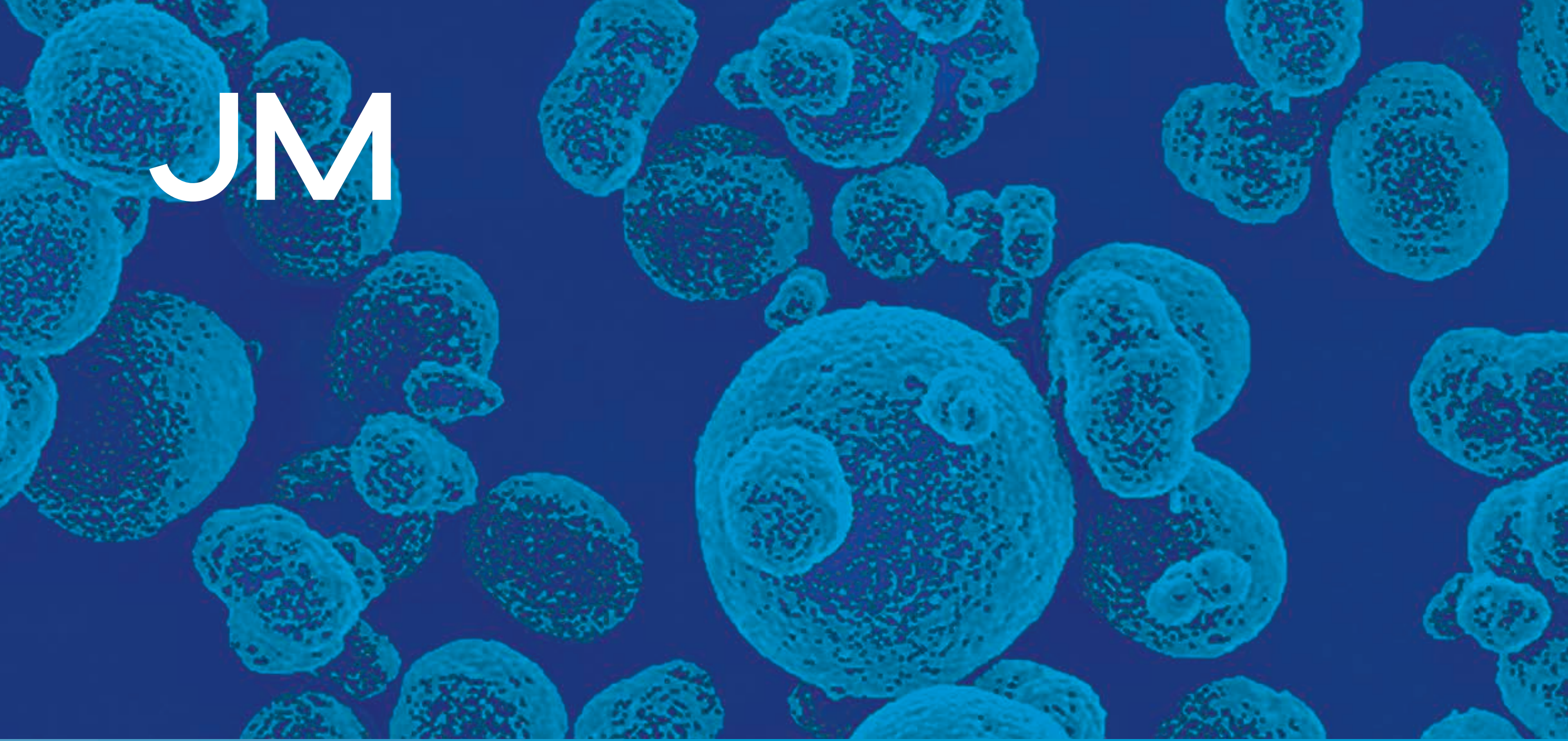
JM



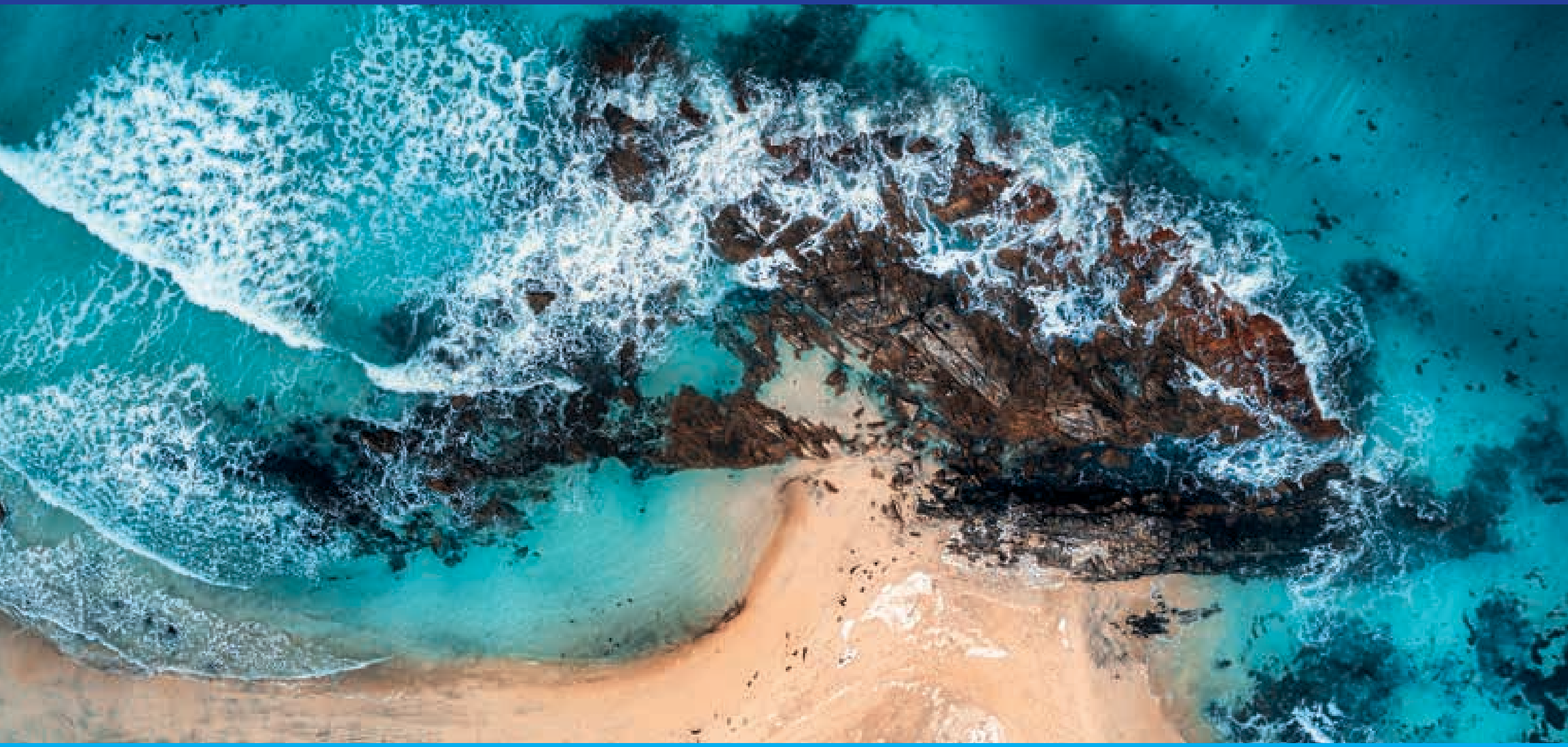
2019 Annual Report and Accounts

Johnson Matthey
Inspiring science, enhancing life

Johnson Matthey

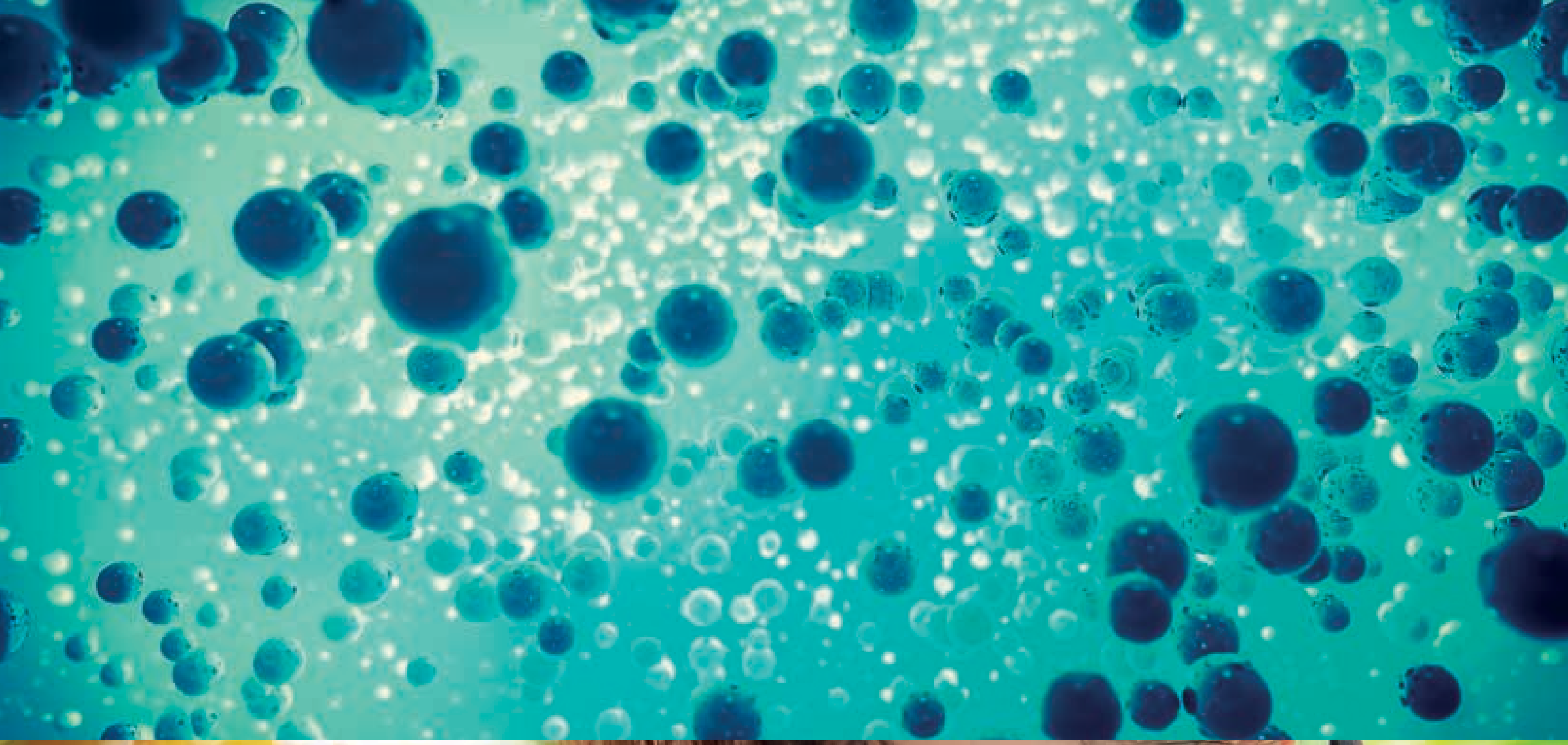
Our vision is for a world that's cleaner and healthier, today and for future generations.

As a global leader in sustainable technologies, we use our cutting edge science to create solutions with our customers that make a real difference to the world around us.



Acting today

We face complex challenges on a global scale; the need for cleaner air, the drive for improved health and a responsibility to be smarter and more efficient in the way we use our planet's finite natural resources.



For the future

Through using our expertise in science at the atomic scale, JM is developing solutions that create value for our customers and have an impact at the global scale, making our world cleaner, healthier and fit for future generations.

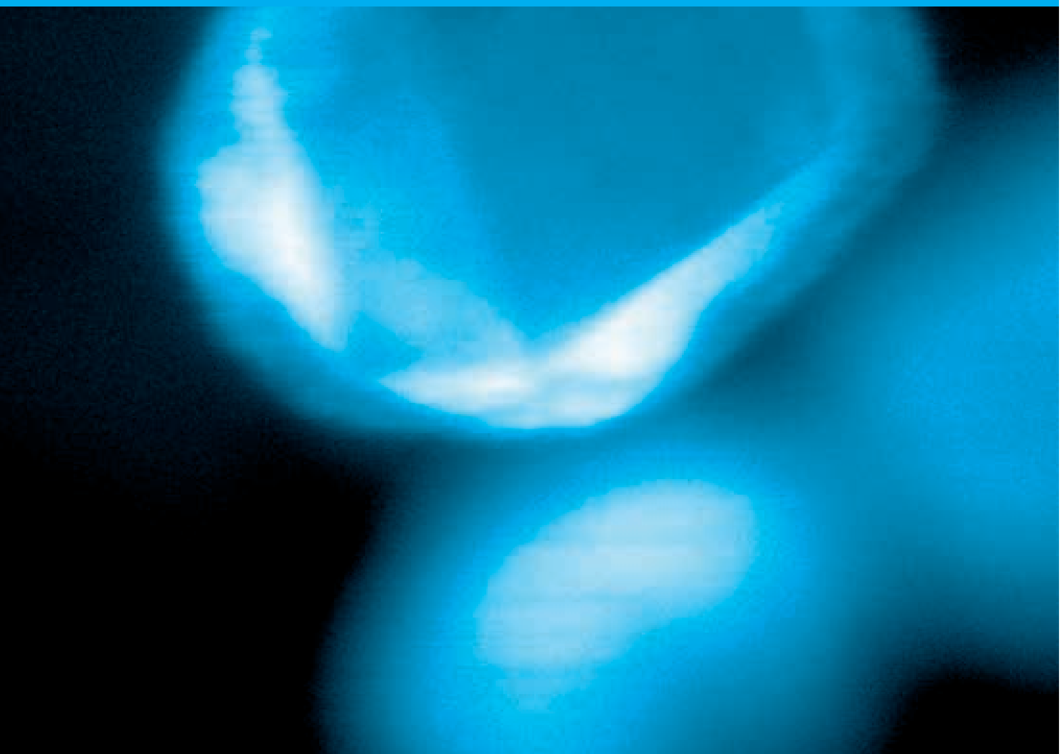
Inspiring science, enhancing life.

