assets of these plans are held separately from the Group in trustee-administered funds. The Trustees are required to act in the best interests of the plans' beneficiaries. The Group also has defined benefit pension plans in other territories but, except for those in Germany, these are not individually material in relation to the Group.

(a) Defined benefit pension plans – UK

The Group's main defined benefit pension plan in the UK ('the UK Plan') is closed to new members and to future benefit accrual. The existing plan was established under a trust deed and is subject to the Pensions Act 2004 and guidance issued by the UK Pensions Regulator.

In November 2021, the Trustee of the Vesuvius Pension Plan signed a pension insurance buy-in agreement with Pension Insurance Corporation plc (PIC). This buy-in secured an insurance asset from PIC that matches the remaining pension liabilities of the UK Plan, with the result that the Company no longer bears any investment, longevity, interest rate or inflation risks in respect of the UK Plan. All benefits in the UK Plan (with the exception of a small amount of benefits expected to arise in future as a result of guaranteed minimum pensions (GMP) equalisation) are now insured with PIC.

There is a 'long-term scheme-specific funding standard' in Part 3 of the Pensions Act 2004. In terms of Part 3, the UK Plan is subject to a requirement ('the statutory funding objective') that it must have sufficient and appropriate assets to cover its technical provisions. Such technical provisions are determined as part of the triennial valuation. Under the rules of the UK Plan, the Trustee, after consultation with the Company, has the power to set the funding contributions taking into account the results of the triennial valuation and the Pension Act 2004 legislation. Following the buy-in referred to above, no further contributions are expected to be paid to the UK Plan by the Company, and the cost of GMP equalisation will be met out of the surplus UK Plan assets.

(b) Defined benefit pension plans – US

The Group has several defined benefit pension plans in the US, providing retirement benefits based on final salary or a fixed benefit. The Group's principal US defined benefit pension plans are closed to new members and to future benefit accrual for existing members. Actuarial valuations of the US defined benefit pension plans are carried out every year and the last full valuation was carried out as at 31 December 2023. At that date, the market value of the plan assets was $48.7m, representing a funding level of 77.8% of funded accrued plan benefits at that date (using the projected unit method of valuation) of $62.6m. Funding levels for the Group's US defined benefit pension plans are based upon annual valuations carried out by independent qualified actuaries and are governed by US Government regulations.

The Group's US qualified defined benefit pension plan is subject to the minimum contribution requirements of the Internal Revenue Code Sections 412 and 430. Contributions are determined by trustees, in consultation with the Company, based on the annual valuations which are submitted to the Internal Revenue Service. During the fiscal year beginning 1 January 2023, total minimum required contributions were $nil. Under these funding laws and based on the plan deficit, the required minimum annual contribution for the 2024 fiscal year is expected to be $3.2m and the required annual contributions for the period 2025–2026 are expected to be in the $1.3m to $2.3m range. No contributions were made during 2023.

Notes to the Group Financial Statements continued

25. Employee Benefits continued

25.2 Group post-retirement plans continued

(c) Defined benefit pension plans – Germany

The Group has several defined benefit pension arrangements in Germany which are unfunded, as is common practice in that country. The main plan was closed to new entrants on 31 December 2016 and replaced by a defined contribution plan for new joiners. The German defined benefit plan contains mainly direct pension promises based on works council agreements as well as on some individual pension promises. The legal framework is the German Company Pensions Act ('Betriebsrentengesetz'). The plan is unfunded (book reserved) and the Company pays all benefit payments when they fall due.

(d) Defined benefit pension plans – rest of the world and other post-retirement benefits

The Group has several defined benefit pension arrangements across the rest of the world (ROW), the largest of which are in Belgium. The net liability of the ROW plans at 31 December 2023 was £8.3m (2022: £9.2m). The Group also has liabilities relating to medical insurance arrangements and termination plans which provide for benefit to be paid to employees on retirement. The net liability of these other post-retirement benefits as at 31 December 2023 was £9.9m (2022: £9.4m).

(e) Defined contribution pension plans

The total expense for the Group's defined contribution plans in the Group Income Statement amounted to £12.1m (2022: £10.8m) and represents the contributions payable for the year by the Group to the plans.

(f) Multi-employer plans

Due to collective agreements, Vesuvius in the US participates, together with other enterprises, in union-run multi-employer pension plans for temporary workers hired on sites. These are accounted for as defined contribution plans.

25.3 Post-retirement liability valuation

The main assumptions used in calculating the costs and obligations of the Group's defined benefit pension plans, as detailed below, are set by the Directors after consultation with independent professionally qualified actuaries and include those used to determine regular service costs and the financing elements related to the plans' assets and liabilities. It is the Directors' responsibility to set the assumptions used in determining the key elements of the costs of meeting such future obligations. Whilst the Directors believe that the assumptions used are appropriate, a change in the assumptions used could affect the Group's profit and financial position.

(a) Mortality assumptions

The mortality assumptions used in the actuarial valuations of the Group's UK, US and German defined benefit pension liabilities are summarised in the table below and have been selected to reflect the characteristics and experience of the membership of those plans.

For the UK Plan, the assumptions used have been derived from the Self-Administered Pension Schemes ('SAPS S3') All table, with future longevity improvements in line with the 'core' mortality improvement tables published in 2022 by the Continuous Mortality Investigation (CMI), with a long-term rate of improvement of 1.25% per year. For the Group's US plans, the assumptions used have been based on the Pri-2012 mortality tables and MP-2021 projection scale. The Group's major plans in Germany have been valued using the modified Heubeck Richttafeln 2018G mortality tables. In respect of the life expectancy tables below, current pensioners are assumed to be 65 years old, while future pensioners are assumed to be 45 years old.

	2023			2022		
Life expectancy of pension plan members	**UK years**	**US years**	**Germany years**	UK years	US years	Germany years
Age to which current pensioners are expected to live:						
– Men	**86.8**	**85.6**	**85.8**	87.2	85.0	85.6
– Women	**88.6**	**87.6**	**89.2**	89.0	87.0	89.0
Age to which future pensioners are expected to live:						
– Men	**87.0**	**87.1**	**88.5**	87.5	86.5	88.4
– Women	**90.0**	**89.0**	**91.4**	90.5	88.4	91.3

25. Employee Benefits continued

25.3 Post-retirement liability valuation continued

(b) Other main actuarial valuation assumptions

	2023			2022		
	UK % p.a.	US % p.a.	Germany % p.a.	UK % p.a.	US % p.a.	Germany % p.a.
Discount rate	**4.55**	**4.70**	**3.30**	4.80	4.90	3.70
Price inflation – using RPI for UK	**3.05**	**2.50**	**2.25**	3.25	2.50	2.35
– using CPI for UK	**2.45**	**n/a**	**n/a**	2.35	n/a	n/a
Rate of increase in pensionable salaries	**n/a**	**n/a**	**3.00**	n/a	n/a	3.10
Rate of increase to pensions in payment	**2.85**	**n/a**	**2.25**	3.00	n/a	2.35

The discount rate used to determine the liabilities of the UK Plan for IAS 19 accounting purposes is required to be determined by reference to market yields on high-quality corporate bonds. The UK discount rate in the above table is based on analysis using the expected future cash flows of the Vesuvius Pension Plan and the AON AA yield curve; the US discount rate is based on the FTSE pension discount curve; and the Germany discount rate is based on AA corporate bond yields included in the iBoxx Euro AA corporate bond indices.

The assumptions for UK price inflation are set by reference to the difference between yields on longer-term conventional government bonds and index-linked bonds, except for CPI, for which no appropriate bonds exist, which is assumed to be 0.6 points lower (2022: 0.9 points lower) than RPI-based inflation.

(c) Sensitivity analysis of the impact of changes in significant IAS 19 actuarial assumptions

The US pensions are not inflation linked. The rate of increase in pensionable salaries and of pensions in payment is therefore not significant to the valuation of the Group's overall pension liabilities.

The sensitivity of the defined benefit obligation to changes in the weighted principal assumptions is:

Assumption	Change in assumption	UK[1]	US	Germany
Discount rate	Increase/decrease by 0.1%			
	– impact on plan liabilities	Decrease/increase by £3.7m	Decrease/increase by £0.5m	Decrease/increase by £0.6m
	– impact on plan assets	Decrease/increase by £3.7m	n/a	n/a
Price inflation	Increase/decrease by 0.1%			
	– impact on plan liabilities	Increase/decrease by £2.6m	n/a	Increase/decrease by £0.2m
	– impact on plan assets	Increase/decrease by £2.6m	n/a	n/a
Mortality	Increase by one year			
	– impact on plan liabilities	Increase by £15.1m	Increase by £2.0m	Increase by £1.3m
	– impact on plan assets	Increase by £15.1m	n/a	n/a

1. The UK Plan Trustee has entered into a pension insurance buy-in agreement with the Pension Insurance Corporation (PIC). This buy-in secured an insurance asset from PIC that matches the remaining pension liabilities of the UK Plan, with the result that the Company no longer bears any investment, longevity, interest rate or inflation risks in respect of the UK Plan.

Notes to the Group Financial Statements continued

25. Employee Benefits continued

25.4 Defined benefit obligation

The average duration of the obligations to which the liabilities of the Group's principal pension plans relate is 12 years for the UK, 15 years for Germany and 9 years for the US.

	Defined benefit pension plans					Other post-retirement & long-term benefit plans	
	UK £m	US £m	Germany £m	ROW £m	Total £m	£m	Total £m
Present value as at 1 January 2023	**325.2**	**59.9**	**38.4**	**43.3**	**466.8**	**9.4**	**476.2**
Exchange differences	–	(3.0)	(0.8)	(1.5)	(5.3)	0.3	(5.0)
Current service cost	–	–	0.6	3.0	3.6	0.5	4.1
Interest cost	15.1	2.7	1.2	1.7	20.7	0.6	21.3
Gains arising over the year that are recognised in P&L	–	–	–	–	–	–	–
Remeasurement of liabilities:							
– demographic changes	(5.5)	–	–	0.1	(5.4)	–	(5.4)
– financial assumptions	5.9	0.9	3.0	(0.4)	9.4	(0.1)	9.3
– experience losses/(gains)	8.8	0.4	0.5	0.5	10.2	(0.1)	10.1
Benefits paid	(21.1)	(4.5)	(1.6)	(3.6)	(30.8)	(0.7)	(31.5)
Present value as at 31 December 2023	**328.4**	**56.4**	**41.3**	**43.1**	**469.2**	**9.9**	**479.1**

	Defined benefit pension plans					Other post-retirement & long-term benefit plans	
	UK £m	US £m	Germany £m	ROW £m	Total £m	£m	Total £m
Present value as at 1 January 2022	464.3	70.2	53.3	48.3	636.1	7.0	643.1
Reclassification to other post-retirement & long-term benefit plans	–	–	–	(2.0)	(2.0)	2.0	–
Exchange differences	–	7.9	2.2	1.7	11.8	0.7	12.5
Current service cost	–	–	1.0	3.0	4.0	0.8	4.8
Interest cost	9.0	1.8	0.7	0.7	12.2	0.3	12.5
Gains arising over the year that are recognised in P&L	–	–	–	–	–	(0.4)	(0.4)
Remeasurement of liabilities:							
– demographic changes	(6.1)	–	–	(0.1)	(6.2)	–	(6.2)
– financial assumptions	(148.5)	(15.0)	(18.3)	(6.8)	(188.6)	(0.5)	(189.1)
– experience losses/(gains)	28.9	(0.5)	1.1	0.8	30.3	0.3	30.6
Benefits paid	(22.4)	(4.5)	(1.6)	(2.3)	(30.8)	(0.8)	(31.6)
Present value as at 31 December 2022	325.2	59.9	38.4	43.3	466.8	9.4	476.2

25. Employee Benefits continued

25.5 Fair value of plan assets

	2023 UK £m	2023 US £m	2023 ROW £m	2023 Total £m	2022 UK £m	2022 US £m	2022 ROW £m	2022 Total £m
As at 1 January	**348.6**	**37.4**	**34.1**	**420.1**	486.4	48.3	31.4	566.1
Exchange differences	**–**	**(2.0)**	**(1.5)**	**(3.5)**	–	5.5	1.2	6.7
Interest income	**16.1**	**1.7**	**1.2**	**19.0**	9.5	1.2	0.4	11.1
Return on plan assets	**16.6**	**5.2**	**0.6**	**22.4**	(124.4)	(13.4)	0.5	(137.3)
Contributions from employer	**–**	**–**	**3.8**	**3.8**	–	–	2.7	2.7
Administration expenses paid	**(0.6)**	**(0.5)**	**–**	**(1.1)**	(0.6)	(0.6)	–	(1.2)
Benefits paid	**(20.9)**	**(3.6)**	**(3.4)**	**(27.9)**	(22.3)	(3.6)	(2.1)	(28.0)
As at 31 December	**359.8**	**38.2**	**34.8**	**432.8**	348.6	37.4	34.1	420.1

The Group's pension plans in Germany are unfunded, as is common practice in that country, and accordingly there are no assets associated with these plans.