In doing this we are:

- Taking action for **sustainable development**.
- Shaping a new era for **clean energy**.
- **Achieving more** from less.
- Providing **clean air** for all.
- Helping people live longer and **healthier lives**.

Taking action for **sustainable development**

The world is faced with an unprecedented set of challenges. As the global population rises, communities must overcome issues such as air pollution, climate change, scarcity of natural resources and ever increasing demands for clean energy, water, food and access to healthcare.



The challenge

The UN Sustainable Development Goals (SDGs) provide a blueprint for meeting the world's challenges and an opportunity for governments, industry and individuals to work together to create a better future for people and the planet.

17

The UN SDGs set out 17 main goals with 169 sub targets to achieve the action needed to make a difference.

Our response

JM's people and inspiring science are contributing to achieving the UN SDGs. In 2018/19 87.3% of our sales came from products and services that had a positive impact on the goals.

- Meeting the demand for new solutions for cleaner energy.
- Making the most of the planet's resources by achieving more from less.
- Enabling a once in a lifetime transition to low emission automotive solutions.
- Improving the effectiveness and accessibility of healthcare treatments.

See page 26 for more information on the UN SDGs

The challenge

The world is seeking solutions to the energy trilemma – the need for a secure supply of clean, affordable and universally accessible energy. Hydrogen ticks the box. And with increasing recognition that hydrogen will be an important energy vector comes the challenge of deploying technology at scale to support the shift to a hydrogen economy.

10x

Ten times current global production of hydrogen will be required to meet future predictions for its use.

Our response

JM is putting its science at the heart of solutions that support a cost effective transition to a secure and environmentally sustainable energy system.

- An established portfolio of market leading technologies for hydrogen production.
- Scale up of fuel cell technologies that enable hydrogen to be directly converted to electricity with water as the only by product.

Shaping a new era for **clean energy**

We are at the start of an energy transition, an event that hasn't happened since the industrial revolution when the use of fossil fuels drove growth and prosperity. Rapidly growing demands on the world's energy resources are driving the need for new and innovative solutions to achieve more sustainable energy generation and storage.

The challenge

Global demand for 'more' requires a circular way of thinking. New raw materials and resources will be required, and new challenges in how to access and transform or recycle those materials efficiently must be overcome.

>25%

Of the world's annual use of platinum comes from recycled sources.

Our response

JM already helped create one of the world's earliest circular economies in the use, reclaiming, refining and reuse of platinum. With our scientific expertise, we are helping our customers transform, purify, recycle and use key natural resources such as oil, gas, biomass and platinum group metals (pgms) into materials that build and fuel the modern world, while reducing the impact of this activity on the environment.

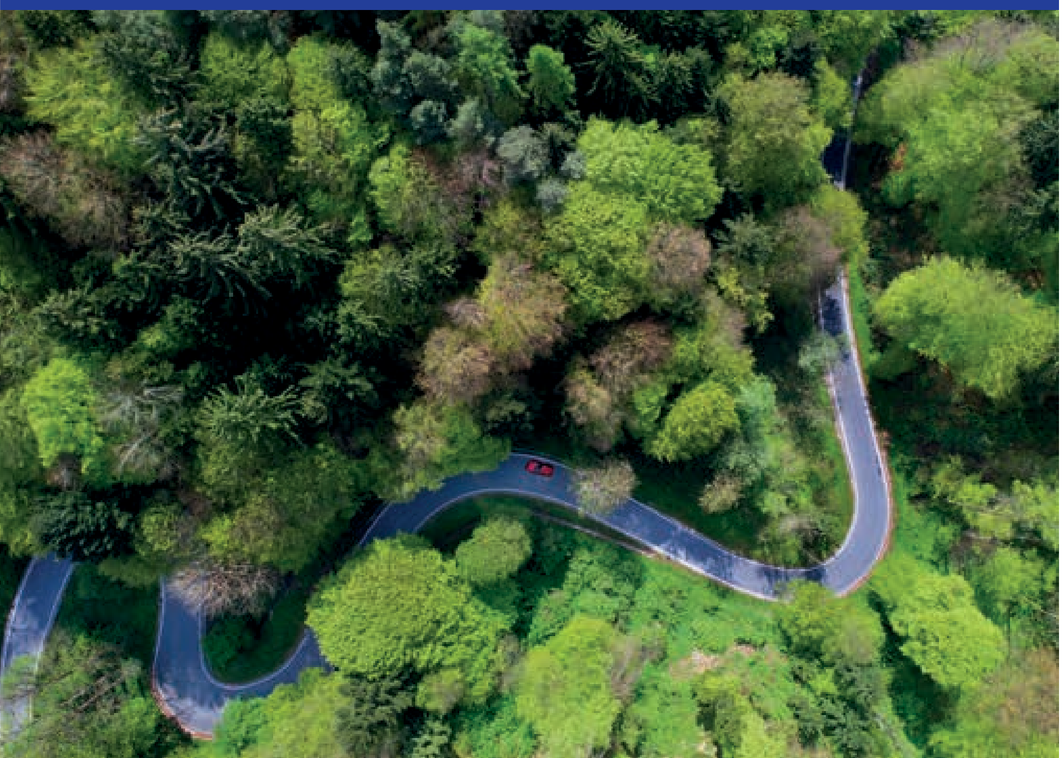
- Catalysts and process technologies that drive efficiency in chemicals production.
- Commercialising technology to convert municipal waste into jet fuel.
- Innovating and investing to enable the shift to biobased feedstocks and renewables.
- Investing in our world leading pgm recycling capability.
- Applying our expertise in recycling and efficient transformations to create solutions to new challenges.

Achieving more from less

In a world where population growth is putting increased pressure on our natural resources, the efficient transformation and use of those natural resources has never been more important.

Providing **clean air** for all

Air quality remains a major global issue. Pollution from vehicles is a contributor and governments around the world continue to set tighter limits on emissions from transportation. This, together with heightened public awareness of vehicle emissions, puts us firmly on the journey to pollution-free roads.



The challenge

These environmental and social factors are driving a once in a lifetime transition in the automotive industry. Governments, car companies and consumers are demanding options for cost effective technological solutions that will drastically reduce emissions from our vehicles and deliver cleaner air for us all.

>3m

Tonnes of pollutants removed by JM's emission control catalysts in 2018/19.

Our response

JM is at the very forefront of science that is enabling lower and zero emission vehicles. And we've translated that science into the broadest range of solutions for automotive industry customers.

- Extending our technology leadership and manufacturing capacity in emission control catalysts for: cars, buses and trucks; gasoline, diesel and hybrid.
- Innovating and commercialising eLNO®, our class leading ultra high energy density battery cathode material, supported by our significant ongoing investment to build manufacturing capacity.
- Ramping up production of fuel cell technologies.

Helping people live longer and **healthier lives**

With a growing and increasingly wealthy population comes the expectation from individuals that they will lead a longer and healthier life. And while new healthcare innovations and individualised treatments can provide the solution, there is an increasing need to manage the impact on healthcare costs.

The challenge

Strong demand means an attractive market and so for pharmaceutical producers, the prize is high and the competition is tough. That's why they look to partners who can develop their complex active pharmaceutical ingredients (APIs) and manufacture them as flexibly and efficiently as possible.

>180,000

Lives positively impacted in 2018/19 as a result of recently launched drugs containing JM's API products.

Our response

JM is a go-to partner for both innovator and generic pharmaceutical companies. We don't specialise in solutions for specific treatments and come into our own when tasked with complex API development. We can work at all stages of the drug development cycle, from conception right through to scale up and commercial manufacture.

- Enabling a life enhancing cancer treatment in a new strategic partnership with Immunomedics.
- Continuing investment of circa £25 million p.a. in our new product pipeline to bring new APIs to market.
- Optimising our manufacturing footprint in the US, Scotland and China to maximise the flexibility and efficiency of our assets.

Johnson Matthey
Inspiring science, enhancing life

Watch: Chief Executive Robert MacLeod explores how we're tackling some of the world's most complex challenges
matthey.com/meeting-global-challenges

2018/19 – continued strong performance

Investing in our science

Gross R&D spend

£190m

(2017/18: £193m)

Supporting our people

Lost time injury and illness rate[1]

0.53

(2017/18: 0.52[2])

[1] For definition see page 234.

[2] Restated, see page 73.

Employee engagement index score[3]

59%

(62% in 2016 employee opinion survey)

[3] For definition see page 64.

Delighting our customers

Revenue up 5%[4]

£10,745m

(2017/18: £10,274m[5])

[4] At constant rates (see note 3 on page 77).

[5] Restated, see note 39 on page 220.

Sales[6] up 10%[7]

£4,214m

(2017/18: £3,846m)

[6] Sales excluding precious metals. For definition see page 173.

[7] At constant rates (see note 3 on page 77).

Operating profit up 48%[8]

£531m

(2017/18: £359m)

[8] At constant rates (see note 3 on page 77).

Underlying[9] operating profit up 8%[10]

£566m

(2017/18: £525m)

[9] For definition see page 173.

[10] At constant rates (see note 3 on page 77).

Running our business better

Average working capital days[11]

59

(2017/18: 62 days)

[11] Excluding precious metals.

Free cash outflow[12] of

£13m

(2017/18: inflow of £136m)

[12] For definition see page 244.

Operational carbon footprint ('000 tonnes CO_2 equivalent)

414

(2017/18: 445 tonnes)

Creating value for our shareholders

Attractive return on invested capital[13]

16.4%

(2017/18: 17.0%)

[13] For definition see note 31 on page 205.

Earnings per share up 39%

215.2p

(2017/18: 155.2p)

Underlying[14] earnings per share up 10%

228.8p

(2017/18: 208.4)

[14] For definition see note 2 on page 77.

Progressive dividend – up 7% to

85.5p

(2017/18: 80.0p)

We delivered what we said we would.

We strengthened our platform for growth.

Contents

Strategic Report

4 JM in profile
6 Chairman's statement
10 Chief Executive's statement
13 Group Management Committee (GMC)
14 Our strategy
22 Our business model
24 Our sustainability framework
28 Our stakeholders
30 Our KPIs
34 Science
40 Customers
48 Operations
- 56 Environmental management

60 People
- 61 A culture for success
- 69 Health and safety
- 74 Recognising our people

76 Financial performance review
- 77 Group performance review
- 78 Sector performance review
- 80 Clean Air
- 82 Efficient Natural Resources
- 83 Health
- 84 New Markets
- 86 Financial review
- 90 Treasury policies and going concern

91 Risks and uncertainties

Governance

100 Board of Directors
104 Letter from the Chairman
106 Corporate Governance Report
119 Nomination Committee Report
123 Audit Committee Report
132 Remuneration Report
151 Directors' Report
155 Responsibilities of Directors

Accounts

158 Consolidated Income Statement
158 Consolidated Statement of Total Comprehensive Income
159 Consolidated and Parent Company Balance Sheets
160 Consolidated Cash Flow Statement
161 Consolidated Statement of Changes in Equity
162 Parent Company Statement of Changes in Equity
163 Accounting policies
173 Notes on the accounts
223 Independent auditor's report

Other information

234 Basis of reporting – non-financial data
238 Our framework and our six sustainable business goals
239 Verification of non-financial data
240 GRI Standard Content Index
242 Shareholder information
244 Glossary of terms
245 Index
246 Financial calendar 2019/20
247 Company details

About this report

Our integrated report for 2019 combines all aspects of the group's performance into one document and reflects how we are addressing areas which we believe have the potential to have a material impact on our business.

Unless otherwise stated, performance data is for the year ended 31st March 2019.

Sustainability reporting

This report is written to the GRI reporting standard Core option. We report against GRI in line with the issues that are important and / or material to our business.

Stay updated

You can find this report and additional information about Johnson Matthey, including the latest news, investor updates and sustainability, on our website:

www.matthey.com

Navigation

Throughout this report you will find a series of easy to identify icons to help you find further information about the group.

+ Read more

r Principal risk

Go online

k Key performance indicator (KPI)

Cautionary statement

The Strategic Report and certain other sections of this annual report contain forward looking statements that are subject to risk factors associated with, amongst other things, the economic and business circumstances occurring from time to time in the countries and sectors in which the group operates. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a wide range of variables which could cause actual results to differ materially from those currently anticipated.

Strategic Report

Here we explain how we use our inspiring science to enhance life.

The Strategic Report from page 2 to page 97 was approved by the board on 30th May 2019 and is signed on its behalf by:

R J MacLeod

Robert MacLeod
Chief Executive

Contents

4 JM in profile
6 Chairman's statement
10 Chief Executive's statement
13 Group Management Committee (GMC)
14 Our strategy
22 Our business model
24 Our sustainability framework
28 Our stakeholders
30 Our KPIs
34 Science
40 Customers
48 Operations
- 56 Environmental management

60 People
- 61 A culture for success
- 69 Health and safety
- 74 Recognising our people

76 Financial performance review
- 77 Group performance review
- 78 Sector performance review
- 80 Clean Air
- 82 Efficient Natural Resources
- 83 Health
- 84 New Markets
- 86 Financial review
- 90 Treasury policies and going concern

91 Risks and uncertainties

JM in profile

Johnson Matthey is a global leader in science

that makes the world cleaner and healthier.

What we do

We use our cutting edge science to create solutions to our customers' complex problems. Our science has a global impact in areas that include low emission transport, pharmaceuticals and chemical processing. We apply it in a way that makes the most efficient use of the planet's natural resources.

Our major markets

We serve customers in the global automotive, chemicals, pharmaceuticals and other industrial markets. Through the quality of our science, our problem-solving ability and strong customer relationships, we hold leading positions in all our major markets.

Our growth opportunities

We target high growth opportunities that will deliver attractive returns for our shareholders over the medium term; mid to high single digit compound annual growth in earnings per share, ROIC expanding to 20% and, as a result, a progressive dividend.

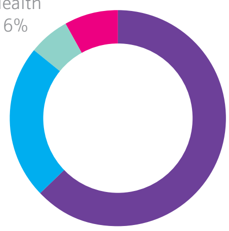
Our key highlights

Sales[1]
excluding precious metals
£4.2bn

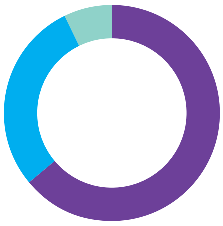
Operating profit
reported
£531m

Operating profit
underlying
£566m

Sales by sector
excluding precious metals



Operating profit (excluding corporate)
underlying



[1] The group believes that sales excluding precious metals is a better measure of the underlying performance of the group than revenue. Total revenue can be heavily distorted by year on year fluctuations in the market prices of precious metals and, in many cases, the value of precious metals is passed directly on to our customers.

Our business

Clean Air

Strategy to deliver sustained growth

- A global leader in catalysts and catalyst systems to reduce emissions from vehicles and industry.
- Creates value from high technology catalyst formulations and systems to meet legislated limits for emissions around the world.
- 13 manufacturing facilities in 12 countries.
- Nine technical centres in eight countries.

See pages 80 and 81 for more information

Efficient Natural Resources

Strategy to deliver market leading growth

- Creates value from efficient use and transformation of critical natural resources including oil, gas, biomass and platinum group metals (pgms).
- Leading market positions across four global businesses: Catalyst Technologies, Pgm Services, Advanced Glass Technologies and Diagnostic Services.
- 18 manufacturing facilities in eight countries.
- Two technical centres in the UK.

See pages 82 and 83 for more information

Over

30

locations

14,800

people

Where we operate

North America

11 major manufacturing facilities

33% of group sales

23% of employees

Europe

14 major manufacturing facilities

47% of group sales

53% of employees

Rest of Asia

6 major manufacturing facilities

8% of group sales

10% of employees

China

5 major manufacturing facilities

7% of group sales

9% of employees

Rest of World

5 major manufacturing facilities

5% of group sales

5% of employees

Health

Strategy to deliver break out growth

- Leading provider of solutions to the complex problems of both generic and innovator companies.
- Develops and manufactures active pharmaceutical ingredients (APIs) for a variety of treatments.
- Operates in the large and growing outsourced small molecule API market.
- Four manufacturing facilities in two countries.
- Three technical centres in three countries.

+ See pages 83 and 84 for more information

New Markets

Strategy to deliver break out growth in battery materials, with market leading cathode material technology

- Accessing new areas of potential growth aligned to global priorities of cleaner air, improved health and more efficient use of natural resources.

+ See pages 84 and 85 for more information

Group functions

- Provide common standards to leverage efficiency and create value across the group's sectors.
- Includes global science and technology function which drives innovation and leads R&D in core science and business areas. Supports technology development in sectors.

Chairman's statement

Making a huge contribution to a more sustainable future

I'm delighted to be writing to you – shareholders, employees and other interested followers – for the first time as Chairman of Johnson Matthey.

Johnson Matthey is a remarkable company.

In a world where many companies are just waking up to sustainability, JM has been punching above its weight on this for years. We make a huge contribution to a more sustainable future, through making the world cleaner and healthier. And we are better qualified to do this than most other companies; we have catalysts that make your car less polluting, ground breaking new technology to take your household waste and turn it into jet fuel and molecules that help combat cancer.

Balancing human prosperity with climate stability – it's the challenge facing us all and it needs nations, industry and individuals to pull together. It is clear that sustainable technologies play a huge part in tackling this and so will JM with the work we do at the leading edge of modern catalysis, process engineering, electrochemistry and synthetic organic chemistry.

We operate in today's technology hot spots and that's why we will continue to make a measurable contribution to a sustainable future. The United Nations Sustainable Development Goals (UN SDGs) provide us with that measure and this year alone, over 87% of our sales came from products that tackle those globally shared goals. So it's not just talk. JM's commitment is lived out through our contribution today and through our investments in sustainable innovations of the future.

One year in

I'm now one year into my role as Chairman. Before I joined JM I knew it as a company with deeply talented, competent people that translate science into sustainable solutions. I'm pleased to say that over the past year those prior perceptions have been well and truly confirmed and JM is even better than I had thought.

I have made it a priority to really get under the skin of JM over the last year. I met the company's 80 or so senior leaders at their recent annual conference. I was struck by their energy, enthusiasm and real engagement in the company and its future. And all this at a time when JM is undergoing a fundamental change; professionalising its core systems and processes to drive efficiency and value, while continuing to deliver this year's results and shape new business areas for accelerated growth.

I've also spent time at our corporate R&D centre in Sonning, UK, visiting our impressive laboratories there and getting into deep conversation with our brilliant scientists and engineers about their research work. JM is a community of very innovative people. Their deep scientific knowledge and how to use it to solve a customer's problem is JM's unique strength. It is something that takes time to build, is extremely difficult for others to replicate and it's in our DNA.

Patrick Thomas
Chairman

Customers choose to work with JM because of our world class technologies and the relationships they have with our people. That's how we've earned our leading positions in the vast majority of the markets that we serve. But JM does not over shout about what it does. We take great pride in being the company behind the things our customers are most proud of. We want to make heroes out of our customers – and that's what we do.

I've also met shareholders, which left me confident that they are committed for the long term. As you'd expect, discussions covered a broad range of topics from how we are looking at our culture, how we think about sustainability and how we are balancing and prioritising investments across our business opportunities. I was pleased to hear about their interest in our R&D and their support for the investments and changes we are making to grow our business.

We have good mechanisms in place for the board to understand the views of our shareholders and, alongside these, I will continue to be available to our major shareholders throughout the year and look forward to meeting more of you at our AGM in July.

My first year – two minutes to reflect on 365 days

Q. What makes JM special?

The massive contribution it is already making to a more sustainable future by applying its brilliant science. And the potential this holds for the long term.

Q. What are your top three highlights from your first year?

- Meeting JM's people, hearing their stories and feeling their passion and energy for what the company is doing.
- Working as a board in which there is a real feeling of a team effort.
- Sustaining our year on year delivery of dividend growth for our shareholders.

Q. How many shareholders have you met?

About 30% of our shareholding – a two way dialogue and having the opportunity to understand their views first hand is really crucial, particularly at this time of inflexion as we drive value in Clean Air and invest appropriately to maximise our success in new areas like battery materials.

Q. What are the board's top three priorities for next year?

- Keep on supporting Robert, the Group Management Committee and senior leaders in their execution of strategy by asking the right questions of them so that we challenge in a constructive way that drives results.
- Continue to evolve our risk management approach by introducing further rigour and more ongoing discussion.
- Getting across our role in monitoring and shaping the culture of JM by always thinking about the tone we are setting and through incorporating more formalised 'culture health checks' in the board agenda.

+ See page 104 for more information

Chairman's statement continued

The job of the board

Robert and the senior management team have continued to deliver our strategy for sustained growth and value creation – and with that, a strong set of financial results. Our job as a board is to actively engage in the development of strategy, provide challenge and ask useful questions. During the year we have done so across a series of strategic topics – in the development of our Battery Materials business, for example, where, by a process of iterative and constructive debate, we have supported the team as they made huge advancements this year, in line with our strategic plans for this business.

One area where we are placing increasing focus as a board, is more active and regular risk management in our meeting agendas through the coming year. This will provide greater rigour to ensure we are looking at our business through a risk management lens at all times and translating this through to real business results.

The board is deeply involved in upholding governance. We've spent time this year looking at the evolving corporate governance scene and at our business in the context of the revised UK Corporate Governance Code. Of particular interest is corporate culture and I was pleased to learn that work was already under way prior to my joining JM and ahead of the revised code which we will report against next year.

We have varied and well balanced expertise, experience and diversity on our board which was boosted at the beginning of April 2019 when we welcomed Xiaozhi Liu as a Non-Executive Director. Her joining coincided with our board visit to JM's site in Shanghai and was extremely well received by the local team as a strong statement of our commitment to the Chinese market. I am very pleased to welcome Xiaozhi to our board. We are already benefiting from her experience and perspective, and from her deep knowledge and understanding of the evolution of the powertrain in different markets of the world. With the current dynamics and seismic shifts in the automotive industry that lie ahead, it is great to have Xiaozhi in the team.

At the end of the AGM in July, Odile Desforges will step down as a Non-Executive Director after six years as a member of our board. Odile has contributed significantly, particularly with her valuable automotive industry insights; we will miss her and wish her well for the future.

More recently, in May 2019, we announced that Doug Webb will be joining us as a Non-Executive Director from 2nd September 2019. From July 2020 he will also chair our Audit Committee, as Alan Ferguson will be stepping down at that point, after just over nine years on our board. Doug's strong background in finance coupled with his deep understanding of the technology and engineering sectors will complement the experience of our board and I look forward to working with him.

I'm pleased that Alan will be with us for just over another year as we will continue to benefit from his insight and ensure a smooth handover to Doug. Although somewhat premature, I'd like to express gratitude to Alan on behalf of the board for his significant and valuable contributions. Alan will be succeeded as Senior Independent Director by John O'Higgins.

A culture for success

In my experience, the culture at JM is open and inclusive where people really enjoy working together. We place huge importance on creating a culture of doing what's right and speaking out if things are not. We put people's health and safety first and JM, like any company engaged in potentially hazardous operations, must manage the associated risks. Nothing we do is worth getting hurt for and that is the tone I set – talking safety when I visit our sites and not being afraid to challenge or question on safety matters. I want everyone in JM to be empowered to do the same.

JM Awards – January 2019

I was honoured to spend time with so many incredible JM people from across the world and to celebrate their amazing achievements. The setting was awe inspiring too – London's Natural History Museum where we sat underneath Hope, the iconic blue whale skeleton. What a fitting environment to celebrate talented people who are making a genuine and tangible contribution to a more sustainable future.

Explore more
Find out more about the 2019 JM Awards
matthey.com/jm-awards

A long term view

JM is a company that delivers sustained growth and value, driving strong returns. Growth comes through innovation and is supported by our commitment to substantial investment in R&D. In a business like ours – one with 200+ years of history – we take a long term view. Our considered investments over many years in fuel cell technology and, more recently in new chemical process technologies, pharmaceutical APIs and battery materials, exemplify this. In that sense we are not tactical, but with the level and pace of change going on in our major markets and with our customers, we are, as always, responding with flexibility and agility.

Underlying earnings per share grew 10% this year and on a reported basis they were up 39%. In light of our strong performance, continued delivery against our strategy and confidence in the group's future growth prospects, the board is proposing a 7% increase in the ordinary dividend.

Sustained year on year dividend growth is a hallmark of JM. I believe we are one of only a handful of companies in the FTSE that has delivered continued growth in its dividend over the last 30 years.

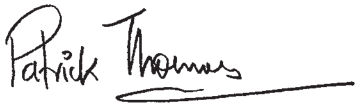
A successful future ahead

I'd like to finish by personally thanking our shareholders for placing their confidence in us – and that includes the several thousand of our employees who own company shares. I'm pleased to say that your company remains in good shape. We have a clear strategy, grounded with the world class science needed to tackle our planet's most important social and environmental challenges. That is why I am confident of a successful future ahead for JM.

I also want to say a huge thank you to every single JM employee around the world for steering JM through these times of flux and change to deliver what we promised – growth for our shareholders, brilliant products and services for our customers and a continued contribution to a more sustainable future for all.

My final message is to everyone on our planet, and one which I make on behalf of the 14,800 people in JM...

This year, we've made your world a cleaner and healthier place.



Patrick Thomas
Chairman

Board visit to China – April 2019

We had a hugely valuable visit to some of JM's major operations in China. I really enjoyed spending time with our employees on tours of our facilities, in discussions on our business strategies and over lunchtimes and in the evenings. It's given me a much better understanding of JM's culture and a much deeper understanding of our markets in China. Our trip was timed to perfection too, as it coincided with Xiaozhi Liu, our newest Non-Executive Director, joining the board.