25.6 Remeasurement of defined benefit liabilities/assets

	2023 total £m	2022 total £m
Remeasurement of liabilities/assets:		
– demographic changes	**5.4**	6.2
– financial assumptions	**(9.3)**	189.1
– experience losses	**(10.1)**	(30.6)
Return on plan assets	**22.4**	(137.3)
Total movement	**8.4**	27.4

The remeasurement of defined benefit liabilities and assets is recognised in the Group Statement of Comprehensive Income.

25.7 Balance sheet recognition

The amount recognised in the Group Balance Sheet in respect of the Group's defined benefit pension plans and other post-retirement and long-term benefit plans is analysed in the following tables, which all relate to continuing operations. All equity securities and bonds have quoted prices in active markets.

	Defined benefit pension plans UK £m	Defined benefit pension plans US £m	Defined benefit pension plans Germany £m	Defined benefit pension plans ROW £m	Defined benefit pension plans Total £m	Other post-retirement & long-term benefit plans £m	2023 total £m
Equities	**18.5**	**3.9**	**–**	**2.8**	**25.2**	**–**	**25.2**
Bonds	**–**	**32.8**	**–**	**2.2**	**35.0**	**–**	**35.0**
Annuity insurance contracts	**321.3**	**–**	**–**	**27.8**	**349.1**	**–**	**349.1**
Other assets	**20.0**	**1.5**	**–**	**2.0**	**23.5**	**–**	**23.5**
Fair value of plan assets	**359.8**	**38.2**	**–**	**34.8**	**432.8**	**–**	**432.8**
Present value of funded obligations	**(327.3)**	**(49.1)**	**–**	**(39.9)**	**(416.3)**	**–**	**(416.3)**
	32.5	**(10.9)**	**–**	**(5.1)**	**16.5**	**–**	**16.5**
Present value of unfunded obligations	**(1.1)**	**(7.3)**	**(41.3)**	**(3.2)**	**(52.9)**	**(9.9)**	**(62.8)**
Total net surpluses/(liabilities)	**31.4**	**(18.2)**	**(41.3)**	**(8.3)**	**(36.4)**	**(9.9)**	**(46.3)**
Recognised in the Group Balance Sheet as:							
Net surpluses	**32.5**	**–**	**–**	**2.1**	**34.6**	**–**	**34.6**
Net liabilities	**(1.1)**	**(18.2)**	**(41.3)**	**(10.4)**	**(71.0)**	**(9.9)**	**(80.9)**
Total net surpluses/(liabilities)	**31.4**	**(18.2)**	**(41.3)**	**(8.3)**	**(36.4)**	**(9.9)**	**(46.3)**

Notes to the Group Financial Statements continued

25. Employee Benefits continued

25.7 Balance sheet recognition continued

	Defined benefit pension plans					Other post-retirement & long-term benefit plans	2022 total
	UK £m	US £m	Germany £m	ROW £m	Total £m	£m	£m
Equities	12.1	0.5	–	2.3	14.9	–	14.9
Bonds	–	35.6	–	3.0	38.6	–	38.6
Annuity insurance contracts	318.1	–	–	24.7	342.8	–	342.8
Other assets	18.4	1.3	–	4.1	23.8	–	23.8
Fair value of plan assets	348.6	37.4	–	34.1	420.1	–	420.1
Present value of funded obligations	(324.1)	(51.7)	–	(40.2)	(416.0)	–	(416.0)
	24.5	(14.3)	–	(6.1)	4.1	–	4.1
Present value of unfunded obligations	(1.1)	(8.2)	(38.4)	(3.1)	(50.8)	(9.4)	(60.2)
Total net surpluses/(liabilities)	23.4	(22.5)	(38.4)	(9.2)	(46.7)	(9.4)	(56.1)
Recognised in the Group Balance Sheet as:							
Net surpluses	24.5	–	–	1.7	26.2	–	26.2
Net liabilities	(1.1)	(22.5)	(38.4)	(10.9)	(72.9)	(9.4)	(82.3)
Total net surpluses/(liabilities)	23.4	(22.5)	(38.4)	(9.2)	(46.7)	(9.4)	(56.1)

(a) UK Plan asset allocation

As at 31 December 2023, of the UK Plan's total assets, 89.3% (2022: 91.4%) were represented by the annuity insurance contracts covering the UK Plan's pension liabilities; 5.1% (2022: 3.4%) were allocated to equities and 5.6% (2022: 5.2%) to cash.

The UK Plan Trustee has entered into a pension insurance buy-in agreement with the Pension Insurance Corporation (PIC), whereby the UK Plan Trustee has paid insurance premiums to PIC to insure all of the UK Plan's liabilities. Under this arrangement, the value of the PIC insurance contract matches the value of the liabilities for current benefits because the inflation, interest rate, investment and longevity risks for Vesuvius in respect of these liabilities are eliminated. The buy-in agreement ensures that the UK pension plan obligations in respect of all its members and their approved dependants are insured.

As at 31 December 2023, the IAS 19 valuation of the PIC insurance contract value associated with the bought-in liabilities was £321.3m (2022: £318.1m). The policy and the associated valuation are updated annually to reflect retirements and mortality.

(b) US Plan asset allocation

All of the assets in the main US Plan have a quoted market price in an active market. The Plan mitigates exposure to interest rates by employing a liability matching investment strategy. All non-derivative assets are invested in liability matching bonds with a similar average duration to the liabilities of the Plan. Since 2018, the investment allocation has been de-risked from an allocation of 72% liability matching and 28% return seeking assets, to an allocation of 100% liability matching. The Plan retains equity risk through use of equity derivative contracts, which provide equity market exposure with some level of equity downside protection.

(c) Defined benefit contributions in 2024

In 2024, the Group is expected to make direct benefit payments and contributions into its defined benefit pension and other post-retirement and long-term benefits plans of around £10.0m. Specific payments and contributions of approximately £3.5m, £2.0m and £2.2m are anticipated for the US Plans, German Plans and Belgian Plans respectively.

25. Employee Benefits continued

25.8 Income statement recognition

The expense recognised in the Group Income Statement in respect of the Group's defined benefit retirement plans and other post-retirement and long-term benefit plans is shown below:

	2023			2022		
	Defined benefit pension plans £m	Other post-retirement & long-term benefit plans £m	Total £m	Defined benefit pension plans £m	Other post-retirement & long-term benefit plans £m	Total £m
Current service cost	**3.6**	**0.5**	**4.1**	4.0	0.8	4.8
Gains arising over the year that are recognised in P&L	**–**	**–**	**–**	–	(0.4)	(0.4)
Administration expenses	**1.1**	**–**	**1.1**	1.2	–	1.2
Net interest cost	**1.7**	**0.6**	**2.3**	1.1	0.3	1.4
Total net charge	**6.4**	**1.1**	**7.5**	6.3	0.7	7.0

The total net charge of £7.5m (2022: £7.0m), recognised in the Group Income Statement in respect of the Group's defined benefit pension plans and other post-retirement and long-term benefits plans, is analysed in the following table:

		2023 £m	2022 £m
In arriving at trading profit	– within other manufacturing costs	**1.3**	1.7
	– within administration, selling and distribution costs	**3.9**	3.9
In arriving at profit before tax	– within net finance costs	**2.3**	1.4
Total net charge		**7.5**	7.0

GMP equalisation

A UK High Court ruling was made on 26 October 2018 in respect of the gender equalisation of guaranteed minimum pensions (GMPs) for occupational pension schemes. The impact of GMP equalisation as at 31 December 2018 was estimated to be £4.5m.

A second UK High Court GMP equalisation ruling was issued on 20 November 2020. This second ruling considered the treatment of historical transfers out, i.e. those members who had transferred out before 26 October 2018. The 2020 ruling covers both individual and bulk transfers out. It does not revisit any of the issues addressed in the 2018 ruling. The impact of GMP equalisation for the second ruling was estimated to be £0.8m as at 31 December 2020.

The increase in pension liabilities resulting from these judgements have been treated for IAS 19 purposes as plan amendments and resulted in an increase in the pension deficit in the balance sheet and a corresponding past service cost in the Income Statement. These amendments have previously been treated as separately reported items so that there has been no impact on headline performance. We are working with the Trustees of our UK pension plan and our actuarial and legal advisers to understand the extent to which these judgements crystallise additional liabilities for the UK pension plan.

25.9 Risks to which the defined benefit pension plans expose the Group

The principal risks faced by these plans comprise: (i) the risk that the value of the plan assets is not sufficient to meet all plan liabilities as they fall due; (ii) the risk that plan beneficiaries live longer than envisaged, causing liabilities to exceed the available plan assets; and (iii) the risk that the market-based factors used to value plan liabilities and assets change materially adversely to increase plan liabilities over the value of available plan assets. Further details are given below.

Following the UK Plan pension insurance buy-in agreement, the inflation, interest rate, investment and longevity risks for Vesuvius in respect of the UK Plan are virtually eliminated. The following risks relate to the other plans operated by the Group:

Counterparty risk

This is mitigated by using a diversified range of counterparties of high standing and ensuring positions are collateralised as required.

Asset volatility

The liabilities are calculated using a discount rate set with reference to corporate bond yields; if assets underperform against this yield, this will create a deficit. To reduce this risk, the pension plans are largely invested in government and corporate bonds.

Changes in bond yields

A decrease in corporate bond yields will increase the scheme liabilities, although this will be partially offset by an increase in the value of the schemes' bond holdings.

Notes to the Group Financial Statements continued

25. Employee Benefits continued

25.9 Risks to which the defined benefit pension plans expose the Group continued

Inflation risk

Most of the plans' benefit obligations outside the US are linked to inflation, and higher inflation will lead to higher liabilities.

Life expectancy

The majority of the plans' obligations are to provide benefits for the life of the member and in some cases their spouse on death of the member, so increases in life expectancy will result in an increase in the liabilities.

In August 2016, the pensions for the majority of current pensioners in the US main plan were bought out with an insurance company, removing all responsibility and risk related to these pensions from the Group. In recent years, a number of further exercises have been carried out to buy out US benefits.

26. Share-based Payments

26.1 Accounting policy

The Group operates an equity-settled share-based payment arrangement for its employees. Equity-settled share-based payments are measured at fair value at the date of grant. For grants with market-based conditions attached to them, such as total shareholder return, fair value is measured using a form of stochastic option pricing model. For grants with non-market-based conditions, such as growth in return on invested capital (ROIC), environmental, social and governance criteria (ESG) and headline earnings per share (EPS), fair value is measured using the Black-Scholes option pricing model. The fair value is expensed on a straight-line basis over the vesting period with a corresponding increase in equity. The cumulative expense recognised is adjusted for the best estimate of the shares that will eventually vest.

26.2 Income statement recognition

The total expense recognised in the Group Income Statement is shown below:

	2023 £m	2022 £m
Long-Term Incentive Plan	**2.2**	0.9
Other plans	**5.1**	4.2
Total expense	**7.3**	5.1

The Group operates a number of different share-based payment plans, the most significant of which is the Long-Term Incentive Plan (LTIP), details of which can be found in the Directors' Remuneration Report.

26.3 Details of outstanding options

	Number of outstanding awards					
	As at 1 Jan 2023	Granted	Exercised	Forfeited/ lapsed	Expired	As at 31 Dec 2023
LTIP	**2,145,335**	**1,097,274**	**(283,402)**	**(777,326)**	**nil**	**2,181,881**
Weighted average exercise price	**nil**	**nil**	**nil**	**nil**	**nil**	**nil**
Other plans	**1,722,689**	**1,486,666**	**(439,041)**	**(203,365)**	**nil**	**2,566,949**
Weighted average exercise price	**nil**	**nil**	**nil**	**nil**	**nil**	**nil**

For the awards exercised during 2023, the market value at the date of exercise ranged from 392.4 pence to 432.8 pence per share.

	Number of outstanding awards					
	As at 1 Jan 2022	Granted	Exercised	Forfeited/ lapsed	Expired	As at 31 Dec 2022
LTIP	1,939,964	981,558	nil	(776,187)	nil	2,145,335
Weighted average exercise price	nil	nil	nil	nil	nil	nil
Other plans	549,033	1,513,457	(228,175)	(111,626)	nil	1,722,689
Weighted average exercise price	nil	nil	nil	nil	nil	nil

For the options exercised during 2022, the market value at the date of exercise ranged from 293.0 pence to 395.5 pence per share.

Details of market performance conditions are included in the Directors' Remuneration Report.

26. Share-based Payments continued

26.3 Details of outstanding options continued

	2023			2022		
	Awards exercisable as at 31 Dec 2023 no.	Weighted average outstanding contractual life of awards years	Range of exercise prices pence	Awards exercisable as at 31 Dec 2022 no.	Weighted average outstanding contractual life of awards years	Range of exercise prices pence
LTIP	–	8.4		–	8.3	
Weighted average exercise price	–		n/a	–		n/a
Other plans	–	0.6		–	0.9	
Weighted average exercise price	–		n/a	–		n/a

26.4 Options granted during the year

	2023		
	LTIP ROIC/ ESG element	LTIP TSR element	Other plans
Fair value of options granted	386p	238p	386p
Share price on date of grant	386p	386p	386p
Expected volatility	n/a	34.6%	n/a
Risk-free interest rate	n/a	3.3%	n/a
Exercise price (per share)	nil	nil	nil
Expected term (years)	3	3	2
Expected dividend yield	nil	nil	nil

	2022		
	LTIP ROIC/ ESG element	LTIP TSR element	Other plans
Fair value of options granted	385p	217p	385p
Share price on date of grant	385p	385p	385p
Expected volatility	n/a	39.3%	n/a
Risk-free interest rate	n/a	1.28%	n/a
Exercise price (per share)	nil	nil	nil
Expected term (years)	3	3	2
Expected dividend yield	nil	nil	nil

For the LTIP awards issued in 2021, vesting of 50% of shares awarded is based on the Group's three-year total shareholder return (TSR) performance relative to that of the constituent companies of the FTSE 250 (excluding investment trusts) and vesting of the remaining 50% of shares awarded is based on headline EPS growth.