Chief Executive's statement

Using our science to make the world cleaner and healthier

As 2018/19 drew to a close, we sat down with Robert MacLeod to ask him about progress during the year, his expectations for 2019/20 and his perspective on JM's relevance in today's changing world.

How have global megatrends developed for JM over the last year?

We have an inspiring vision at JM – for a world that is cleaner and healthier, today and for future generations. JM, and what we bring to the world, is arguably more relevant than ever before. Over the last 12 months, we have seen public awareness of, and action on, the world's global challenges increase. The next generation is speaking out on global issues such as climate change and air pollution, and it is these that JM can, and is, using its science to solve.

Focus continues on air quality and emissions – how is JM part of the solution?

The need to improve air quality across the world is leading to tighter emissions standards in many countries. In the longer term this will inevitably lead to a shift towards zero emission transportation, with more customers moving to electric vehicles. However, in the short term the need to significantly reduce emissions from gasoline and diesel vehicles is presenting an opportunity for JM; we are part of the solution.

Our Clean Air business is fabulous. It performed strongly this year despite the weaker global car market. In response to air quality concerns surrounding diesel cars, car buyers in Europe are increasingly favouring petrol engines. In addition, in Europe and Asia, tighter legislation is coming into force for petrol cars and we have reallocated our R&D spend accordingly in order that we can meet these more challenging requirements. Having said that, our R&D investment in diesel technology in prior years has reaped rewards as we have significantly extended our leadership in the market for light duty diesel cars in Europe. Now, around two thirds of all new diesel cars produced in Europe have JM's catalysts on them. Tighter legislation and JM technology means that diesel car emissions are lower than ever before and, in some cases, these cars produce less harmful particulate and NOx pollutants than their petrol counterparts. That means, those people for whom driving a diesel is the most economic choice, can do it in a less environmentally damaging way.

In China and India, our car and truck customers are also getting ready for the introduction of new regulations which begin to be implemented from July this year.

We are therefore expanding our manufacturing capacity for emission control catalysts with major new plants in Europe, China and India; the plants in Europe and China will come on line in 2019/20.

The global automotive industry is going through a once in a lifetime transition. Consumer buying patterns are less predictable and the automotive supply chain, JM included, is being more considered in making investments. With less inherent flexibility throughout the supply chain and less predictable consumer behaviour, JM is supporting our customers, the car companies, as we navigate this mobility transition together.

What impact is that having on your other automotive facing businesses?

The technology used to power our cars is evolving and diversifying, from primarily internal combustion engines to hybrids, battery electric and even fuel cells. JM is very well positioned with our broad portfolio of powertrain technology solutions – emission control, battery materials, fuel cell components – and strong relationships with vehicle manufacturers.

In our Battery Materials business we are using our science and technology expertise to enable the greater adoption of long range pure battery electric vehicles (BEVs) that meet consumers' performance expectations on range, charge time and safety. We are doing this through great technology which we are scaling up and commercialising in line with the predicted acceleration in EV ownership over the next decade.

Our portfolio of leading, ultra high energy density cathode battery materials, which we call eLNO, are next generation – so not designed to compete with materials our competitors have on the market today – and will suit a range of EV applications.

Over the past 12 months, we have made significant progress in commercialising eLNO. We continue to test our materials with our target customers and feedback remains very positive. They are increasingly looking for customised solutions to their problems and this plays right to our strengths. So we have been tailoring eLNO and are building application centres to support our customers' testing.

Robert MacLeod
Chief Executive

In order to manufacture our materials at scale, we have chosen a site in Konin, Poland for our first 10,000 metric tonnes commercial plant as it is close to major customers in the BEV supply chain and we expect to start construction later in 2019/20. The site has the potential for expansion to 100,000 metric tonnes, and we are carefully considering how we could scale our business beyond our initial 10,000 metric tonnes.

At the time we announced our plant location, we also secured our first long term supply agreement with Nemaska Lithium for raw materials – another important step in the road to commercialisation. And we are doing a lot of work to ensure our raw materials sourcing is responsible and in line with our sustainability principles. At the other end of the value chain, we have R&D work under way on battery materials recycling where we are combining our knowledge of battery materials with our many decades of experience in recycling pgms.

In addition, we continue to invest in fuel cell technology which can also be used to power electric vehicles. Fuel cells use hydrogen as a fuel to generate electricity with the only by product being water and so tick the box as a solution for low emission transport. JM has strong technology in this space and in September 2018 we joined the Hydrogen Council so we could work with other industrial players in enabling the uptake of hydrogen as an energy source in transportation, and a wide range of other applications.

So as you can see, we've come a long way and our customers are happy – one of them said that we were a "preferred cathode material company to work with" because of our fast response, willingness to customise the product and our ongoing investment in the science. It's great to hear that we're adding value, which goes back to the core of our strategy – science and technology that helps our customers solve complex problems.

+ See pages 45 to 47 for our long term view

Have you delivered operational performance in line with your plans this year?

Yes, we certainly have; 2018/19 has been another successful year for Johnson Matthey. We have made further progress in delivering our strategy of sustained growth and value creation in line with the plans we laid out in 2017, and on strengthening the platform that will enable further long term growth.

We have continued to invest in our world class science and scientists to deliver leading technology into the attractive and growing markets in which we play.

Delivery of our strategy is underpinned by the fundamental changes we are making across all aspects of the group. These are making our business more agile and efficient, and giving us greater capability to deal with the fast changing world around us. We have invested in safety, our people, processes and systems while continuing to target further improvement.

We've delivered a strong set of numbers this year, in line with what we promised, despite a more challenging external environment. This demonstrates the resilience of the group and our ability to adapt and flex to support our customers' needs. It is also reflected in how we are effectively managing the continuing uncertainty in relation to Brexit in our business and with our customers.

If I look across our four sectors, Clean Air performed strongly and we remain excited by the growth opportunity in Battery Materials. We made further investments in Health to develop our pipeline of products. In Efficient Natural Resources, we continue to drive efficiencies while focusing on high growth market segments, although some unscheduled downtime at our UK pgm refinery this year did impact our precious metal working capital. To support our long term growth, and as we broaden our presence in sustainable technologies, we are also developing innovative solutions for fuel cells and battery materials recycling.

+ See pages 78 to 85 for more information

And on those ambitions, all geared to sustainable technologies – what progress are you making there?

We are proud of our sustainable technologies and we have six sustainable business goals to direct our progress. This year we've continued to add to our portfolio of technologies and products, not to mention all the work that we are doing in our existing businesses which have a substantial impact upon building a cleaner, healthier world.

We've commercialised a new technology, developed together with BP, to transform household waste into diesel and jet fuels. This is an exciting opportunity for us and we have a licensing agreement with Fulcrum BioEnergy, a biofuel producer, which plans to build a plant in the US using our technology.

We also announced a new strategic partnership with Immunomedics for the large scale production of a drug linker used in a treatment for breast cancer.

+ See pages 19 and 20 for more information

All the work we do is about delivering outcomes that are valued by our customers and contribute to a more sustainable future for people. We measure our contribution by aligning to the UN SDGs and have set ourselves a goal to double it between 2017 and 2025. We've done well this year, increasing our contribution to over 87% of our sales.

+ See pages 24 to 27

Chief Executive's statement continued

At the same time, our customers are getting more tuned in to sustainability. So we are broadening and deepening our approach throughout our whole value chain. This not only enables us to give reassurance to our customers but more excitingly, it unlocks further opportunities for commercial advantage through innovating new sustainable technologies.

So you will see us up our ambition further in this space – right through the whole value chain.

You talked earlier about the changes you are making to be more flexible and agile. Tell us more?

Sure. We have a number of what we call 'strategy enablers' – a series of programmes that are fundamentally changing how we work. These are bringing consistent approaches and standard processes across JM; delivering operational efficiency, allowing us to be more flexible and agile.

We are achieving this in many ways, for example, through the deployment of a single global enterprise resource planning (ERP) system (SAP) system. The first implementation was successfully completed during the year and we will roll it out across the group over the next few years.

Our procurement programme is also enabling us to drive further efficiencies and savings. Furthermore, through better underlying data and standardised processes, we are gaining an improved understanding of customer and product profitability.

At the same time, we are building capability, not only in procurement, but in other areas including supply chain, capital project delivery and change management which is supporting the delivery of our strategy.

And how are JM employees supporting the strategy?

JM is full of inspiring and talented people. I've really enjoyed spending more time at our sites this year talking to employees about JM's strategy and their work, answering their questions and listening to their feedback on what they think it's like to work at JM. In September 2018, we also repeated our employee opinion survey. This gives us a good steer on where we are doing well and not so well, and where we need to prioritise. There were plenty of positives – our people told us that they have a better understanding and more connection with our strategy and that we take health and safety and doing the right thing seriously. But overall, they told us they were less engaged than two years prior. As I reflected on these results, I am not so surprised given the broad changes we are making, although it is something I am determined to reverse. We have actions under way and we are going to check in on how we are doing by conducting a pulse survey later this year.

Our people are key in delivering our strategy and vision, and we are doing a lot to create a culture of success. It started last year when we refreshed our values to support the delivery of our strategy, create an inclusive environment and guide us to act safely, ethically and more sustainably. Since then, we've been taking them deep into JM, holding workshops with our staff to explore the behaviours that support our values. We've also been embedding them into our people processes – from performance management and our development programmes, to recruitment and recognition – and we refreshed our code of ethics this year to guide us all in doing the right thing. As we move through different phases of our strategy, I also continue to evolve the shape and mix of skills in the management team to ensure we have the right team to deliver on our ambitions.

Driving the right behaviours in health and safety is a major priority and despite our continued focus, disappointingly our recordable incident rate has remained flat over the last year.

We are injecting new focus on safety leadership and engagement and will continue our efforts to manage our process safety risks by building on the improvements we achieved this year.

+ See pages 60 to 75

Finally, what is the group outlook and priorities for 2019/20 and beyond?

For the year ending 31st March 2020, we expect growth in operating performance at constant rates to be within our medium term guidance of mid to high single digit growth.

At current foreign exchange rates (£:$ 1.295, £:€ 1.157, £:RMB 8.72), translational foreign exchange movements for the year ending 31st March 2020 are expected to adversely impact sales and underlying operating profit by £6 million and £2 million respectively.

Building on the board's priorities outlined by Patrick on page 7, our priorities for 2019/20 (pages 16 and 17) are to:

- Continue to develop our science and technology to create the sustainable technologies of the future.
- Deliver in line with our strategic plans for each of our sectors so that we delight our customers with our brilliant products.
- Meet the milestones for our groupwide enabler programmes to drive further efficiencies.
- Involve and engage all our people in building our culture of success where we are safe, ethical and more sustainable.

In doing this, we will continue to strengthen our platform for growth.

We have an amazing vision, a winning strategy and the global drivers of our business are fundamentally strong. Today we face an unprecedented need for new technology to meet global issues. Working together, inspired thinking and the application of scientific knowledge can help us to overcome these challenges and shape a better future for all.

R. J. MacLeod

Robert MacLeod
Chief Executive

From left to right: John Walker, Annette Kelleher, Jane Toogood, Robert MacLeod, Anna Manz, Jason Apter, Simon Farrant

Group Management Committee (GMC)

John Walker, Sector Chief Executive, Clean Air

Joined the GMC and board: October 2013

John joined JM in 1984 and has led our Clean Air Sector since 2009 after heading up its Asian business for many years. John is directing our strategy to deliver sustained growth in our largest business sector.

Annette Kelleher, Chief HR Officer

Joined the GMC: May 2013

Annette is our Chief HR Officer, leading the group's people strategy. Joining from Pilkington Glass in May 2013, Annette is responsible for the programmes to build talent and capabilities across JM in line with our group strategy.

Jane Toogood, Sector Chief Executive, Efficient Natural Resources

Joined the GMC: March 2016

Jane joined JM from Borealis in March 2016 and leads the Efficient Natural Resources Sector, directing the strategy to deliver market leading growth. Jane also chairs the Brexit working group.

Robert MacLeod, Chief Executive

Joined the GMC and the board: June 2009

Having joined JM as Group Finance Director in 2009, Robert has been leading JM since June 2014 when he became Chief Executive. Robert also has executive level responsibility for our New Markets Sector, environment, health and safety and our sustainable business framework. Currently (since May 2019), our corporate R&D function is reporting to Robert while we are in the process of recruiting a Chief Technology Officer.

Anna Manz, Chief Financial Officer

Joined the GMC and the board: October 2016

Anna joined JM as Chief Financial Officer in October 2016 to lead the group's finance activities, risks and controls. Joining from Diageo, Anna also leads the group's strategic planning and corporate development activities, IT function and our operational efficiency initiatives.

Jason Apter, Sector Chief Executive, Health

Joined the GMC: March 2018

Jason joined JM in March 2018 to lead the Health Sector. Bringing experience from the healthcare and life science industry from MilliporeSigma, Jason leads the strategy to deliver complex chemistry solutions for our customers.

Simon Farrant, General Counsel and Company Secretary

Joined the GMC: July 2007

Simon joined JM in 1994 as Senior Legal Adviser and became Company Secretary in 2001. Simon heads up our company secretarial and legal activities, including on ethics and compliance. He also acts as secretary to the board and its committees.

Our approach

The following pages demonstrate how our integrated offer is connected from our strategy to our KPIs.

Our strategy

Creating long term value and a better future

Our strategy is to use our world class science to solve customers' complex problems. This creates long term value for our shareholders and a cleaner, healthier planet for everyone.

A cleaner, healthier world today and for future generations

Use our world class science to solve customers' complex problems

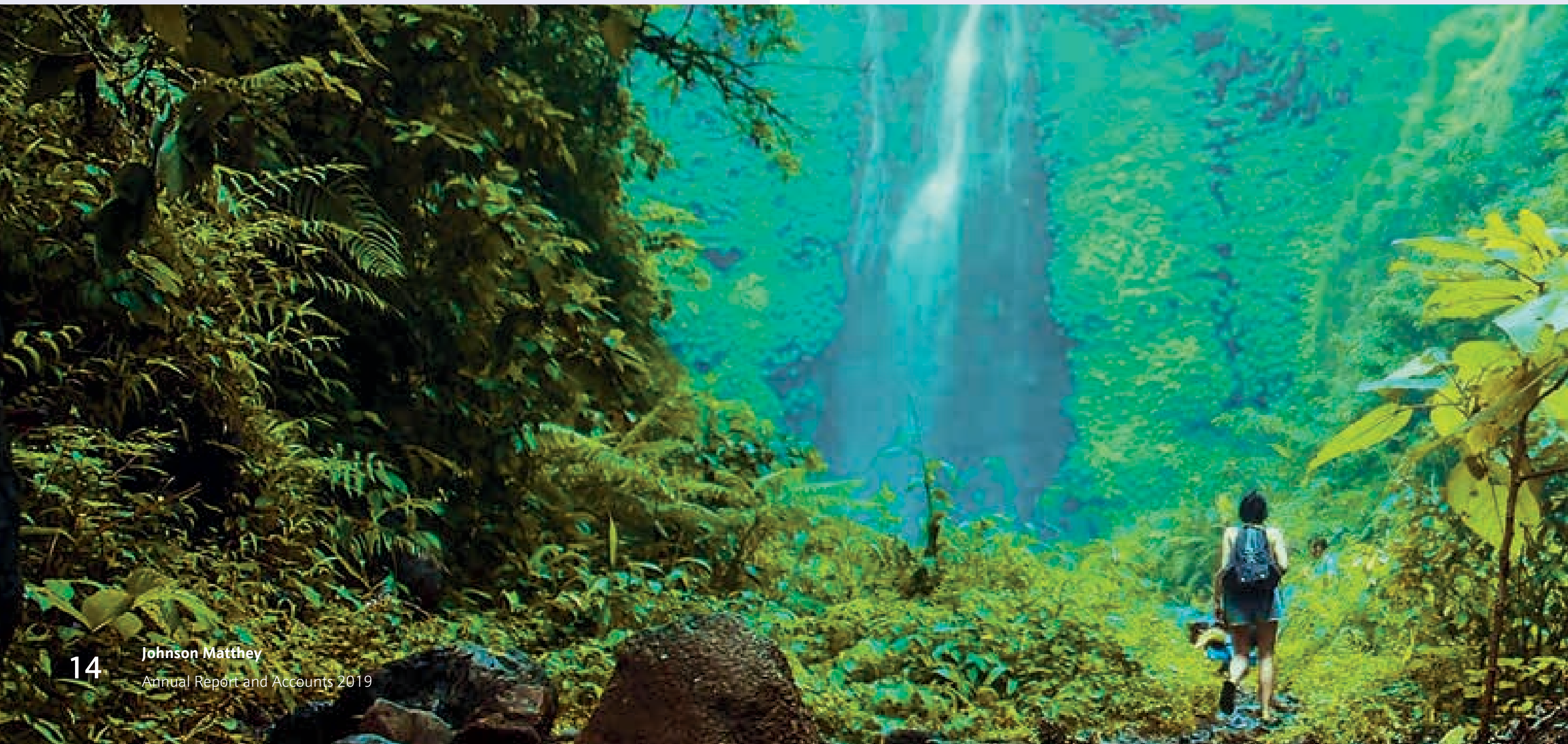
Delivered through four global sectors

Clean Air
Sustained growth

Efficient Natural Resources
Market leading growth

Health
Break out growth

New Markets
Break out growth in battery materials



Enabled by

Science and technology

Rigorous resource allocation

Efficiency and excellence

Values-driven culture

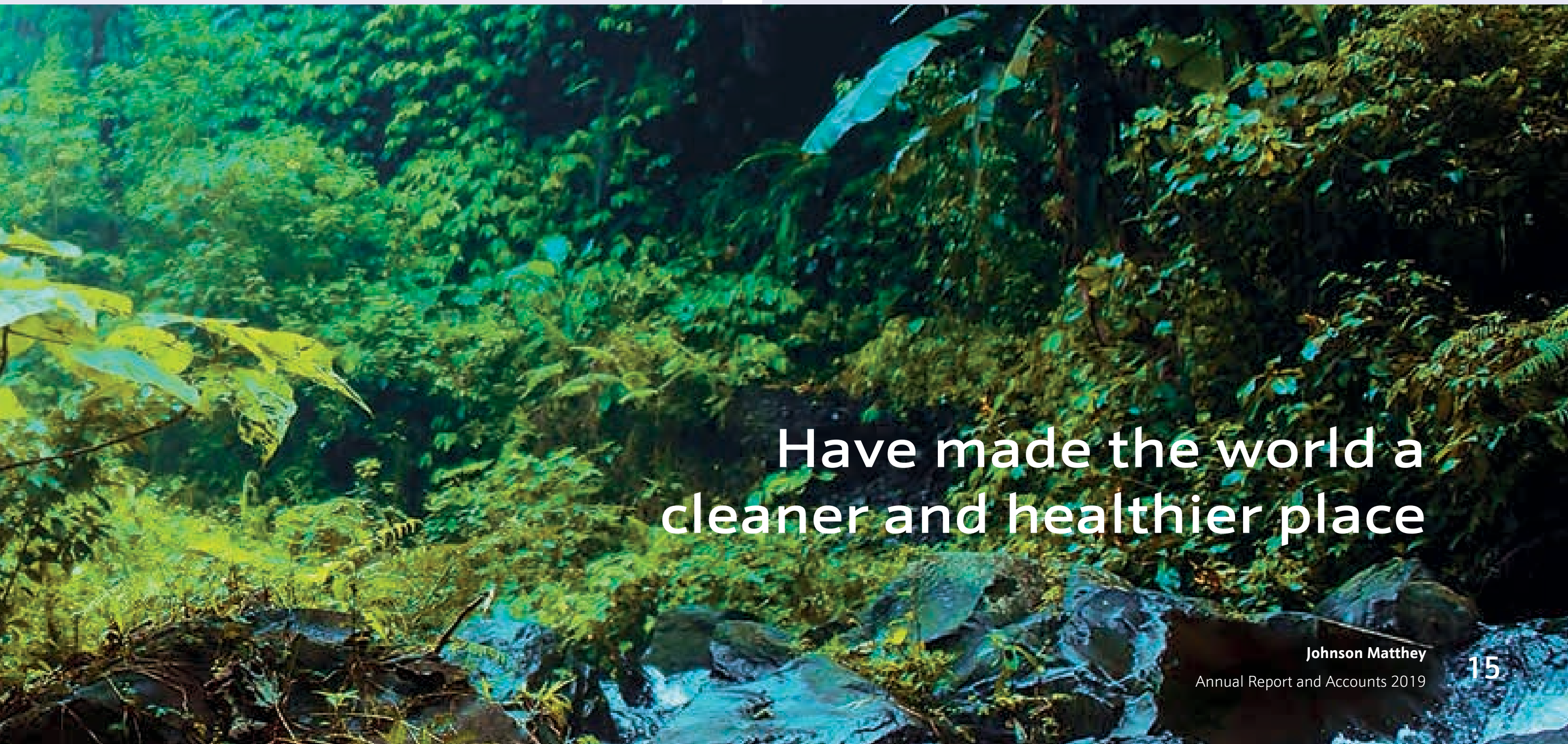
Underpinned by being safe, more sustainable and doing the right thing

By 2025 we will have:

- Enhanced technology leadership in our targeted markets.
- Three substantial, growing sectors with sizeable new opportunities realised through our New Markets Sector.
- Excellence in everything we do.

Driving attractive returns:

- Expanding return on invested capital (ROIC) to 20%.
- Mid to high single digit EPS CAGR.
- Progressive dividend.



Our strategy continued

Our strategy directs investment choices across the group so that our people can translate our world class science and technology as efficiently as possible to solve our customers' complex problems and tackle major global challenges.

Our focus areas / Our progress and priorities

Clean Air
Sustained growth

Strategic plan
- Maintain technology leadership through R&D.
- Market share gains (already secured) in Europe.
- Tighter legislation in Europe requiring higher value products.
- Tighter legislation in Asia (China and India) driving significantly higher value per vehicle.
- Consistent growth in light and heavy duty catalyst markets in North America.
- Operational efficiency activities that support margin and ROIC.

Outcome
World class science creates substantial market share gains for JM and, coupled with legislative change, drives sustained growth.

Progress in 2018/19
- Grew light duty diesel market share in Europe by 20 percentage points to circa 65%.
- Maintained margin of circa 14% through optimised cost base and processes.
- Construction in Poland and China to expand capacity under way.
- Have won expected business in China light duty.

+ Pages 80 and 81

Priorities for 2019/20
- Maintain technology leadership to support future growth.
- Complete and ramp up new manufacturing capacity.
- Drive further efficiencies.

Efficient Natural Resources
Market leading growth

Strategic plan
- Focused investment in R&D to maintain and extend technology leadership.
- Outperforming in selected, high growth segments.
- Increased efficiency across the business, including investment in pgm refineries, to enhance performance.
- Extending capabilities into adjacent markets, geographies and technologies.

Outcome
Above market growth through leading positions supported by world class science; enhanced performance through more efficient operations.

Progress in 2018/19
- Won first licences for new sustainable technologies including to convert waste to aviation fuel.
- Ran the business more efficiently through:
  - Simplifying product portfolio;
  - Operational improvements, including procurement;
  - Delivering cost savings from restructuring programme.
- Customer survey to drive deeper engagement and improve customer experience.
- Weaker performance in Advanced Glass Technologies due to market slowdown and loss of market share.
- Weaker performance in precious metal working capital due to unscheduled refinery downtime.

+ Pages 82 and 83

Priorities for 2019/20
- Continue investment in pgm refineries.
- Targeted investment in new technologies (such as battery materials recycling).
- Drive further efficiencies.

Health
Break out growth

Strategic plan
- Enhancing our capabilities in particle engineering to improve our position as a partner of choice with innovator customers.
- Driving value from existing generics business.
- Commercialising our pipeline of new generic and innovator products.

Outcome
Development partner of choice for customers. Our pipeline of new generic products adds circa £100 million to operating profit by 2025.

Progress in 2018/19
- Grew generics API pipeline to 46 products; including one new product which has launched:
  - Substantially on track although delays to some products.
- Progressed innovator API pipeline; three nearing commercialisation.
- Optimised manufacturing footprint:
  - Completed closure of Riverside plant in US;
  - Ramped up Annan UK plant and made first commercial sales.

+ Pages 83 and 84

Priorities for 2019/20
- Complete ramp up at Annan, UK.
- Progress new product pipeline in line with strategy.
- Enhance capability.

New Markets
Break out growth in battery materials

Strategic plan
- Commercialising our leading eLNO ultra high energy density next generation cathode material.
- Scale up through demo, pilot and full production scale; significant ongoing investment to build manufacturing capacity.
- Continued investment in next generation, best in class high energy battery materials.

Outcome
JM has market leading product and share of next generation high energy density battery vehicle market.

Progress in 2018/19
- Continued to test eLNO materials and tailor them for customers with positive feedback.
- Started to build the first of our three announced customer application centres.
- Scaled up eLNO manufacture from lab to pilot plant.
- Selected site in Poland for first 10,000 metric tonnes commercial plant; site provides potential for expansion up to 100,000 metric tonnes.
- Signed first long term supply agreement for raw materials with Nemaska Lithium.

+ Pages 84 and 85

Priorities for 2019/20
- Further progress on customer qualification.
- Start construction of first commercial plant and determine plans for further scale up.
- Invest in customer application centres.

Enabled by

Science and technology

Strategic outcome
- Sustained market leading positions.

Progress in 2018/19
- Delivered new market leading technologies across all four sectors.
- Identified 12 new growth opportunities which are at various stages of investment.
- Won multiple external awards for our science.
- Rolled out new career framework to develop our scientists.

+ Pages 34 to 39

Priorities for 2019/20
- Achieve technology milestones in:
  - Battery materials;
  - Battery materials recycling;
  - Gasoline technology for Euro 7;
  - Health new product pipeline.
- Deliver action plans for new future growth opportunities.

Sustainable business

Strategic outcome
- Sustainability leadership.

Progress in 2018/19
- Progress made towards three of six sustainable business goals; those relating to:
  - Reducing our greenhouse gas emissions.
  - Increasing contribution of sales to the UN SDGs.
  - Number of volunteering days by our people.
- Those relating to health and safety and to employee engagement were broadly unchanged.

+ Pages 24 to 27, 31 to 33 and 238

Priorities for 2019/20
- Continue to embed sustainability into our businesses and functions to make continued progress towards achieving sustainable business goals.

Efficiency and excellence

Strategic outcome
- £60 million of savings through procurement.
- More agile and efficient.

Progress in 2018/19
- £26 million of procurement savings.
- First ERP system roll out.
- First standard customer satisfaction survey carried out in one sector.
- Restructuring programme substantially complete with vast majority of circa £25 million annualised cost savings.