For the LTIP awards issued in 2022 and 2023, vesting of 40% of shares awarded is based on the Group's three-year total shareholder return (TSR) performance relative to that of the constituent companies of the FTSE 250 (excluding investment trusts) and vesting of the remaining 60% of shares awarded is based on ROIC and ESG targets.

Expected volatility was determined by calculating the historical volatility of the Group's share price over the 2.8 years (2022: 2.8 years) prior to the grant date for the April 2023 grant. The risk-free rate of return was assumed to be the yield to maturity on a UK fixed gilt with the term to maturity equal to the expected life of the option. At the discretion of the Remuneration Committee, award holders receive the value of dividends that would have been paid on their vested shares in the period between grant and vesting. Accordingly, there is no discount to the valuation for dividends foregone during the vesting period.

Notes to the Group Financial Statements continued

27. Trade and Other Payables

27.1 Accounting policy

Trade and other payables are initially recognised at fair value and subsequently measured at amortised cost, using the effective interest method.

27.2 Analysis of trade and other payables

	2023 £m	2022 £m
Non-current		
Accruals and other payables	**9.1**	13.8
Total non-current other payables	**9.1**	13.8
Current		
Trade payables	**236.4**	239.5
Other taxes and social security	**36.5**	38.1
Accruals and other payables	**104.9**	100.8
Total current trade and other payables	**377.8**	378.4

There is no significant difference between the fair value of the Group's trade and other payables balances and the amount at which they are reported in the Group Balance Sheet.

Included within trade payables in the table above is £31.9m (2022: £29.7m) subject to supplier financing agreements entered into with certain of the Group's banks. Under the terms of the agreements, the Group's suppliers in certain countries can elect to be paid earlier than the terms of their agreement with Vesuvius by requesting discounted early settlement from the arranging bank. This early settlement is effected between the bank and the supplier; from the perspective of the Group, the terms of each payable remain unchanged. The Group is not charged any interest cost or fee in respect of the agreements.

28. Leases

28.1 Accounting policy

Lease liabilities are recognised at the present value of the remaining lease payments, discounted using the interest rate implicit in the lease if that rate can be readily determined. If that rate cannot be readily determined, the lessee's incremental borrowing rate is used, calculated as the local government bond rate plus an interest rate spread. In cases where there was an option to terminate or extend a lease, the duration of the lease assumed for this purpose reflected the Group's existing intentions regarding such options. Lease liabilities include the net present value of the following lease payments:

- Fixed payments (including in-substance fixed payments), less any lease incentives receivable
- Variable lease payments that are based on an index or a rate
- Amounts expected to be payable by the lessee under residual value guarantees
- The exercise price of a purchase option if the lessee is reasonably certain to exercise that option
- Payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option

Cash flows from leases are presented within 'Repayments of borrowings' in the Group Statement of Cash Flows.

Leases of low-value assets and short-term leases (shorter than 12 months) are classified as operating leases and neither the asset nor the corresponding liability to the lessor is recognised in the Group Balance Sheet. Rentals payable under operating leases are charged to the Group Income Statement on a straight-line basis over the term of the lease. Benefits received and receivable as an incentive to enter an operating lease are also spread on a straight-line basis over the lease term.

28.2 Lease liabilities

The lease liabilities at 31 December 2023 were £48.2m (2022: £40.8m). The cash payments for leases during the year were £24.2m (2022: £14.6m). The maturity analysis of the lease liabilities is disclosed in Note 24.2 (d).

The net book value of the Group's property, plant and equipment assets held as right-of-use assets under lease contracts at 31 December 2023 was £57.6m (2022: £44.1m) (Note 14). The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

28.3 Operating lease commitments

The future aggregate minimum lease payments under non-cancellable operating leases are payable as follows:

	2023 £m	2022 £m
Not later than one year	**0.6**	0.5
Later than one year and not later than five years	**–**	0.2
Later than five years	**–**	–
Total operating lease commitments	**0.6**	0.7

28. Leases continued

28.3 Operating lease commitments continued

The cost incurred by the Group in the year in respect of assets held under operating leases, all of which was charged within trading profit, amounted to £3.0m (2022: £2.3m), of which £2.3m (2022: £1.7m) related to short-length leases and £0.7m (2022: £0.6m) related to leases of low-value items.

29. Provisions

29.1 Accounting policy

Provisions are recognised when the Group has a present obligation as a result of a past event and it is probable that the Group will be required to settle that obligation. Provisions are measured at the Directors' best estimate of the expenditure required to settle the obligation at the balance sheet date. Where the effect of the time value of money is material, provisions are discounted using a pre-tax discount rate that reflects both the current market assessment of the time value of money and the specific risks associated with the obligation. Where discounting is used, the increase in the provision due to the passage of time is recognised as a finance cost.

29.2 Analysis of provisions

	Disposal, closure and environmental costs £m	Restructuring charges £m	Other £m	Total £m
As at 31 December 2021 and 1 January 2022	41.7	5.0	4.0	50.7
Exchange adjustments	5.0	0.6	0.3	5.9
Charge to Group Income Statement – trading profit	16.7	–	11.4	28.1
Adjustment to discount	1.1	–	–	1.1
Cash spend	(6.8)	(1.5)	(10.3)	(18.6)
Transferred to other balance sheet accounts	–	(0.5)	–	(0.5)
As at 31 December 2022 and 1 January 2023	**57.7**	**3.6**	**5.4**	**66.7**
Exchange adjustments	**(2.6)**	**(0.1)**	**(0.1)**	**(2.8)**
Charge to Group Income Statement – trading profit	**1.5**	**(0.3)**	**7.3**	**8.5**
Adjustment to discount	**2.3**	**–**	**–**	**2.3**
Cash spend	**(7.0)**	**(0.8)**	**(8.3)**	**(16.1)**
As at 31 December 2023	**51.9**	**2.4**	**4.3**	**58.6**

Of the total provision balance as at 31 December 2023 of £58.6m (2022: £66.7m), £47.6m (2022: £49.3m) is recognised in the Group Balance Sheet within non-current liabilities and £11.0m (2022: £17.4m) within current liabilities.

Disposal, closure and environmental charges

The provision for disposal, closure and environmental costs includes the Directors' current best estimate of the amounts to be payable in respect of known or probable costs resulting from third-party claims, including legacy matter lawsuits.

There remains inherent uncertainty associated with estimating the future costs of legacy matter lawsuits. In assessing the probable costs and realisation certainty of these provisions, or related assets, management has made reasonable assumptions, including projections of the number of future claims, the approximate average cost of those claims (including legal costs and infrequent larger value claims) and the length of time taken to resolve such claims. The provision reflects the Directors' best estimate of the future liability and the value of the corresponding asset. By nature, these assumptions are uncertain and therefore changes to the assumptions used could significantly alter the Directors' assessment of the value, volume of claims, timing or certainty of the costs or related amounts. Sensitivity analyses have been conducted using variations to the key assumptions listed above and indicatively show that a 24% increase in the average cost of claims would impact the gross provision by approximately £9.5m and the corresponding asset for insurance cover by approximately £7.4m.

Changes in discount rates , such as those observed in 2022, may have a significant impact on gross provisions and related assets for insurance cover.

Assumptions are determined with reference to historical information and trends experienced to date, combined with specialist views on future outlook. As assumptions can vary individually or in combination, over the longer term there can be no guarantee that the assumptions used to estimate the provision will result in an accurate prediction of the actual costs that may be incurred.

Notes to the Group Financial Statements continued

29. Provisions continued

29.2 Analysis of provisions continued

Disposal, closure and environmental charges continued

As the resolution of many of the obligations for which provision is made is subject to legal or other regulatory process, the timing of the associated cash outflows is also subject to some uncertainty. However, the majority of the amounts provided are expected to be utilised over the next ten years. The provision, underlying estimates of costs and associated insurance estimates are regularly assessed, to reflect any changed circumstances with regard to individual matters. Any movements impacting the Income Statement are included within headline performance.

As set out above, where insurance cover exists for any of these known or probable costs, a related asset is recognised in the Group Balance Sheet only when its value can be reliably measured and reimbursement is considered to be virtually certain by management. As at 31 December 2023, £23.6m (2022: £26.8m) was recorded in other receivables in respect of associated insurance reimbursements, of which £21.4m (2022: £25.1m) is non-current. A debit of £0.7m was recorded during 2023 (2022: credit £12.6m) to reflect the decrease (2022: increase) in assets for insurance cover which is included in the 'Administration, selling and distribution costs' line in the Income Statement. This is offset by a credit of £0.7m in 2023 (2022: £12.6m) to reflect a decrease in provisions for related claims in the same line of the Income Statement.

In addition, this provision covers the estimate of costs to be payable both in the fulfilment of obligations incurred in connection with former Group businesses, resulting from either disposal or closure, together with those related to the demolition and clean-up of closed sites.

Restructuring charges provisions

The provision for restructuring charges includes the costs to complete the Group's major restructuring programmes. The majority of this balance of £2.4m as at 31 December 2023 (2022: £3.6m) is expected to be paid out over the next year.

Other

Other provisions comprise amounts payable in respect of known or probable costs resulting both from legal or other regulatory requirements, workers' compensation and medical claims, and from third-party claims. As the settlement of many of the obligations for which provision is made is subject to reasonable assumptions, legal or other regulatory process, the timing of the associated outflows is subject to some uncertainty, but the majority of amounts provided are expected to be utilised over the next two years and the underlying estimates of costs are regularly updated to reflect changed circumstances with regard to individual matters. During 2023, the Group recognised net charges of £7.3m (2022: £11.4m) in the Group Income Statement to provide for various medical benefits and other claims.

The Group has considered the impact of climate change on provisions including decommissioning or environmental rehabilitation and there have been no material changes needed to amounts already provided.

30. Off-Balance Sheet Arrangements

In compliance with current reporting requirements, certain arrangements entered into by the Group in its normal course of business are not reported in the Group Balance Sheet. Of such arrangements, the largest amounts are future lease payments in relation to assets used by the Group under non-cancellable operating leases (Note 28).

31. Contingent Liabilities

Details of guarantees given by the Company, on behalf of the Group, are given in Note 12 to the Company Financial Statements.

Vesuvius has extensive international operations and is subject to various legal and regulatory regimes, including those covering taxation and environmental matters.

Certain of Vesuvius' subsidiaries are subject to legacy matter lawsuits, predominantly in the US, relating to a small number of products containing asbestos manufactured prior to the acquisition of those subsidiaries by Vesuvius. These suits usually also name many other product manufacturers. To date, Vesuvius is not aware of there being any liability verdicts against any of these subsidiaries. Each year, a number of these lawsuits are withdrawn, dismissed or settled.

As the settlement of many of the obligations for which reserve is made is subject to legal or other regulatory process, the timing and amount of the associated outflows is subject to some uncertainty (see Note 29 for further information). The amount paid, including costs in relation to this litigation, has not had a material effect on Vesuvius' financial position or results of operations in the current year.

32. Investments in Subsidiaries, Joint Ventures and Associates

32.1 Investment in subsidiaries

A subsidiary is an entity over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and can affect those returns through its power over the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group.

The subsidiaries of Vesuvius plc and the countries in which they are incorporated are set out below. With the exception of Vesuvius Holdings Limited, whose ordinary share capital was directly held by Vesuvius plc, the ordinary capital of the companies listed below was wholly owned by a Vesuvius plc subsidiary as at 31 December 2023. Details of the joint ventures and associates are disclosed in Note 32.2.

Company legal name	Registered office address	Jurisdiction
Advent Process Engineering Inc.	333 Prince Charles Drive, Welland, Ontario, L3B 5P4, Canada	Canada (Ontario)
BMI Refractory Services Inc.	600 N 2nd Street, Suite 401, Harrisburg, PA 17101-1071, United States	US (Pennsylvania)
Brazil 1 Limited	165 Fleet Street, London, EC4A 2AE, England	England
CCPI Inc.	Suite 201, 910 Foulk Road, Wilmington, New Castle, DE 19803, United States	US (Delaware)
Cookson Dominicana, SRL	Km 7 1/2, Autopista San Isidro, Edificio Modelo A, Zona Franca San Isidro, Santo Domingo Oeste, Dominican Republic	Dominican Republic
East Moon Investment (HK Holding) Company Limited	Unit 01, 86/F International Commerce Centre, 1 Austin Road West, Kowloon, Hong Kong	Hong Kong
Flo-Con Holding, Inc.	CT Corporation, 1209 Orange Street, The Corporation Trust Company, Wilmington, DE 19801, United States	US (Delaware)
Foseco (FS) Limited	1 Midland Way, Central Park, Barlborough Links, Derbyshire, S43 4XA, England	England
Foseco (Jersey) Limited	44 Esplanade, St Helier, JE4 9WG, Jersey	Jersey
Foseco (UK) Limited	165 Fleet Street, London, EC4A 2AE, England	England
Foseco Canada Limited	181 Bay Street, Suite 1800, Toronto, Ontario, M5J 2T9, Canada	Canada (Ontario)
Foseco Espanola S.A.	5, Barrio Elizalde, Izurza, Bizkaia, 48213, Spain	Spain
Foseco Foundry (China) Co. Limited	Room 819, Shekou Zhaoshang Building, Nanshan District, Shenzhen, Guangdong, 518067, China	China
Foseco Fundición Holding (Espanola), S.L.	5, Barrio Elizalde, Izurza, Bizkaia, 48213, Spain	Spain
Foseco Holding (Europe) Limited	165 Fleet Street, London, EC4A 2AE, England	England
Foseco Holding (South Africa) (Pty) Limited	12 Bosworth Street, Alrode, Alberton, 1449, South Africa	South Africa
Foseco Holding BV	Rivium Boulevard 301, Capelle aan den Ijssel, Rotterdam 2909LK, Netherlands	Netherlands
Foseco Holding International Limited	165 Fleet Street, London, EC4A 2AE, England	England

Company legal name	Registered office address	Jurisdiction
Foseco Holding Limited	165 Fleet Street, London, EC4A 2AE, England	England
Foseco Industrial e Comercial Ltda	Km 15, Rodovia Raposo Tavares, Butanta Cep, São Paulo, 05577-100, Brazil	Brazil
Foseco International Holding (Thailand) Limited	170/69, 22nd Floor Ocean Tower 1, Ratchadapisek Road, Klongtoey, Bangkok, 10110, Thailand	Thailand
Foseco International Limited	1 Midland Way, Central Park, Barlborough Links, Derbyshire, S43 4XA, England	England
Foseco Japan Limited	9th Floor, Orix Kobe Sannomiya Building, 6-1-10, Goko dori, Chuo-ku, Kobe Hyogo, 651-0087, Japan	Japan
Foseco Korea Limited	74 Jeongju-ro, Bucheon-si, Gyeonggi-do, 14523, South Korea	South Korea
Foseco Limited	165 Fleet Street, London, EC4A 2AE, England	England
Foseco Metallurgical Inc.	CT Corporation, 1209 Orange Street, The Corporation Trust Company, Wilmington, DE 19801, United States	US (Delaware)
Foseco Nederland BV	Binnenhavenstraat 20, 7553 GJ Hengelo (OV), Netherlands	Netherlands
Foseco Overseas Limited	165 Fleet Street, London, EC4A 2AE, England	England
Foseco Portugal Produtos Para Fundição Lda	Rua Manuel Pinto de Azevedo, No 626 4100-320 Porto, Portugal	Portugal
Foseco S.A.S.	Le Newton C, 7 Mail Barthélémy Thimonnier, 77185 Lognes, France	France
Foseco Steel (UK) Limited	1 Midland Way, Central Park, Barlborough Links, Derbyshire, S43 4XA, England	England
Foseco Technology Limited	165 Fleet Street, London, EC4A 2AE, England	England
J.H. France Refractories Company	CT Corporation, 1209 Orange Street, The Corporation Trust Company, Wilmington, DE 19801, United States	US (Delaware)
John G. Stein & Company Limited	1 Midland Way, Central Park, Barlborough Links, Derbyshire, S43 4XA, England	England
Mainsail Insurance Company Limited	Victoria Place, 5th Floor, 31 Victoria Street, Pembroke, Hamilton, HM 10, Bermuda	Bermuda
Mascinco Empreendimentos e Participações Ltda	Avenida Brasil, 49550 – parte, Distrito Industrial de Palmares – Campo, Grande – Cep: 23065-480, Rio de Janeiro, RJ, Brazil	Brazil

Notes to the Group Financial Statements continued

32. Investments in Subsidiaries, Joint Ventures and Associates continued

32.1 Investment in subsidiaries continued

Company legal name	Registered office address	Jurisdiction
Mercajoya, S.A.	Capitán Haya, 56 – 1ºH, 28020 Madrid, Spain	Spain
Metal Way Equipamentos Metalurgicos Ltda	Estrada Santa Isabel, 7655 KM37, Bairro Do Una, Itaquaquecetuba, São Paulo – SP, CEP: 08580 000, Brazil	Brazil
New Foseco (UK) Limited	1 Midland Way, Central Park, Barlborough Links, Derbyshire, S43 4XA, England	England
Process Metrix, LLC	6622 Owens Drive, Pleasanton, CA 94588, United States	US (California)
PT Foseco Indonesia	Jl Rawa Gelam 2/5, Kawasan Industri, Pulogadung, Jakarta, 13930, Indonesia	Indonesia
PT Foseco Trading Indonesia	Jl Rawa Gelam 2/5, Kawasan Industri, Pulogadung, Jakarta, 13930, Indonesia	Indonesia
Realisations 789, LLC	CT Corporation, 1209 Orange Street, The Corporation Trust Company, Wilmington, DE 19801, United States	US (Delaware)
S G Blair & Company Limited	1 Midland Way, Central Park, Barlborough Links, Derbyshire, S43 4XA, England	England
SIDERMES Inc. Vesuvius Sensors and Probes	175 montée Calixa-Lavallée, Verchêres, Québec J0L2R0, Canada	Canada
SIR Feuerfestprodukte GmbH	Siegener Strasse 152, Kreuztal, D-57223, Germany	Germany
SOLED S.A.S. Vesuvius Sensors and Probes France	Centre d'Activités Economiques Zone Industrielle de Franchepré 54240 Joeuf, France	France
Veservice Ltda	Av Brasil, 49550, Distrito Industrial de Palmares, Campo Grande, Rio de Janeiro, 23065-480, Brazil	Brazil
Vesuvius (Thailand) Co., Limited	170/69, 22nd Floor Ocean Tower 1, Ratchadapisek Road, Klongtoey, Bangkok, 10110, Thailand	Thailand
Vesuvius (V.E.A.R.) S.A.	Street Urquiza, 919, Floor 2, Rosario, Provincia de Santa Fé, Argentina	Argentina
Vesuvius Advanced Ceramics (Anshan) Co., Limited	Xiaotaizi Village, Ningyuan Town, Qianshan District, Anshan, Liaoning Province, 114011, China	China
Vesuvius Advanced Ceramics (China) Co., Limited	221 Xing Ming Street, China-Singapore Suzhou Ind Park, Suzhou, Jiangsu Province, 215021, China	China
Vesuvius America, Inc.	1209 Orange Street, Wilmington, DE 19801, United States	US (Delaware)
Vesuvius Australia (Holding) Pty Limited	40-46 Gloucester Boulevarde, Port Kembla, NSW, 2505, Australia	Australia
Vesuvius Australia Pty Limited	40-46 Gloucester Boulevarde, Port Kembla, NSW, 2505, Australia	Australia
Vesuvius Belgium N.V.	Zandvoordestraat 366, Oostende, B-8400, Belgium	Belgium
Vesuvius Canada Inc	181 Bay Street, Suite 1800, Toronto, Ontario, M5J 2T9, Canada	Canada
Vesuvius Ceramics Limited	165 Fleet Street, London, EC4A 2AE, England	England

Company legal name	Registered office address	Jurisdiction
Vesuvius China Holdings Co. Limited	86/F International Commerce Centre, 1 Austin Road West, Kowloon, Hong Kong	Hong Kong
Vesuvius China Limited	165 Fleet Street, London, EC4A 2AE, England	England
Vesuvius Colombia S.A.S.	Calle 26 No. 102-20 Floor 3, Bogota, Colombia	Colombia
Vesuvius Corporation S.A.	Via Nassa 17, Lugano, CH 6900, Switzerland	Switzerland
Vesuvius CSD Sp z.o.o.	ul. Jasnogórska 11, Kraków, 31-358, Poland	Poland
Vesuvius Emirates FZE	Warehouse No: 1J-09/3, P O Box 49261, Hamriyah Free Zone, Sharjah, United Arab Emirates	United Arab Emirates
Vesuvius Europe GmbH	Gelsenkirchener Strasse 10, Borken, D-46325, Germany	Germany
Vesuvius Europe S.A.	17 Rue de Douvrain, Ghlin, 7011, Belgium	Belgium
Vesuvius Europe S.A.S.	3, Avenue De L'europe, Parc Les Pivolles, 69150 Décines-Charpieu, France	France
Vesuvius Financial 1 Limited	165 Fleet Street, London, EC4A 2AE, England	England
Vesuvius Finland OY	Pajamäentie 8D7, 00360 Helsinki, Finland	Finland
Vesuvius Foundry Products (Suzhou) Co. Limited	12 Wei Wen Road, China-Singapore Suzhou Ind Park, Suzhou, Jiangsu Province, 215122, China	China
Vesuvius Foundry Technologies (Jiangsu) Co. Limited	2 Changchun Road, Economic Development Area, Changshu, Jiangsu, 215537, China	China
Vesuvius France S.A.	Rue Paul Deudon 68, Boite Postale 19, Feignies 59750, France	France
Vesuvius GmbH	Gelsenkirchener Strasse 10, Borken, D-46325, Germany	Germany
Vesuvius Group Limited	165 Fleet Street, London, EC4A 2AE, England	England
Vesuvius Group S.A.	17 Rue de Douvrain, Ghlin, 7011, Belgium	Belgium
Vesuvius Holding Deutschland GmbH	Gelsenkirchener Strasse 10, Borken, D-46325, Germany	Germany
Vesuvius Holding France S.A.S.	68 Rue Paul Deudon, Boite Postale 19, Feignies 59750, France	France
Vesuvius Holding Italia – Società a Responsabilità Limitata	Via Mantova 10, 20835 Muggio MB, Italy	Italy
Vesuvius Holdings Limited	165 Fleet Street, London EC4A 2AE, England	England
Vesuvius Ibérica Refractarios S.A.	Capitán Haya, 56 – 1ºH, 28020 Madrid, Spain	Spain
Vesuvius International Corporation	CT Corporation, 1209 Orange Street, The Corporation Trust Company, Wilmington, DE 19801, United States	US (Delaware)
Vesuvius Investments Limited	165 Fleet Street, London, EC4A 2AE, England	England

32. Investments in Subsidiaries, Joint Ventures and Associates continued

32.1 Investment in subsidiaries continued

Company legal name	Registered office address	Jurisdiction
Vesuvius Istanbul Refrakter Sanayi ve Ticaret AS	Gebze OSB2 Mh. 1700., Sok No:1704/1, Cayirova, Kocaeli, 41420, Turkey	Turkey
Vesuvius IT and Shared Services Private Limited	10th Floor, Unit No. 2, Fountainhead-Tower 3, B Wing, Phoenix Market City, Viman nagar, Pune, Pune- 411014, Maharashtra, India	India
Vesuvius Italia S.p.A.	Via Mantova 10, 20835 Muggio MB, Italy	Italy
Vesuvius Japan Inc.	9th Floor, Orix Kobe Sannomiya Building 6-1-10, Goko dori, Chou-ku,Kobe Hyogo, 651-0087, Japan	Japan
Vesuvius K.S.R. Limited	1 Midland Way, Central Park, Barlborough Links, Derbyshire S43 4XA, England	England
Vesuvius Life Plan Trustee Limited	165 Fleet Street, London, EC4A 2AE, England	England
Vesuvius LLC	502, 5th floor, 1 Myasicsheva str., Zhukovsky, Moscow region, 140180, Russian Federation	Russia
Vesuvius Malaysia Sdn Bhd	Unit 30-01, Level 30 Tower A, Vertical Business Suite Avenue 3, Bangsar South, No 8 Jalan Kerinchi, Kuala Lumpur Wilayah Persekutuan, 59200, Malaysia	Malaysia
Vesuvius Management Limited	165 Fleet Street, London, EC4A 2AE, England	England
Vesuvius Management Services Limited	165 Fleet Street, London, EC4A 2AE, England	England
Vesuvius Mexico S.A. de C.V.	Av. Ruiz Cortinez, Num. 140, Colonia Jardines de San Rafael, Guadalupe, Nuevo León, CP 67119, Mexico	Mexico
Vesuvius Mid-East Limited	56, rd 15, Apt 103, Maadi, Cairo, Egypt	Egypt
Vesuvius Moravia, s.r.o.	Konska c.p. 740, Trinec, 739 61, Czech Republic	Czech Republic
Vesuvius Mulheim GmbH	Gelsenkirchener Strasse 10, Borken, D-46325, Germany	Germany
Vesuvius NC, LLC	Corporation Trust Center, 1209 Orange Street, Wilmington, New Castle County, DE 19801, United States	US (Delaware)
Vesuvius New Zealand Limited	Bell Gully, Level 22, Vero Centre, 48 Shortland Street, Auckland, 1010 New Zealand	New Zealand
Vesuvius Overseas Investments Limited	165 Fleet Street, London, EC4A 2AE, England	England
Vesuvius Overseas Limited	165 Fleet Street, London, EC4A 2AE, England	England
Vesuvius Penn Corporation	Corporation Trust Center, 1209 Orange Street, Wilmington, DE 19801, United States	US (Delaware)
Vesuvius Pension Plans Trustees Limited	165 Fleet Street, London, EC4A 2AE, England	England
Vesuvius Peru S.A.C.	Calle Dean Valdivia 148, piso 11 – oficina 1134, Edificio Platinum Plaza – San Isidro, Lima, Peru	Peru