+ Pages 43 to 44 and 49 to 53

Priorities for 2019/20
- Deliver additional savings, similar to 2018/19, through procurement.
- Roll out ERP system as planned.
- Deliver further efficiency benefits and extend customer satisfaction survey to all sectors.

Values-driven culture

Strategic outcome
- Peer group leading health and safety performance.
- Engaged and enabled workforce.

Progress in 2018/19
- Improvement in leading indicators – 50% increase in learning events.
- Process safety risk reduced – 75% of maximum credible event (MCE) assessment actions closed.
- Overall behavioural safety performance flat.
- Second global employee opinion survey showed marginally lower engagement score, action plans in place.
- Rolled out new values and started to embed into business processes.

+ Pages 60 to 75

Priorities for 2019/20
- Achieve targeted improvement in our environment, health and safety leading indicators.
- Deliver process safety and life saving policies action plan.
- Improve engagement and enablement of employees from targeted actions following 2018 survey feedback as evidenced by a 2% improvement measured through a 2019 pulse survey.
- Continue to embed our values and explain JM's strategy so employees are clear on their role in delivering it.

Delivering a cleaner, healthier world

Clean air for all

Direct impact of JM's products
3.43 million tonnes of pollutants removed.

Longer healthier lives

Direct impact of JM's products
181,000 lives positively impacted by new APIs launched since 2015.

Shaping a new era of clean energy

Direct impact of JM's products
10.1 million tonnes (CO_2 equivalent) of greenhouse gases removed.

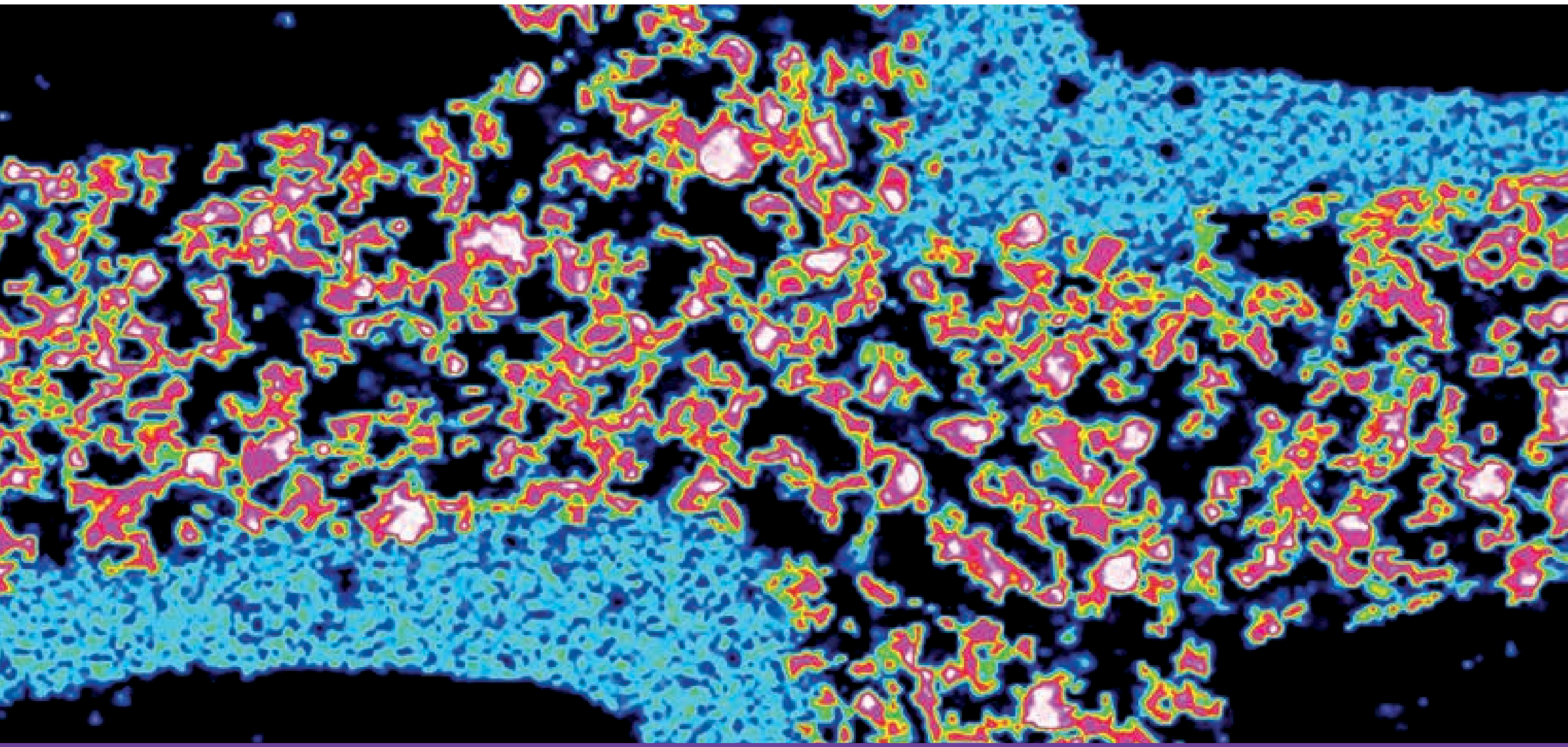
Achieving more from less

Direct impact of JM's products
216,000 tonnes (CO_2 equivalent) of greenhouse gases avoided.

+ Page 44

Our strategy in action

Progressing our strategy to deliver our vision for a cleaner, healthier world



Clean Air

Advanced SCR. The special science solution that means no more dirty diesel

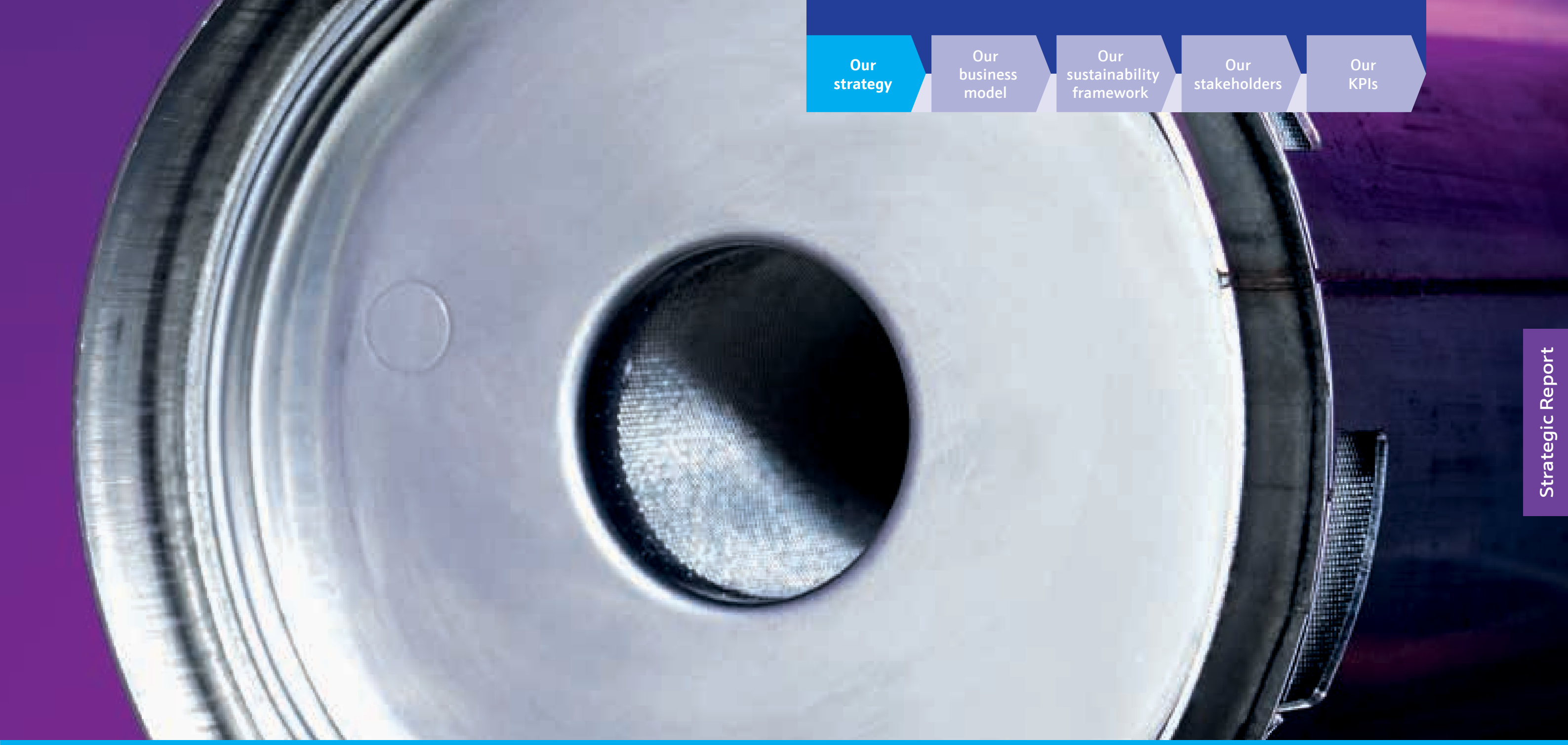
In Europe, diesel cars have received a lot of bad press because of the impact of their emissions on urban air quality compared with their petrol counterparts.

But for some people, those who drive a lot of miles, the higher fuel economy of diesel makes diesel powered cars cheaper, over the long term, to run. Higher fuel economy means CO_2 emissions from a diesel car are lower too. So the incentive was there to clean up diesel and give consumers a viable choice that was better for their health, the planet and their pocket.

Regulators, quite rightly, also responded and set tighter emission limits to protect our health. Meeting these posed a technical challenge… exactly the sort of thing that JM loves best!

JM has applied its science and successfully reduced NOx emissions by a further 50%. In doing so, we have developed the most advanced catalyst system for diesel vehicles yet. Auto makers agree and have made it their number one choice. As a result, JM's market position has increased by some 20 percentage points, to around 65%.

This all means a new diesel car in 2019 can run just as clean as its petrol equivalent. So consumers no longer need to choose between economics and the environment.



Efficient Natural Resources

Using household waste to power planes – a new trick for old technology

Fischer Tropsch (FT) technology is not new. First developed in Germany in the early 20th century, it was used to convert synthesis gas (a mixture of carbon monoxide, carbon dioxide and hydrogen) into hydrocarbons. Fast forward many decades and JM joined forces with fellow British long server, BP, to demonstrate FT technology at a plant in Alaska.

But with fluctuating economics for oil and greater impetus for more sustainable technologies and circular thinking, JM and BP saw a new application for FT technology… converting everyday household waste into high grade aviation fuel.

Together we have brought to market a process to do just that. At its heart is novel reactor technology and a high activity catalyst which ensures that turning waste into jet fuel is not only good for the environment, it's economically attractive too. The new process is three times more productive than traditional technology and requires only half the capital expenditure.

And that's why Fulcrum BioEnergy Inc. has licensed it and is building the first commercial scale plant in Sierra Nevada, USA due to start production in early 2020. It will convert around 175,000 tonnes of household waste into some 11 million gallons of fuel each year; enough to fuel a plane for more than 180 return flights between London and New York.

Health

Helping to change the lives of people affected by breast cancer

Unique expertise in the development, scale up and manufacture of complex molecules is what JM brings to both innovator and generic pharmaceutical customers in the attractive and growing small molecule API segment.

And that's why Immunomedics has chosen JM as its strategic manufacturing partner for the large scale production of the drug linker used in IMMU-32. IMMU-32 is Immunomedics' breakthrough therapy for metastatic triple negative breast cancer. IMMU-32 is classified as an antibody drug conjugate (ADC) which means that, unlike typical chemotherapy, it is intended to target and kill only cancer cells and spare the body's healthy cells. This significantly cuts down on side effects experienced by patients.

JM's role in getting this breakthrough treatment to patients will be to manufacture the drug linker used in the IMMU-132 ADC.

Linkers are a critical component of ADCs, providing the bridge for the antibody to selectively deliver the drug to tumour cells and at tumour sites. This significantly reduces the amount of the drug that enters the body, minimising harmful side effects.

Thanks to JM's early R&D work, we have already improved the productivity of the manufacturing process over 20-fold and have provided the necessary quantities of API to treat patients in clinical trials.

The IMMU-132 treatment is at the forefront of new cancer therapies and with one woman losing the battle against this devastating disease every single day, JM is excited to be contributing our science and technology through this partnership.

New Markets

A battery material capable of powering a revolution

Battery technology is going through a period of transformation, and this change is bringing a future in which EVs are the norm, closer every day.

At JM we asked ourselves what it would take to develop a cathode material that would support a lithium-ion battery to enable electric vehicle usage on a grand scale. We looked at a number of strategic factors that are crucial to the success of electric vehicles – total cost of ownership, driving range, safety, acceleration, recharging – and developed our new cathode material, eLNO, with these consumer priorities in mind.

But for EV adoption to really take off, consumers – unsurprisingly – want to pay the same price as they do for a regular vehicle, or close to it, and they want to have the same refuelling costs, whether their vehicle uses petrol, diesel, or electricity. Achieving this is a key differentiator with JM's eLNO, which has an ultra high energy density compared with both current materials, and our competitors' next generation materials.