Company legal name	Registered office address	Jurisdiction
Vesuvius Poland Sp z.o.o.	Ul Tyniecka 12, Skawina, 32-050, Poland	Poland
Vesuvius Process Metrix S.A.S.	3, Avenue de l'Europe, Parc Les Pivolles, 69150 Décines-Charpieu, France	France
Vesuvius Ras Al Khaimah FZ-LLC	Street No. F14, RAK Investment Authority Free Zone, Al Hamra, Ras Al Khaimah, PO Box 86408, United Arab Emirates	United Arab Emirates
Vesuvius Refractarios de Chile S.A.	Street San Martin 870, Room 308, Tower B, Concepcion, Chile	Chile
Vesuvius Refractories S.r.l.	Galati, Marea Unire avenue 107, Galati county, 800329, Romania	Romania
Vesuvius Refractory India Private Limited	Room No. 9, 3rd Floor, 7 Ganesh Chandra Avenue, Kolkata, WB 700013, India	India
Vesuvius Refratários Ltda	Avenida Brasil 49550, Distrito Industrial de Palmares, Campo Grande, Rio de Janeiro, 23065-480, Brazil	Brazil
Vesuvius Scandinavia AB	4, Forradsgatan, Amal, S-662 34, Sweden	Sweden
Vesuvius Sensors & Probes Europe S.p.A.	10 Via Mantova, Muggio, Monza e Brianza, 20835, Italy	Italy
Vesuvius-SERT S.A.S.	3, Avenue de l'Europe, Parc Les Pivolles, 69150 Décines-Charpieu, France	France
Vesuvius Services Peru S.A.C.	Calle Dean Valdivia 148, piso 11 – oficina 1134, Edificio Platinum Plaza – San Isidro, Lima, Peru	Peru
Vesuvius Solar Crucible (Suzhou) Co., Ltd	1/F, building 3, No. 12, Weiwen Road China-Singapore Suzhou Ind Park, Suzhou, Jiangsu Province, 215122, China	China
Vesuvius South Africa (Pty) Limited	Pebble Lane, Private Bag X2, Olifantsfontein, Gauteng Province, 1665, South Africa	South Africa
Vesuvius Sp z.o.o.	ul. Jasnogórska 11, Kraków, 31-358, Poland	Poland
Vesuvius SSC Sp z.o.o.	ul. Jasnogórska 11, Kraków, 31-358, Poland	Poland
Vesuvius UK Limited	1 Midland Way, Central Park, Barlborough Links, Derbyshire, S43 4XA, England	England
Vesuvius Ukraine LLC	27, Udarnykiv Street, City of Dnipropetrovsk, 49000, Ukraine	Ukraine
Vesuvius USA Corporation	CT Corporation, 208 South LaSalle Street, Chicago, Cook County, IL 60604, United States	US (Illinois)
Vesuvius VA Limited	165 Fleet Street, London, EC4A 2AE, England	England
Vesuvius Vietnam Limited	7th Floor, Peakview Tower Building, No.36 Hoang Cau Street, O Cho Dua Ward, Don Da District, Hanoi City, Vietnam	Vietnam
Vesuvius Zyarock Ceramics (Suzhou) Co., Limited	1/F, building 3, No. 12, Weiwen Road China-Singapore Suzhou Ind Park, Suzhou, Jiangsu Province, 215122, China	China

Notes to the Group Financial Statements continued

32. Investments in Subsidiaries, Joint Ventures and Associates continued

32.1 Investment in subsidiaries continued

Company legal name	Registered office address	Jurisdiction
Vesuvius-Premier Refractories (Holdings) Limited	1 Midland Way, Central Park, Barlborough Links, Derbyshire, S43 4XA, England	England
Wilkes-Lucas Limited	165 Fleet Street, London EC4A 2AE, England	England
Yingkou Bayuquan Refractories Co., Limited	Cui Tun Village, Hai Dong Office, Bayuquan District, Liaoning Province, YingKou, 115007, China	China
Yingkou YingWei Magnesium Co., Ltd	50 Wanghai New District, Bayuquan District, Yinkou City, Liaoning Province, 115007, China	China

The following subsidiary companies have branches registered in the named countries: Foseco (Jersey) Limited in England, Foseco Holding BV in England, Vesuvius LLC in Kazakhstan, Vesuvius UK Limited in Taiwan and Republic of Korea, Vesuvius Refratarios Ltda. in Brazil and Vesuvius Istanbul Refrakter Sanayi ve Ticaret AS (Foseco branch and Iskenderun branch) in Turkey.

32.2 Investment in joint ventures and associates

A joint venture is a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint venture. Joint control is the contractually agreed sharing of control of the arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control. An associate is an entity over which the Group has significant influence. Significant influence is the power to participate in the financial and operating policy decisions of an entity, but is not control or joint control over those policies.

The Group's investments in its associates and joint ventures are accounted for using the equity method from the date significant influence/joint control is deemed to arise until the date on which significant influence/joint control ceases to exist or when the interest becomes classified as an asset held for sale. The Group Income Statement reflects the Group's share of profit after tax of the related associates and joint ventures. Investments in associates and joint ventures are carried in the Group Balance Sheet at cost adjusted in respect of post-acquisition changes in the Group's share of net assets, less any impairment in value.

	2023 £m	2022 £m
As at 1 January	**13.0**	12.8
Share of post-tax profit of joint ventures and associates	**0.9**	1.2
Dividends received from joint ventures and associates	**(1.0)**	(1.3)
Foreign exchange	**(1.6)**	0.3
As at 31 December	**11.3**	13.0

The investment in joint ventures and associates includes £10.8m (2022: £12.5m) in respect of joint ventures and £0.5m (2022: £0.5m) in respect of associates. Dividends received from joint ventures consists of £0.1m (2022: £0.2m) from Wuhan Wugang-Vesuvius Advanced CCR Co., Limited and £0.9m (2022: £1.1m) from Wuhan Wugang-Vesuvius Advanced Ceramics Co., Limited.

Joint ventures

Set out below is the summarised financial information in respect of joint ventures.

	2023 £m	2022 £m
Revenue	**46.0**	50.9
Trading profit	**2.3**	3.2
Net finance costs	**–**	–
Profit before tax	**2.3**	3.2
Income tax expense	**(0.6)**	(0.8)
Profit after tax	**1.7**	2.4
Non-current assets	**6.8**	7.3
Current assets	**22.0**	22.6
Non-current liabilities	**–**	–
Current liabilities	**(7.1)**	(6.1)
Net assets	**21.7**	23.8

32. Investments in Subsidiaries, Joint Ventures and Associates continued

32.2 Investment in joint ventures and associates continued

Set out below is the summarised financial information for Wuhan Wugang-Vesuvius Advanced Ceramics Co., Limited, a joint venture that has transactions and balances which are material to the Group.

	2023 £m	2022 £m
Revenue	**40.6**	44.5
Depreciation	**0.7**	1.0
Trading profit	**2.0**	2.8
Net finance costs	**–**	–
Profit before tax	**2.0**	2.8
Income tax expense	**(0.5)**	(0.7)
Profit after tax	**1.5**	2.1
Non-current assets	**6.5**	7.0
Current assets[1]	**14.3**	14.5
Non-current liabilities	**–**	–
Current liabilities	**(5.9)**	(5.0)
Net assets	**14.9**	16.5

1. Included in current assets are cash and cash equivalents of £1.8m (2022: £3.6m).

The purpose of the Chinese joint venture companies is to research, develop, manufacture and sell refractory products. The role of Vesuvius is to provide technical personnel, training and access to the Group's international sales network.

Name of entity	Registered address	Jurisdiction	2023 % ownership	2022 % ownership
Wuhan Wugang-Vesuvius Advanced CCR Co., Limited	Gongnong Village Qingshan District, Wuhan, Hubei Province, 430082, China	China	**50**	50
Wuhan Wugang-Vesuvius Advanced Ceramics Co., Limited	Gongnong Village Qingshan District, Wuhan, Hubei Province, 430082, China	China	**50**	50

Associates

Name of entity	Registered address	Jurisdiction	2023 % ownership	2022 % ownership
Sapotech Oy	Paavo Havaksen tie 5 D, 90570 Oulu, Finland	Finland	**14.9**	14.9
Newshelf 480 Proprietary Limited	144 Oxford Road, Rosebank, Melrose, Johannesburg, 2196, South Africa	South Africa	**45**	45

The Group is considered to hold significant influence over Sapotech Oy despite holding less than 20% of its shares because the agreement under which the Group invested in Sapotech Oy provides that the Group holds one of the four seats on the company's board. This allows the Group to participate in policy-making processes and have additional controls over Sapotech Oy's major decision-making that do not amount to control but give significant influence.

Notes to the Group Financial Statements continued

32. Investments in Subsidiaries, Joint Ventures and Associates continued

32.3 Non-controlling interests

Non-controlling interests represent the portion of the equity of a subsidiary not attributable either directly or indirectly to the Parent Company and are presented separately in the Group Income Statement and within equity in the Group Balance Sheet, distinguished from Parent Company shareholders' equity.

The total profit attributable to non-controlling interests for the year ended 31 December 2023 is £12.1m (2022: £7.4m) of which £9.3m relates to Vesuvius India Limited (2022: £5.4m). The profit attributable to non-controlling interests in respect of the Group's other subsidiaries is not considered to be material.

Name of entity	Registered address	Jurisdiction	2023 % ownership	2022 % ownership
Vesuvius India Limited	P-104 Taratala Road, Kolkata, 700 088, India	India	**55.57**	55.57
Foseco India Limited	922/923, Gat, Sanaswadi, Taluka, Shirur, Pune, 412208, India	India	**74.98**	74.98
Foseco Golden Gate Company Limited	6 Kung Yeh 2nd Road, Ping Tung Dist, Ping Tung, 90049, Taiwan	Taiwan	**51**	51
Foseco (Thailand) Limited	170/69, 22nd Floor Ocean Tower 1, Ratchadapisek Road, Klongtoey, Bangkok, 10110, Thailand	Thailand	**74**	74
Vesuvius Ceska Republika, a.s.	Prumyslová 726, Konská, Trinec, 739 61, Czech Republic	Czech Republic	**60**	60

As with Vesuvius plc, all of the above companies have a 31 December year-end. The summarised financial information for Vesuvius India Limited is presented below:

	2023 £m	2022 £m
Summarised balance sheet		
Current assets	**106.6**	105.2
Current liabilities	**(32.0)**	(28.8)
Current net assets	**74.6**	76.4
Non-current assets	**42.3**	26.1
Non-current liabilities	**(3.9)**	(2.6)
Non-current net assets	**38.4**	23.5
Net assets	**113.0**	99.9
Accumulated non-controlling interests	**(50.5)**	(44.7)
Summarised statement of comprehensive income		
Revenue	**155.0**	137.7
Profit after tax	**21.0**	12.1
Profit allocated to non-controlling interests	**9.3**	5.4
Dividends paid to non-controlling interests	**(0.7)**	(0.7)
Summarised cash flows		
Cash flows from operating activities	**10.9**	13.8
Cash flows from investing activities	**(20.8)**	(11.6)
Cash flows from financing activities	**(0.1)**	(0.7)
Net (decrease)/increase in cash and cash equivalents	**(10.0)**	1.5

33. Related Parties

All transactions with related parties are conducted on an arm's-length basis and in accordance with normal business terms. Transactions between related parties that are Group subsidiaries are eliminated on consolidation.

The related parties identified by the Directors include joint ventures, associates and key management personnel. To enable users of our financial statements to form a view on the effects of related party relationships on the Group, we disclose the related party relationship irrespective of whether there have been transactions between the related parties.

33.1 Transactions with joint ventures and associates

All transactions with joint ventures and associates are in the normal course of business. Transactions between the Group and its joint ventures and associates are disclosed below:

	2023 £m	2022 £m
Sales to joint ventures	**4.3**	5.3
Purchases from joint ventures	**30.1**	32.3
Purchases from associates	**–**	–
Dividends received	**1.0**	1.3
Trade payables owed to joint ventures	**10.3**	6.7
Trade receivables due from joint ventures	**1.0**	0.7

Trade payables owed to joint ventures are settled net of trade receivables due from joint ventures 60 days after the delivery of goods or services. There are no loans to and from joint ventures.

33.2 Transactions with key management personnel

There have been no transactions with key management personnel of the Group other than the Directors' remuneration.

Directors' remuneration is disclosed in Note 7 to the Group Financial Statements and in the Directors' Remuneration Report.

33.3 Transactions with other related parties

There are no controlling shareholders of the Group as defined by IFRS.

The Company announced the commencement of a share buyback programme of up to £50 million on 4 December 2023. Disclosure of the transactions during the year are disclosed in Note 9.2 of the Company Financial Statements. There have been no other material transactions with the shareholders of the Group.

Pension contributions to Group schemes are disclosed in Note 25 to the Group Financial Statements.

Other than the parties disclosed above, the Group has no other material related parties.

34. Events after the Balance Sheet date

There are no events after the balance sheet date which would materially affect the disclosures in the Group Financial Statements.

35. Alternative Performance Measures

The Company uses a number of alternative performance measures (APMs) in addition to those reported in accordance with IFRS. The Directors believe that these APMs, listed below, are important when assessing the underlying financial and operating performance of the Group and its divisions, providing management with key insights and metrics in support of the ongoing management of the Group's performance and cash flow. A number of these align with Key Performance Indicators (KPIs) and other key metrics used in the business and therefore are considered useful to also disclose to the users of the financial statements. The following APMs do not have a standard definition prescribed by IFRS and therefore may not be directly comparable with similar measures presented by other companies.

35.1 Headline performance

Headline performance, reported separately on the face of the Group Income Statement, is from continuing operations and before items reported separately on the face of the Group Income Statement.

Notes to the Group Financial Statements continued

35. Alternative Performance Measures continued

35.2 Underlying revenue, underlying trading profit and underlying return on sales

Underlying revenue, underlying trading profit and underlying return on sales are the headline equivalents of these measures after adjustments to exclude the effects of changes in exchange rates, business acquisitions and disposals. Reconciliations of underlying revenue and underlying trading profit can be found in the Financial review. Underlying revenue growth is one of the Group's KPIs and provides an important measure of organic growth of Group businesses between reporting periods by eliminating the impact of exchange rates, acquisitions and disposals.

35.3 Return on sales (ROS)

ROS is calculated as trading profit divided by revenue. It is one of the Group's KPIs and is used to assess the trading performance of Group businesses. ROS is disclosed in Note 4.3.

35.4 Trading profit/adjusted EBITA

Trading profit/adjusted EBITA is defined as operating profit before separately reported items. It is one of the Group's KPIs and is used to assess the trading performance of Group businesses. It is also used as one of the targets against which the annual bonuses of certain employees are measured.

35.5 Headline profit before tax

Headline profit before tax, reported separately on the face of the Group Income Statement, is calculated as the net total of trading profit, plus the Group's share of post-tax profit of joint ventures and total net finance costs associated with headline performance. It is one of the Group's KPIs and is used to assess the financial performance of the Group as a whole.

35.6 Headline effective tax rate (ETR)

The Group's headline ETR is calculated on the income tax costs associated with headline performance, divided by headline profit before tax and before the Group's share of post-tax profit of joint ventures and associates.

35.7 Headline earnings

Headline earnings is profit after tax before separately reported items attributable to owners of the Parent.

35.8 Headline earnings per share

Headline earnings per share is calculated by dividing headline profit before tax less associated income tax costs, attributable to owners of the Parent by the weighted average number of ordinary shares in issue during the year. It is one of the Group's KPIs and is used to assess the earnings performance of the Group as a whole. It is also used as one of the targets against which the annual bonuses of certain employees are measured. Headline earnings per share is disclosed in Note 10.

35.9 Adjusted operating cash flow

Adjusted operating cash flow is cash generated from operations before restructuring and vacant site remediation costs but after deducting capital expenditure net of asset disposals. It is used in calculating the Group's cash conversion. In the prior year, net retirement benefit obligations were added back in this calculation; this has been discontinued as the management believes that these represent core cash flows of the Group.

	Note	2023 £m	2022 £m
Cash generated from operations	11	**272.0**	268.3
Add: Outflows relating to restructuring charges		**0.8**	1.5
Less: Capital expenditure		**(92.6)**	(89.2)
Add: Vacant site remediation costs		**1.0**	1.8
Add: Proceeds from the sale of property, plant and equipment		**5.4**	3.1
Adjusted operating cash flow		**186.6**	185.5
Trading profit		**200.4**	227.2
Cash conversion		**93%**	82%

35.10 Cash conversion

Cash conversion is calculated as adjusted operating cash flow from continuing operations divided by trading profit. It is useful for measuring the rate at which cash is generated from trading profit. It is also used as one of the targets against which the annual bonuses of certain employees are measured. The calculation of cash conversion is detailed in Note 35.9 above.

35. Alternative Performance Measures continued

35.11 Free cash flow

Free cash flow is defined as net cash flow from operating activities after net outlays for the purchase and sale of property, plant and equipment, dividends from joint ventures and dividends paid to non-controlling shareholders. It is one of the Group's KPIs and is used to assess the underlying cash generation of the Group and is one of the measures used in monitoring the Group's capital. A reconciliation of free cash flow is included underneath the Group Statement of Cash Flows.

35.12 Average trade working capital to sales ratio

The average trade working capital to sales ratio is calculated as the percentage of average trade working capital balances to the total revenue for the previous 12 months, at constant currency. Average trade working capital (comprising inventories, trade receivables and trade payables) is calculated as the average of the 13 previous month-end balances. It is one of the Group's KPIs and is useful for measuring the level of working capital used in the business and is one of the measures used in monitoring the Group's capital.

	2023 £m	2022 £m
Average trade working capital	**451.8**	487.3
Total revenue	**1,929.8**	2,047.4
Average trade working capital to sales ratio	**23.4%**	23.8%

35.13 Adjusted earnings before interest, tax, depreciation and amortisation (adjusted EBITDA)

Adjusted EBITDA is calculated as the total of trading profit before depreciation and amortisation of non-acquired intangible assets. It is used in the calculation of the Group's interest cover and net debt to adjusted EBITDA ratios. A reconciliation of adjusted EBITDA is included in Note 4.

35.14 Net interest payable on borrowings

Net interest payable on borrowings is calculated as total interest payable on borrowings less finance income, excluding interest on net retirement benefit obligations, adjustments to discounts and any item separately reported. It is used in the calculation of the Group's interest cover ratio.

	Note	**2023 £m**	2022 £m
Total interest payable on borrowings	8	**23.5**	18.3
Finance income	8	**(15.3)**	(8.8)
Net interest payable on borrowings		**8.2**	9.5

35.15 Interest cover

Interest cover is the ratio of adjusted EBITDA for the last 12 months to net interest payable on borrowings for the last 12 months. It is one of the Group's KPIs and is used to assess the financial position of the Group and its ability to fund future growth.

	Note	**2023 £m**	2022 £m
Adjusted EBITDA	4	**258.2**	282.7
Net interest payable on borrowings		**8.2**	9.5
Interest cover		**31.5x**	29.8x

35.16 Net debt

Net debt comprises the net total of current and non-current interest-bearing borrowings (including IFRS 16 lease liabilities), cash and short-term deposits and derivative financial instruments. Net debt is a measure of the Group's net indebtedness to banks and other external financial institutions. A reconciliation of the movement in net debt is included in Note 13.

Notes to the Group Financial Statements continued

35. Alternative Performance Measures continued

35.17 Net debt to adjusted EBITDA

Net debt to adjusted EBITDA is the ratio of net debt at the year-end to adjusted EBITDA for that year. It is one of the Group's KPIs and is used to assess the financial position of the Group and its ability to fund future growth and is one of the measures used in monitoring the Group's capital.

	Note	2023 £m	2022 £m
Net debt	13	**237.5**	255.0
Adjusted EBITDA	4	**258.2**	282.7
Net debt to adjusted EBITDA		**0.9x**	0.9x

35.18 Return on invested capital (ROIC)

The Group has adopted ROIC as its key measure of return from the Group's invested capital. The RONA performance measure has been replaced with ROIC, which provides a more complete measure of Vesuvius' returns. ROIC is calculated as trading profit less amortisation of acquired intangibles plus share of post-tax profit of joint ventures and associates for the previous 12 months after tax, divided by the average (being the average of the opening and closing balance sheet) invested capital (defined as: total assets excluding cash plus non-interest-bearing liabilities), at the average foreign exchange rate for the year.

	2023 £m	2022 £m
Average invested capital	**1,558.5**	1,503.6
Trading profit (Note 35.4)	**200.4**	227.2
Amortisation of acquired intangible assets	**(10.3)**	(10.4)
Share of post-tax profit from joint ventures and associates	**0.9**	1.2
Tax on trading profit and amortisation of acquired intangible assets	**(52.3)**	(57.5)
	138.7	160.5
ROIC	**8.9%**	10.7%

35.19 Constant currency

Figures presented at constant currency represent 2022 amounts retranslated at average 2023 exchange rates.

35.20 Liquidity

Liquidity is the Group's cash and short-term deposits plus undrawn committed debt facilities less cash used as collateral on loans and any gross up of cash in notional cash pools.

	2023 £m	2022 £m
Cash	**164.2**	184.2
Undrawn committed debt facilities	**333.4**	322.5
Cash used as collateral on loans	**(10.0)**	(13.0)
Gross up of cash in notional pools	**–**	(0.1)
Liquidity	**487.6**	493.6

35.21 Last twelve months (LTM)

Some results are presented or calculated using data from the last 12 months from the reference date.

Company Balance Sheet
As at 31 December 2023

	Note	2023 total £m	2022 total £m
Fixed assets			
Investments	7	**1,778.0**	1,778.0
Deferred tax		**4.3**	–
Total fixed assets		**1,782.3**	1,778.0
Current assets			
Debtors – amounts falling due within one year		**6.0**	4.6
Cash at bank and in hand		**0.1**	–
Total current assets		**6.1**	4.6
Creditors – amounts falling due within one year			
Bank loans and overdrafts		**–**	(0.2)
Other creditors including taxation and social security	8	**(566.9)**	(1,012.5)
Net current liabilities		**(560.8)**	(1,008.1)
Total assets less current liabilities		**1,221.5**	769.9
Net assets		**1,221.5**	769.9
Equity capital and reserves			
Called up share capital	9	**27.7**	27.8
Retained earnings	9	**1,193.8**	742.1
Total shareholders' funds		**1,221.5**	769.9

Company number 8217766

Under Section 408 of the Companies Act 2006, the Company is exempt from the requirement to present its own Income Statement. During 2023, the Company recognised a profit of £509.2m (2022: £26.9m profit).

The Financial Statements on pages 211 to 218 were approved and authorised for issue by the Directors on 28 February 2024 and signed on their behalf by:

Patrick André
Chief Executive

Mark Collis
Chief Financial Officer

Company Statement of Changes in Equity
For the year ended 31 December 2023

	Note	Called up share capital £m	Retained earnings £m	Total shareholders' funds £m
As at 1 January 2022		27.8	775.1	802.9
Comprehensive income recognised for the year		–	26.9	26.9
Recognition of share-based payments	10	–	5.1	5.1
Purchase of ESOP shares		–	(6.9)	(6.9)
Dividend paid	6	–	(58.1)	(58.1)
As at 31 December 2022		**27.8**	**742.1**	**769.9**
As at 1 January 2023		**27.8**	**742.1**	**769.9**
Comprehensive income recognised for the year		**–**	**509.2**	**509.2**
Recognition of share-based payments	10	**–**	**7.3**	**7.3**
Share buyback		**(0.1)**	**(3.0)**	**(3.1)**
Purchase of ESOP shares		**–**	**(1.1)**	**(1.1)**
Dividend paid	6	**–**	**(60.7)**	**(60.7)**
As at 31 December 2023		**27.7**	**1,193.8**	**1,221.5**

Notes to the Company Financial Statements

1. General Information

Vesuvius plc ('Vesuvius' or 'the Company') is a public company limited by shares. It is incorporated and domiciled in England and Wales, United Kingdom, and listed on the London Stock Exchange. The nature of the company is a holding company. The address of its registered office is 165 Fleet Street, London EC4A 2AE.

2. Basis of Preparation

2.1 Basis of accounting

The financial statements of the Company have been prepared in accordance with Financial Reporting Standard 101 Reduced Disclosure Framework (FRS 101) and the Companies Act 2006 as applicable to companies using FRS 101. The financial statements have been prepared under the historical cost convention.

The results of the Company are included in the preceding Group Financial Statements.

In these financial statements, the Company has applied the exemptions available under FRS 101 in respect of the following disclosures:

- A cash flow statement and related notes (IAS 1 para 10(d) and IAS 7)
- Disclosures in respect of capital management and financial instruments (IAS 1 paras 134–136 and IFRS 7)
- Disclosures in respect of related party transactions with wholly owned members of the Vesuvius plc Group (IAS 24)
- Disclosures in respect of the compensation of key management personnel (IAS 24 para 17)
- Disclosures in respect of fair value measurements (IFRS 13 paras 91–99)
- The effects of new but not yet effective IFRSs (IAS 8 paras 30–31)

Under Section 408 of the Companies Act 2006, the Company is exempt from the requirement to present its own profit and loss account.

The accounting policies set out below have, unless otherwise stated, been applied consistently to all periods presented in these financial statements.

2.2 Going concern

The Directors have a reasonable expectation that the Group and the Company have adequate resources to continue in operational existence for a period of at least 12 months from the date of approval of these financial statements (disclosed in Note 2.3 to the Group Financial Statements) and that there is no material uncertainty in respect of going concern. The net current liabilities result from amounts owed to subsidiary undertakings, therefore the Directors do not believe that they will affect the Company's ability to continue in operational existence. Accordingly, they continue to adopt a going concern basis in preparing the financial statements of the Group and the Company.