And we're pressing ahead with scaling up of this transformative product at our pilot facility in the North East of England. We're also investing in a 10,000 metric tonnes commercial scale facility in Poland (with potential to expand to 100,000 metric tonnes), with the plant due to come online in 2021/22, and we expect to have our material powering EV platforms soon after.

We are continuing to innovate, as we have done for over 200 years, with science-led products like the advanced SCR, FT technology, the drug linker for IMMU-32 and eLNO.

All meet a critical need for our customers, for society and consumers, and are helping make the world a cleaner and a healthier place today and for future generations.

Our business model

A better future

We create long term value for our shareholders and society.

Our resources and relationships

Knowhow and intellectual capital

JM's competitive advantage is its science and technology. We use our industry leading capabilities across our sectors to create sustainable solutions. We own patents covering our science, technology and processes.

Financial

We invest for growth using equity from our shareholders, raised debt and cash flow delivered by our sectors.

Customer relationships

We draw on our deep relationships with customers to understand how best to apply our science to solve their problems.

Natural resources

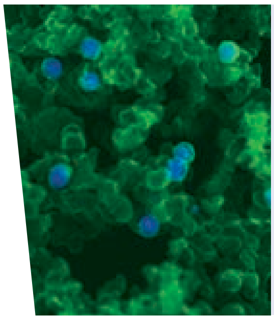
We source raw materials responsibly and use them as efficiently as possible. We also recycle platinum group metals (pgms).

Manufacturing operations

We have a global network of manufacturing plants, application centres and laboratories.

People

Our 14,800 people share a passion for making a difference to the world. They bring the talent, expertise and innovative thinking needed to drive growth and efficiency in JM.



Science

Our science is world class. We invest in it and in our scientific talent. Our skills and knowledge are acknowledged across the scientific community and amongst customers.

We have nine core science capabilities (see page 35) which provide us with fundamental insights about materials, their design and then the control of their activity through chemical and functional manipulation.

Customers

Our science directs where we play. We apply it in technology driven markets and generate high margins from it. This drives high returns.

Collaboration and strong customer relationships are crucial in providing a high quality tailored service. Together, we put our inspiring science to work to enhance life.

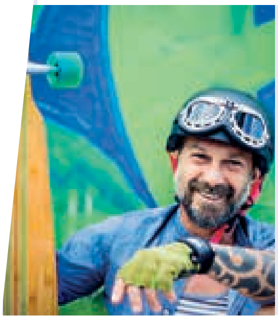
Our customers are mostly other industrial companies, operating in the transport, energy, chemicals and healthcare segments.

Operations

Our global manufacturing operations create highly specified physical products for our customers.

We manufacture efficiently and responsibly to drive economic and environmental performance, and have programmes in place to optimise our manufacturing assets.

We continue to improve our global standards and systems to enable us to operate every aspect of our business efficiently: from strategy to supply chain, from innovation to IT.



People

Everyone in JM plays their part in taking ideas from the lab to full scale commercial success.

We hire the best people with the right skills and support them in an innovative culture that encourages them to develop and grow.

Our people are motivated by working for a company that is making the world cleaner and healthier. This is an important differentiator in attracting and retaining the very best.

Underpinned by our values

Our values provide the strong foundation, shaping the right culture to deliver our strategy.

Protecting people and the planet

Acting with integrity

We create sustained value and growth through the effective use of our resources and our relationships.

We act in line with our core values which, together with our focus on building on a more sustainable business, drive us towards our vision for a cleaner, healthier world.

Our competitive advantage is in combining knowledge of the fundamental science with commercial and scalable solutions, which can be customised for every customer.

This combination enables us to outperform in our target markets and creates high barriers to entry.

Our customers choose us because of our science.

See pages 34 to 39 for more information

We work closely with our customers to develop solutions which enable them to bring their products to market faster, improve the performance of their products and reduce their environmental impact.

We provide them with functional products that help them create more sustainable products and solutions.

We also provide specialist services such as the refining and recycling of pgms and process technology used to design chemical plants.

See pages 40 to 47 for more information

We invest in our manufacturing capacity to meet customers' future demand and have the ability to flex our cost base if our markets slow.

We demand high returns from our investments, with a target of at least 20%, which drives continued improvement in operational efficiency.

See pages 48 to 59 for more information

We are driven by values which means we always keep each other safe, work with clear intentions and respect, and do the right thing for our people and our planet.

They are supporting us as we are evolving to take decisions more quickly, to be more open minded to new possibilities, to share more and stay confident through times of uncertainty.

See pages 60 to 75 for more information

How we create and share value

For society

Value we create

- Cleaner, healthier world.

Value we share

Operational carbon footprint
2.9 tonnes $CO_{2\,eq}$
per tonnes of output

Positive impact of JM's products
87.3%
sales from products contributing to UN SDGs

For shareholders and other stakeholders

Value we create

- Attractive returns.
- Taxes paid to authorities.

Value we share

Sales growth
10% to £4.2bn

ROIC
16.4%

Underlying operating profit margin
13.4%

Average working capital (excluding precious metals)
59 days

Underlying earnings per share
228.8p

For our people

Value we create

- Strong culture.
- Employment and opportunities.

Value we share

Health and safety lost time injury and illness rate (LTIIR) of
0.53

Employee engagement score of
59%

For our company

Value we create

- Cash to reinvest in our science, infrastructure and people.

Value we share

Technology leadership through R&D investment
£190m

See pages 30 to 33 for key performance indicators

Working together | Innovating and improving | Owning what we do

Our sustainability framework

The path to our vision

Through leading edge science and technology.

Our sustainable business framework is all about embedding our vision for a cleaner, healthier world through all aspects of our business and supply chains. We have six goals to 2025 which we use to measure our progress towards our vision.

The route to a more sustainable future brings many challenges that must be tackled. In setting our vision for a cleaner, healthier world, we have made it our business to use our cutting edge science to create sustainable technologies that contribute to the solution.

Sustainability is therefore an integral part of our strategy and governance. It is at the heart of our brand and our employee promise. It is engrained in our company values.

It is clear that society is becoming more aware and active in the drive for sustainable development. Consumers want to know that the things they buy are produced in a socially and environmentally responsible way.

This is increasingly impacting business to business organisations like JM and that's why we believe the sustainability credentials associated with our science-led solutions will become more and more attractive to customers and consumers.

At the same time, this increased demand for sustainable products requires us to focus beyond our operations and products and consider the whole of our value chain.

Therefore, when we reached the end of our first sustainable business programme in 2017, we designed the next leg of our groupwide programme to address our whole value chain (page 25). We aligned this with the material issues faced by our broader stakeholders (page 27) and oriented our ambitions with the UN SDGs.

See page 238 for a summary of our performance towards our six sustainable business goals

Our six sustainable business goals

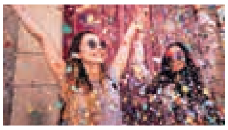
JM goal

Health and safety
1

For health and safety, aspire to zero harm.

Read more on pages 69 to 73
Page 32

Our people
2



Ensure JM is a truly inclusive organisation that fosters employee engagement and development within a diverse and global workforce.

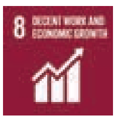
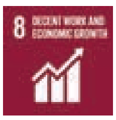
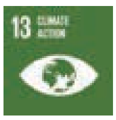
Read more on pages 60 to 69
Page 32

Low carbon operations
3

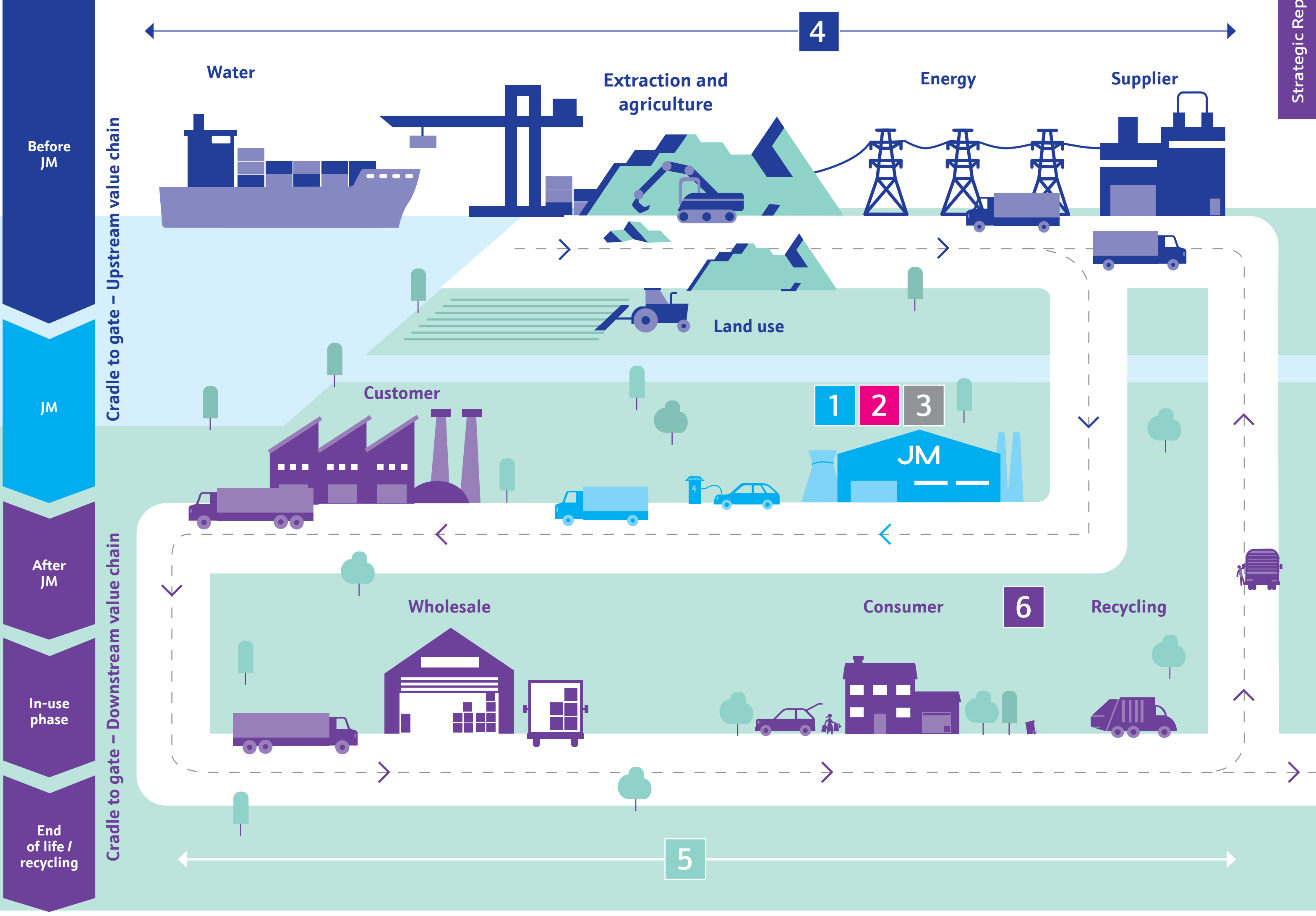
Reduce our greenhouse gas (GHG) emissions per unit of production output by 25%.

Read more on pages 52 and 57
Page 31

UN SDG

Our six goals address our whole value chain

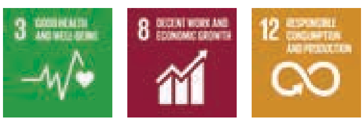


Responsible sourcing 4

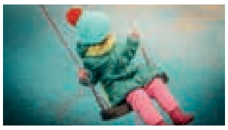
Improve sustainable business practices in our supply chains and, through collaboration, ensure full compliance with our minimum standards from strategic suppliers.

Read more on page 50

Page 32



Sustainable products 5



Double the positive impact that JM's products, services and technologies make to a cleaner, healthier world.

Read more on pages 26 and 44

Page 31

Community engagement 6

Increase the use of volunteer hours to support our community and charity partners through the JM employee volunteering programme.

Read more on page 67

Page 33

Sustainable technologies with impact

Our contribution to the UN SDGs.

The UN SDGs are a collection of 17 global goals set by the United Nations General Assembly in 2015. They contain 169 sub targets to be achieved by 2030. JM is already making a significant impact. In 2018/19, 87.3% of our sales (2017/18: 86.9%) came from products and services that positively contributed to the UN SDGs.

How JM products and services support the aims of the UN SDGs

The UN SDGs cover social and economic development issues including poverty, hunger, health, education, global warming, gender equality, water, sanitation, energy, urbanisation, environment and social justice.

The figure below shows the breakdown of JM's sales across its businesses in 2018/19 and their relative contribution to each of the UN SDGs. The larger the coloured circle, the greater the sales value.

Sustainable products 5

Meeting stakeholders' expectations

Our regular materiality assessment helps us to focus on the areas that matter most to our stakeholders and where we make the greatest positive or negative contribution to society. From it we define our material areas. We review them every year, either by engaging with our stakeholders through an external consultancy or by conducting our own internal review. In 2018/19 we carried out an internal review which considered feedback from stakeholders gained through our interactions with them during the year.