2.3 Accounting policy

Taxation

Both current and deferred tax are calculated using tax rates and laws that have been enacted, or substantively enacted, by the balance sheet date.

Deferred taxation is recognised, without discounting, in respect of all temporary differences that have originated, but not reversed, at the balance sheet date, with the exception that deferred taxation assets are only recognised if it is considered more likely than not that there will be suitable future profits from which the reversal of the underlying temporary differences can be deducted. Provision is made for the tax that would arise on remittance of the retained earnings of overseas subsidiaries only to the extent that, at the balance sheet date, dividends have been accrued as receivable. All other accounting policies are set out within the respective notes.

Notes to the Company Financial Statements continued

3. Critical Accounting Judgements and Estimates

Impairment of investment in subsidiaries and other companies (estimate and judgement)

For the below estimate, the Group does not have any key assumptions concerning the future, or other key sources of estimation uncertainty in the reporting period, that are reasonably expected to have a significant risk of causing a material adjustment to the carrying amounts of assets/liabilities within the next financial year. Nonetheless, this estimate has the potential to materially vary over time and is therefore highlighted.

The Company assesses its investments in subsidiaries and other companies for impairment shortly before the Company's year-end or whenever events or changes in circumstances indicate that the recoverable amount of the investment could be less than the carrying amount of the investment. If this is the case, the investment is considered to be impaired and is written down to its recoverable amount. Judgement is required in the determination of the recoverable amount as the Company evaluates various factors related to the operational and financial position of the relevant investee business, appropriate discounting and long-term growth rates. The annual investment impairment test is described in Note 7.3 below.

4. Employee Benefits Expense

	2023 £m	2022 £m
Wages and salaries	**3.4**	3.3
Social security costs	**0.7**	0.5
Share-based payments	**1.7**	0.7
Total employee benefits expense	**5.8**	4.5

The total average number of employees for 2023 was 3 (2022: 3). As at 31 December 2023, the Company had 3 (2022: 3) employees.

Details of the Directors' remuneration are disclosed in the Directors' Remuneration Report on pages 108 to 135.

5. Audit and Non-Audit Fees

Amounts payable to PricewaterhouseCoopers LLP in relation to audit and non-audit fees are disclosed within Note 5 to the Group Financial Statements.

6. Dividend Paid

	2023 £m	2022 £m
Amounts recognised as dividends and paid to equity shareholders during the year		
Final dividend for the year ended 31 December 2021 of 15.0p per ordinary share	**–**	40.5
Interim dividend for the year ended 31 December 2022 of 6.5p per ordinary share	**–**	17.6
Final dividend for the year ended 31 December 2022 of 15.75p per ordinary share	**42.4**	–
Interim dividend for the year ended 31 December 2023 of 6.8p per ordinary share	**18.3**	–
	60.7	58.1

A proposed final dividend for the year ended 31 December 2023 of £43.3m (2022: £42.3m), equivalent to 16.20 pence (2022: 15.75 pence) per ordinary share (TDIM: VSVS and ISIN: GB00B82YXW83), is subject to approval by shareholders at the Company's Annual General Meeting on 15 May 2024 and has not been included as a liability in these financial statements. If approved by shareholders, the dividend will be paid on 31 May 2024 to holders of ordinary shares on the register on 19 April 2024. The ordinary shares will be quoted ex-dividend on 18 April 2024. Any shareholder wishing to participate in the Vesuvius Dividend Reinvestment Plan needs to have submitted their election to do so by 9 May 2024.

7. Investments

7.1 Accounting policy

Shares in subsidiaries, associates and joint ventures are stated at cost less any impairment in value. Impairment is assessed in accordance with Note 16.1 to the Group Financial Statements.

7.2 Analysis of investments

	Shares in subsidiaries £m
As at 1 January 2023 and 31 December 2023	**1,778.0**

The subsidiaries, joint ventures and associates of Vesuvius plc, their country of incorporation and percentage ownership are set out in Note 32 to the Group Financial Statements. With the exception of Vesuvius Holdings Limited, whose ordinary share capital was directly held by Vesuvius plc, the ordinary share capital of the other companies was owned by a Vesuvius plc subsidiary as at 31 December 2023.

7. Investments continued

7.3 Impairment of investment in subsidiaries, associates and joint ventures

The Group carried out its investment impairment test as at 31 October 2023. The recoverable amount of the investment exceeded its carrying value, therefore no impairment charges have been recognised. No further impairment indicators were identified up to 31 December 2023.

The cash flow predictions are based on financial budgets and strategic plans approved by the Board. These assume a level of revenue and profits which are based on both past performance and expectations for future market development and take into account the cyclicality of the business in which the Group operates. In assessing the cash flows of the Parent's investment in its subsidiaries, the amounts payable by the Parent to subsidiaries are also taken into account. A sensitivity analysis was carried out using reasonably possible changes to the key assumptions set out in Note 16.2 to the Group Financial Statements. No scenarios of impairment were identified.

8. Other Creditors including Taxation and Social Security

	2023 £m	2022 £m
Amounts owed to subsidiary undertakings	**563.7**	1,009.8
Accruals and other creditors	**3.2**	2.7
Total amounts falling due within one year	**566.9**	1,012.5

Interest on the loan from another UK company within the Vesuvius Group Vesuvius Holdings Limited, is charged at Bank of England base rate +2% and the balance is repayable on demand.

9. Called Up Share Capital and Retained Earnings

9.1 Accounting policy

Equity instruments issued by the Company are recorded at the proceeds received, net of direct issue costs.

Where shares are redeemed or purchased as part of a share buyback programme, a sum equal to the amount by which the Company's share capital is diminished on cancellation of the shares is transferred to the capital redemption reserve.

9.2 Analysis of called up share capital

	2023		2022	
Allotted, issued and fully paid ordinary shares of 10p each	**Number m**	**Nominal value £m**	Number m	Nominal value £m
As at 1 January	**278.5**	**27.8**	278.5	27.8
Share buyback	**(0.6)**	**(0.1)**	–	–
As at 31 December	**277.9**	**27.7**	278.5	27.8

The allotted, issued and fully paid ordinary share capital of the Company as at 31 December 2023 was 277,854,424 shares of £0.10 each (31 December 2022: 278,485,071 shares of £0.10 each). 7,271,174 (2022: 7,271,174) shares of £0.10 each were held in Treasury and therefore carry no right to receive dividends or other distributions and have no voting rights. The total number of shares with rights including in relation to voting at General Meetings of the Company, distribution of dividends and repayment of capital voting and dividend rights is 270,583,250 (2022: 271,213,897) and all shareholders enjoy the same rights in relation to these shares. Included in this number are 1,956,030 (2022: 2,454,110) shares held by the Vesuvius Group employee share ownership plan trust (ESOP) and the ESOP elects to waive the right to receive dividends on these shares.

The Company announced the commencement of a share buyback programme of up to £50m on 4 December 2023. The programme began on that date and will end no later than 4 December 2024. The maximum number of ordinary shares that can be bought back is 27,121,389 at an aggregate purchase price of £50m (excluding stamp duty and expenses). All ordinary shares acquired under the programme will be cancelled. There is no minimum committed quantity of shares to be bought back and the Company is able to terminate the arrangement at its discretion and without any penalty.

9.3 Distributable reserves

The Company had distributable reserves in excess of £1,183m as at 31 December 2023 (2022: in excess of £732m), subject to filing these financial statements with Companies House. When making a distribution to shareholders, the Directors determine profits available for distribution by reference to guidance on realised and distributable profits under the Companies Act 2006 issued by the Institute of Chartered Accountants in England and Wales and the Institute of Chartered Accountants of Scotland in April 2017. The profits of the Company have been received in the form of dividends from subsidiaries and through court-approved capital reduction. The availability of distributable reserves in the Company is dependent on those dividends meeting the definition of qualifying consideration within the guidance and on available cash resources of the Group and other accessible sources of funds. The distributable reserves are subject to any future restrictions or limitations at the time such distribution is made.

Notes to the Company Financial Statements continued

10. Recognition of Share-based Payments

10.1 Accounting policy

The Company operates an equity-settled share-based payment arrangement for its employees. Equity-settled share-based payments are measured at fair value at the date of grant. For grants with market-based conditions attached to them, such as total shareholder return, fair value is measured using a form of stochastic option pricing model. For grants with non-market-based conditions, such as growth in return on invested capital (ROIC), environmental, social and governance criteria (ESG) and headline earnings per share (EPS), fair value is measured using the Black-Scholes option pricing model. The fair value is expensed on a straight-line basis over the vesting period with a corresponding increase in equity. The cumulative expense recognised is adjusted for the best estimate of the shares that will eventually vest.

The Company recharges its subsidiaries for the IFRS 2 expense relating to their employees on an annual basis.

10.2 Profit and loss account recognition

The Company operates a number of different share-based payment schemes, the main features of which are detailed in the Directors' Remuneration Report and Note 26 to the Group Financial Statements. A total of £1.7m was charged to the profit and loss account in the year with regard to share-based payments (2022: £0.7m).

10.3 Details of outstanding options

	Number of outstanding awards						Awards exercisable as at 31 Dec 2023	Weighted average outstanding contractual life of awards years	Range of exercise prices pence
	As at 1 Jan 2023	Granted	Exercised	Forfeited/ lapsed	Expired	As at 31 Dec 2023			
LTIP	1,424,266	578,407	(169,944)	(575,572)	nil	1,257,157	–	8.5	n/a
Weighted average exercise price	nil	nil	nil	nil	nil	nil	–		n/a
Other plans	149,354	60,179	(64,717)	nil	nil	144,816	–	1.6	n/a
Weighted average exercise price	nil	nil	nil	nil	nil	nil	–		n/a

For the awards exercised during 2023, the market value at the date of exercise was 406.0 pence per share.

	Number of outstanding awards						Awards exercisable as at 31 Dec 2022	Weighted average outstanding contractual life of awards years	Range of exercise prices pence
	As at 1 Jan 2022	Granted	Exercised	Forfeited/ lapsed	Expired	As at 31 Dec 2022			
LTIP	1,200,584	551,242	nil	(327,560)	nil	1,424,266	–	8.3	n/a
Weighted average exercise price	nil	nil	nil	nil	nil	nil	–		n/a
Other plans	76,586	121,442	(48,674)	nil	nil	149,354	–	1.9	n/a
Weighted average exercise price	nil	nil	nil	nil	nil	nil	–		n/a

For options exercised during 2022, the market value at the date of exercise was 395.5 pence per share.

Details of market performance conditions are included in the Directors' Remuneration Report.

As at 31 December 2023, the total options exercisable by all Group employees over the £0.10 ordinary shares and capable of being satisfied through new allotments of shares or through shares held by the Company's ESOP were as follows:

2023	Years of award/grant	Option prices	Latest year of exercise/ vesting	Number of options/ allocations outstanding
Long-Term Incentive Plan	2021–2023	nil	2033	1,257,157
Deferred Share Bonus Plan	2021–2023	nil	2026	144,816

10. Recognition of Share-based Payments continued

10.3 Details of outstanding options continued

Fair value of options granted under the LTIP during the year:

	2023		2022	
	ROIC/ESG element	TSR element	ROIC/ESG element	TSR element
Fair value of options granted	**386p**	**238p**	385p	217p
Share price on date of grant	**386p**	**386p**	385p	385p
Expected volatility	**n/a**	**34.6%**	n/a	39.3%
Risk-free interest rate	**n/a**	**3.3%**	n/a	1.3%
Exercise price (per share)	**nil**	**nil**	nil	nil
Expected term (years)	**3**	**3**	3	3
Expected dividend yield	**nil**	**nil**	nil	nil

For the LTIP awards issued in 2021, vesting of 50% of shares awarded is based on the Group's three-year total shareholder return (TSR) performance relative to that of the constituent companies of the FTSE 250 (excluding investment trusts) and vesting of the remaining 50% of shares awarded is based on headline EPS growth.

For the LTIP awards issued in 2022 and 2023, vesting of 40% of shares awarded is based on the Group's three-year total shareholder return (TSR) performance relative to that of the constituent companies of the FTSE 250 (excluding investment trusts) and vesting of the remaining 60% of shares awarded is based on ROIC and ESG targets.

Expected volatility was determined by calculating the historical volatility of the Group's share price over the 2.8 years (2022: 2.8 years) prior to the grant date for the March 2023 grant. The risk-free rate of return was assumed to be the yield to maturity on a UK fixed gilt with the term to maturity equal to the expected life of the option. At the discretion of the Remuneration Committee, award holders receive the value of dividends that would have been paid on their vested shares in the period between grant and vesting. Accordingly, there is no discount to the valuation for dividends foregone during the vesting period.

11. Financial Guarantees

Where the Company enters into financial guarantee contracts to guarantee the indebtedness of other companies within its Group, the Company applies IFRS9 Financial instruments. At the balance sheet date there is nothing to recognise in the Company's Financial Statements. Guarantees provided by the Company as at 31 December 2023 in respect of the liabilities of its subsidiary companies amounted to £344.7m (2022: £386.5m), which includes guarantees of $116m, €198m and £28m (2022: $146.0m, €198.0m and £28.0m) in respect of US Private Placement Loan Notes; £51.6m (2022: £62.5m) in respect of drawings under the syndicated bank facility; £0.1m (2022: £0.1m) in respect of guarantees issued to certain banks covering their exposure on derivative contracts governed by ISDA agreements; and £2.1m (2022: £nil) in respect of overdraft facilities utilised by certain of the Company's subsidiary companies.

12. Contingent Liabilities

Vesuvius has extensive international operations and is subject to various legal and regulatory regimes, including those covering taxation and environmental matters. Several of the Company's subsidiaries are parties to legal proceedings, certain of which are insured claims arising in the ordinary course of the operations of the company involved, and are aware of a number of issues which are, or may be, the subject of dispute with tax authorities. Whilst the outcome of litigation and other disputes can never be predicted with certainty, having regard to legal advice received and the insurance arrangements of the Company and its subsidiaries, the Directors believe that none of these matters will, either individually or in the aggregate, have a materially adverse effect on the Company's financial condition or results of operations.

Notes to the Company Financial Statements continued

13. Related Parties

All transactions with related parties are conducted on an arm's-length basis and in accordance with normal business terms. Transactions between related parties that are wholly owned Company subsidiaries are not disclosed in this Note.

The related parties identified by the Directors include joint ventures, associates and key management personnel. To enable users of our financial statements to form a view on the effects of related party relationships on the Company, we disclose the related party relationship, irrespective of whether there have been transactions between the related parties.

Transactions with joint ventures and associates

All transactions with joint ventures and associates are in the normal course of business. Further details of joint ventures and associates are included in Note 32 to the Group Financial Statements.

Transactions with key management personnel

There have been no transactions with key management personnel of the Company other than the Directors' remuneration.

Directors' remuneration is disclosed in the Annual Report on Directors' Remuneration.

Transactions with other related parties

There are no controlling shareholders of the Company as defined by IFRS. There have been no material transactions with the shareholders of the Company.

Pension contributions are disclosed in Note 25 to the Group Financial Statements.

Other than the parties disclosed above, the Company has no other material related parties.

Five-Year Summary: Divisional Results from Continuing Operations (unaudited)

		2023	2022	2021	2020	2019
Steel Division						
Revenue	£m	**1,400.0**	1,496.4	1,171.5	1,045.4	1,195.3
Trading profit	£m	**147.6**	172.7	102.0	76.4	120.1
Return on sales	%	**10.5**	11.5	8.7	7.3	10.0
Employees: year-end	no.	**9,228**	8,719	8,323	7,619	7,677
Foundry Division						
Revenue	£m	**529.8**	551.0	471.4	412.9	515.1
Trading profit	£m	**52.8**	54.5	40.4	25.0	61.3
Return on sales	%	**10.0**	9.9	8.6	6.1	11.9
Employees: year-end	no.	**2,463**	2,415	2,881	2,735	2,819

Shareholder Information (unaudited)

Enquiries

The Company's share registrar is Equiniti who can be contacted if you have any questions about your Vesuvius shareholding.

Equiniti Limited
Aspect House, Spencer Road
Lancing, West Sussex, BN99 6DA
United Kingdom

Telephone*: +44 (0)371 384 2335

Website: www.shareview.co.uk

For the hard of hearing, Equiniti can also be contacted using the Relay UK website at www.relayuk.bt.com.

Any shareholder enquiries not related to the share register should be sent by email to shareholder.information@vesuvius.com or by letter to the Company Secretary at the registered office.

Registered Office and Group Head Office

Vesuvius plc
165 Fleet Street
London EC4A 2AE
United Kingdom

Telephone: +44 (0)20 7822 0000

Registered in England and Wales No. 8217766
LEI: 213800ORZ521W585SY02

Vesuvius Website

Shareholder and other information about the Company, including details of the current and historical share price, can be accessed on the Vesuvius website: www.vesuvius.com.

You can view the online Annual Report 2023 on the website.

Shareview and Electronic Communication

Equiniti's website, www.shareview.co.uk, enables shareholders to register online to view details of their shareholdings. To access online information on your shareholding, you will require your shareholder reference number, which can be found at the top of your share certificate or on your dividend confirmation. The Shareview website provides answers to frequently asked questions and information useful for the management of investments, including indicative share valuations and dividend payment details.

Shareholders can register on Shareview to receive shareholder communications electronically, including the Company's Annual Report and Financial Statements, rather than receiving them in paper form. The registration process requires shareholders to input their shareholder reference number. To receive shareholder communications in electronic form, shareholders should select 'email' as their mailing preference. Once registered, shareholders will receive an email notifying them each time a shareholder communication has been published on the Vesuvius website.

Share Dealing Service

The Company's shares can be traded through most banks, building societies or stockbrokers. UK resident shareholders can also buy and sell shares by telephone or online using Equiniti's Shareview dealing service.

Telephone 0345 603 7037 between 8.00 am and 4.30 pm on any business day (excluding public holidays in England and Wales).

Website: www.shareview.co.uk/dealing

The shareholder reference number (at the top of your share certificate or on your dividend confirmation) is required to use the dealing service.

ShareGift

ShareGift, the charity share donation scheme, is a free service for shareholders wishing to give shares to a wide range of UK charitable causes. It is particularly useful for those shareholders who may wish to dispose of a small quantity of shares in a charitable way where the market value makes it uneconomic to sell on a commission basis. Further information can be obtained from ShareGift.

Telephone: +44 (0)20 7930 3737

Website: www.sharegift.org

Email: help@sharegift.org

Dividend Reinvestment Plan

Equiniti offers a dividend reinvestment plan through which shareholders can use their Vesuvius cash dividends to buy additional shares in Vesuvius. Further details, including how to sign up and the terms and conditions of the plan, are available from the Share Dividend Helpline.

Telephone*: 0371 384 2335
(or +44 371 384 2335 if calling from outside the UK)

Website: www.shareview.co.uk

Overseas Payment Service

Equiniti provides a dividend payment service in over 90 countries that automatically converts dividend payments into local currency and pays the funds into a shareholder's bank account. Further details, including an application form and the terms and conditions of the service, are available from Equiniti.

Telephone*: +44 371 384 2335

Website: www.shareview.co.uk

By post: Equiniti, Aspect House, Spencer Road, Lancing, West Sussex, BN99 6DA, United Kingdom

Please quote Overseas Payment Service, the Company's name and your shareholder reference number.

Financial Calendar

2024 Annual General Meeting	Wednesday 15 May 2024

* Lines are open Monday to Friday 8.30 am to 5.30 pm (excluding public holidays in England and Wales).

Analysis of Ordinary Shareholders

As at 31 December 2023	Investor type: Private	Investor type: Institutional and other	Total	Shareholdings: 1–1,000	Shareholdings: 1,001–50,000	Shareholdings: 50,001–500,000	Shareholdings: 500,001+
Number of holders	2,288	465	2,753	2,108	449	125	71
Percentage of holders	83.11%	16.89%	100%	76.57%	16.31%	4.54%	2.58%
Percentage of shares held	0.53%	99.47%	100%	0.10%	1.54%	7.44%	90.92%

Share Fraud – Spot the Warning Signs

Investment scams are designed to look like genuine investments.

Have you been…

- Contacted out of the blue
- Promised tempting returns and told the investment is safe
- Called repeatedly
- Told the offer is only available for a limited time?

If so, you might have been contacted by fraudsters.

How to Avoid Share Fraud

1. Reject cold calls

If you have been contacted by telephone, email or post, or via a third party or at a seminar or exhibition, with an offer to buy or sell shares, the chances are that it's a high-risk investment or a scam. You should treat any offer with extreme caution. The safest thing to do is to ignore the approach and if you were contacted by phone to hang up on the call.

2. Check if the firm is authorised by the Financial Conduct Authority (FCA) and recorded on the Financial Services register at https://register.fca.org.uk/

The Financial Services Register is a public record of all the firms and individuals in the financial services industry that are, or have been, regulated by the Prudential Regulation Authority and/or the FCA. If there are no contact details on the Register or if the firm claims the Register is out of date, call the FCA Consumer Helpline on 0800 111 6768.

If you're dealing with an overseas firm, you should check with the regulator in that country and also check the scam warnings from foreign regulators.

3. Get impartial advice

Think about getting impartial financial advice before you hand over any money. Seek advice from someone unconnected to the firm that has approached you.

Reporting a Scam

If you suspect that you have been approached by fraudsters, please tell the FCA Consumer Helpline by contacting them on 0800 111 6768 (or +44 20 7066 1000 from outside the UK) or by using the share fraud reporting form at www.fca.org.uk/scams, where you can find out more about investment scams. For calls using next generation text relay, please call the FCA Consumer Helpline on (18001) 0207 066 1000.

If you have lost money to investment fraud, you should report it to Action Fraud on 0300 123 2040 (or +44 300 123 2040 from outside the UK) or online at www.actionfraud.police.uk.

Find out more at www.fca.org.uk/scamsmart.

Identity Theft

We offer the following advice to shareholders on protecting their personal information and Vesuvius shares:

- Keep all Vesuvius correspondence in a safe place, or destroy correspondence by shredding
- When changing address, inform the registrar, Equiniti. If a letter is received from Equiniti regarding a change of address and there has been no change of address, contact the registrar immediately using the contact information on the opposite page
- Have your dividends paid directly into a bank or building society account. This will reduce the risk of a cheque being intercepted or lost in the post
- On changing a bank or building society account, inform Equiniti of the details of the new account and respond, as requested, to any letters Equiniti send regarding this matter

Glossary

8D	Eight Disciplines: an eight-step methodology to resolve customer, supplier and internal quality issues
AGM	Annual General Meeting
BMC	Bayuquan Magnesium Co acquired in October 2022 and now trading through the legal entity Yingkou YingWei Magnesium Co., Ltd
Capex	Capital expenditure
CEO	Chief Executive
CFO	Chief Financial Officer
CG Statement	The Corporate Governance Statement
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
Code	The UK Corporate Governance Code
Company	Vesuvius plc
CORE Values or Values	The Group's key values of Courage, Ownership, Respect and Energy
COVID-19 or COVID-19 pandemic	Coronavirus disease (COVID-19), the infectious disease caused by the newly discovered coronavirus, and the pandemic that has arisen from this
DO	Dangerous occurrence
DOFR	Dangerous occurrence frequency rate
DRI	Direct reduced iron (DRI) is produced from the direct reduction of iron ore (in the form of lumps, pellets, or fines) into iron by a reducing gas or elemental carbon produced from natural gas or coal
DSBP	Deferred Share Bonus Plan
DTR	The Disclosure and Transparency Rules of the UK Financial Conduct Authority
EAF	Electric Arc Furnace
EBITDA	Trading profit before depreciation and amortisation of non-acquired intangible charges
ECL	Expected Credit Loss
EEMEA	Eastern Europe, Middle East and Africa
EMEA	Europe, Middle East and Africa
EPS	Earnings per share
ESOP	Employee Share Ownership Plan
EU	European Union
EU27	The 27 European Union countries
FRC	Financial Reporting Council
FRS	Financial Reporting Standards
FTSE 250	Equity index whose constituents are the 101st to 350th largest companies listed on the London Stock Exchange in terms of their market capitalisation
FX	Foreign exchange
GEC	Group Executive Committee
GHG	Greenhouse gas
Group	Vesuvius plc and its subsidiary companies
HeaTt	Vesuvius e-learning programme
HPDC	High Pressure Die Casting
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
KPI	Key Performance Indicator
LMS	Learning Management System
LPDC	Low Pressure Die Casting
LTI	Lost time injury
LTIFR	Lost time injury frequency rate, a KPI which calculates the number of LTIs per million hours worked
Median	The middle number in a sorted list of numbers
MTI	Medically treated injury
MTIFR	Medically treated injury frequency rate
PwC	PricewaterhouseCoopers LLP
NAFTA	Canada, Mexico and USA
Offshore Area	The area around the United Kingdom as specified in the Accounts Regulations Schedule 7, paragraph 15
Ordinary share	An ordinary share of 10 pence in the capital of the Company
R&D	Research and development
Scope 1 emissions	CO_2 and CO_2e emissions from fuels used in our factories and offices, fugitive emissions and non-fuel process emissions.
Scope 2 emissions	CO_2 and CO_2e from indirect emissions resulting from the generation of electricity, heat, steam and hot water we purchase to supply our offices and factories
Scope 3 emissions	All other indirect CO_2 and CO_2e emissions that occur in the Company's value chain.
Senior Leadership Group	The Group Executive Committee plus the most senior Vesuvius managers worldwide, in terms of their contribution to the Group's overall results and to the execution of the Group's strategy. This group comprises between 140 and 170 members
TSR	Total shareholder return
UK GAAP	UK Generally Accepted Accounting Principles
UN	United Nations
UN SDGs	United Nations Sustainable Development Goals
Universal Refractories	The trade and assets of Universal Refractories, Inc. acquired in December 2021 and now trading through the legal entity Vesuvius Penn Corporation
VISO	Vesuvius Isostatic
VSP	Vesuvius Share Plan

The imagery included in this Annual Report aims to capture the many different aspects of Vesuvius and our team around the world. The photographer Samuel Dhote shot most of these images. www.samueldhote.com

Our front cover features:

Name: Ewelina Watychowicz
Role: Operator
Location: Skawina, Poland

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