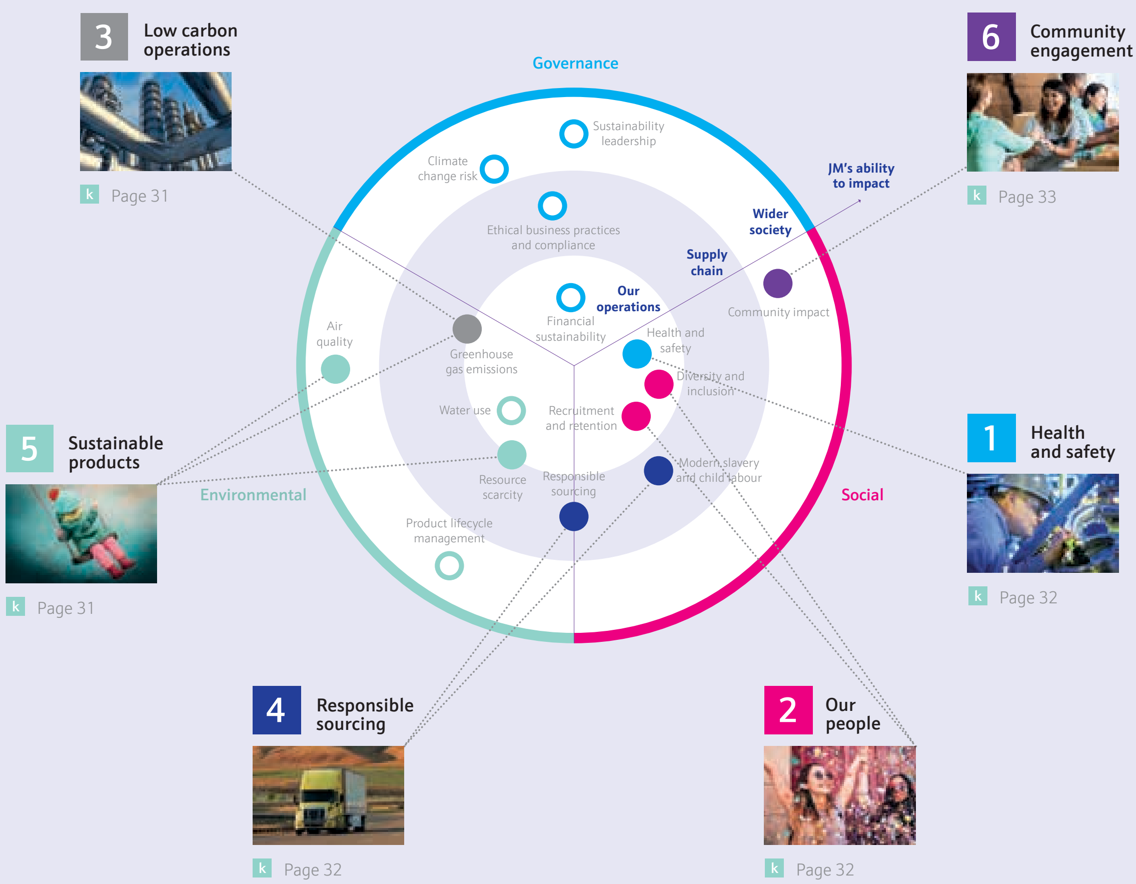
What matters most

Through talking to stakeholders, JM has identified the topics that are 'material' to them. Our goals align with those topics.

+ Pages 240 and 241: GRI Standard Content Index

Materiality map

The map below highlights the areas of focus for JM which we have identified as key to our business and most important to our stakeholders. It shows how we have aligned these to our six sustainable business goals.



Our stakeholders

Working together

Shaping our strategy with our stakeholders.

Our key stakeholders		Why we engage
Customers See pages 40 to 47 · k 3 See page 94	By working closely with our customers, we aim to provide them with the best solutions and excellent service.	Understanding customers' complex problems helps us research, develop and apply our science to give them the best solutions to their challenges.
Investors See pages 73 and 118 · k 2 See page 94	JM is listed on the London Stock Exchange and is a constituent of the FTSE 100. We provide investors with fair, balanced and understandable information about the company, its performance and prospects. We encourage two way conversation and regularly seek their feedback.	By providing open and transparent information and engaging in two way dialogue, investors are able to make informed investment decisions.
Governments and trade associations See page 73 · k 4 See page 94	We inform and contribute to debate, mostly in areas where our science and technology expertise can have a positive impact. We see our role as being a technical expert.	Policy and regulatory changes affect many aspects of our business. They create a framework in which we must operate and their impact on our customers and society can provide opportunities for growth.
Suppliers and other partners See pages 37 and 49 to 51 · k 5 See page 94	We work closely with our core suppliers. We also participate in collaborative scientific programmes with other companies and academic experts.	Dialogue with suppliers is essential to mitigate risks in the value chain and ensure a responsible approach. Collaborative relationships with other science experts in industry and academia furthers our technical expertise.
Our people See page 60 to 75 · k 6 See page 95	Our people drive our business. We want them to be engaged with our vision and to feel confident that they are coming to work in a safe, ethical and inclusive environment.	High levels of engagement and enablement in a safe, more sustainable and supportive culture contributes directly to JM's success.
Communities See page 67 · k 9 See page 95	Our operations are part of local communities around the world. We strive to be a good citizen and provide high quality employment opportunities.	We engage with communities to understand how we can make a positive impact, in line with our vision for a cleaner, healthier world.

Our stakeholders are crucial to our long term success.

Their views inform and help shape our strategy. We work with them as we execute it; they input into it and benefit from the value it creates. We always seek to engage with and listen to our stakeholders to understand their views. We tailor this in different ways for our different stakeholders so that it encourages them to share with us what they expect or need from us, or tell us about any concerns.

Page 73: Communicating with external stakeholders

Our impact

We provide world class scientific solutions that make the world cleaner and healthier.

Feedback from investors forms part of the board's strategic discussions.

By sharing information about what is technically possible, we have provided useful insight for policymakers in areas such as vehicle emissions legislation.

Our Supplier Code of Conduct aims to ensure responsible behaviours in our value chains. Our scientific collaborations create mutually beneficial outcomes for JM and our partners.

Our employee engagement survey helps us to focus on the areas that matter most to our people.

Our community investments around the world support local projects through provision of cash and through volunteering.

Working together

Developing a hydrogen economy

Much of what we do and where we are investing are already supporting global moves towards greener economies and will continue to deliver important offerings in the future. But we can't go it alone. That's why we join with others who share our purpose and complement our expertise.

In September 2018 we became a steering member of the Hydrogen Council, the largest industry-led effort seeking to develop the hydrogen economy. A substantial increase in the use of hydrogen as a source of energy would make a meaningful contribution to reducing greenhouse gases.

Being on the Hydrogen Council provides much deeper insight for JM's business on different global strategies and also allows us to forge important alliances and partnerships. And with JM's technologies, we have an important role to play in this area.

Also in September 2018, ITM Power, the energy storage and clean fuel company, opened its seventh public access hydrogen refuelling station (HRS) at JM's site in Swindon, UK, the home of our fuel cell component manufacturing facility.

The station uses electricity, via a renewable energy contract, and water to generate hydrogen on site with no need for deliveries.

This HRS is the first of two stations in the UK to be deployed as part of the pan European H2ME2 project, which was funded by the European Fuel Cell and Hydrogen Joint Undertaking and the Office of Low Emission Vehicles.

More than 60 people, including representatives from JM, gathered at the opening in Swindon. The opening was also supported by Toyota, Hyundai and Honda who also presented and participated in a Q&A session. Following this, the attendees were invited to take a test drive in a fuel cell electric vehicle on a short route nearby.

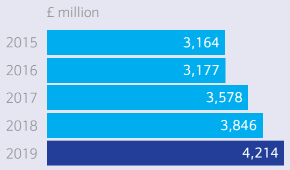
Our KPIs
How we measure performance

We have 13 key performance indicators (KPIs) which we use to measure our financial and non-financial performance. Our KPIs measure progress against our strategy. Our performance against our KPIs is explained below.

Group financial objectives

Performance in 2018/19

£4,214m



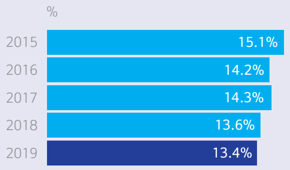
Growth in sales excluding precious metals (sales)

Monitoring sales growth at constant currency is a measure of the growth of the business. In many cases, variations in the value of the precious metals contained within our products are passed directly on to our customers. Therefore to measure the growth of the group, we use sales excluding the value of precious metals.

In 2018/19, sales at constant currency grew by 10% to £4,214 million (2017/18: 7%) with good growth across all four sectors. Growth in Clean Air and New Markets was double digit.

+ Pages 77 to 89

13.4%



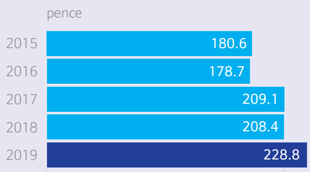
Underlying operating profit margin

Underlying operating profit margin is a measure of how we convert our sales into underlying operating profit and a measure of efficiency in our business. We aim to increase our operating margin year on year as we: improve our efficiency to take costs out, improve our effectiveness as we focus on higher value added products for our customers, and as we introduce new products through innovation to serve our customers' changing needs.

In 2018/19, underlying operating margin was broadly stable at 13.4% (2017/18: 13.6%) as we balanced improving efficiency with investing for future growth.

+ Pages 77 to 89

228.8p



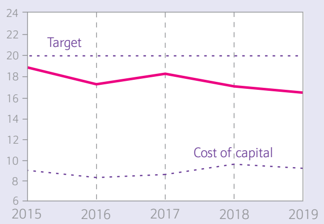
Underlying earnings per share

Underlying earnings per share is the principal measure used to assess the overall profitability of the group. The following items are excluded from underlying earnings as they do not allow for a consistent comparison of performance between financial years:

- Amortisation and impairment of intangible assets arising on acquisition of businesses (acquired intangibles).
- Major impairment and restructuring charges.
- Profit or loss on disposal of businesses.
- Gain or loss on significant legal proceedings together with associated legal costs.
- Tax on the above and major tax items arising from changes in legislation.

This year, underlying earnings per share increased by 10% to 228.8 pence. It grew ahead of underlying operating profit, benefiting from a lower tax rate. A reconciliation from underlying profit for the year to profit for the year is given in note 4 on page 179.

+ Pages 179 and 183



Return on invested capital (ROIC)*

JM's business model of applying world class science efficiently to solve customers' complex problems generates high returns. We define ROIC as underlying operating profit divided by the monthly average of equity, excluding post tax pension net assets, plus net debt for the same period. ROIC for individual sectors is calculated using average monthly segmental net assets as the denominator.

* We have changed our definition of ROIC this year to exclude net pension assets as these are not operating assets.

The group's ROIC* decreased from 17.0% to 16.4%, mainly a result of both higher capex, and higher precious metal working capital through the year which was due to unscheduled downtime at our UK pgm refinery.

+ Page 89

59 days

Average working capital (excluding precious metals)

Average working capital days (as defined on page 189) is a measure of efficiency in the business with lower days driving higher returns and a healthier liquidity position for the group. We exclude precious metals as our precious metal working capital is a function of our customers' choices and therefore not fully under our control. It can have a material effect on the group's working capital days.

Our average working capital days (excluding precious metal) improved by three days. This reflects our continued focus on, and disciplined management of, working capital across JM.

+ Page 89

Group non-financial objectives

Science

Performance in 2018/19

£190m

Gross research and development expenditure

Johnson Matthey's strategy delivers sustainable growth through applying science and technology to meet the global challenges and opportunities from clean air, improved health and efficient use of natural resources. To maintain our competitive advantage and enable future growth, we invest in research and development.

The group's research and development expenditure was broadly maintained at £190 million as we continued to invest in more efficient and targeted ways.

+ Pages 34 to 39

Customers

Customer satisfaction (out of 10)

8.3

Customer satisfaction

Applying our world class science efficiently to solve our customers' complex problems creates leading market positions for JM. We track customer satisfaction as a measure of how we are maintaining our competitive advantage and to understand the health of our future business.

We use an external supplier to ensure a consistent and independent survey. We receive high quality analytics and feedback which is used to drive clear actions in the business.

In 2018/19 we carried out our first standardised customer satisfaction survey with customers representing circa 80% of sales in Efficient Natural Resources. Our score of 8.3 out of 10 is above the industry norm of 7.6 and is a pleasing result. We will report this KPI as a measure across all four sectors next year.

+ Page 44

% sales from products contributing to UN SDGs

87.3%

Positive impact of JM's products

JM uses its science and technology expertise to create products that have a positive impact on the planet. We track progress towards our vision for a cleaner, healthier world by measuring the percentage of our sales that come from products that make a positive contribution to the UN's sustainable development goals (UN SDGs). A detailed definition of this KPI is provided on pages 236 and 237.

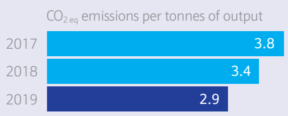
In 2018/19 the percentage of sales from products that positively contributed to the UN SDGs was 87.3%, up from 86.9% last year. Our sustainable business goal is to increase this to >90% by 2025.

+ Pages 18 to 21, 25, 26, 43 and 44

5

Operations

2.9 tonnes $CO_{2\ (eq)}$



Operational carbon footprint per unit of production output

Our operational carbon footprint, reported in tonnes of carbon dioxide equivalent ($CO_{2\ eq}$), includes Scope 1 and Scope 2 emissions. It is a measure of the carbon intensity of our operations. We normalise our carbon emissions based on production output which we define as 'tonnes of manufactured product sold externally'. Only sold products manufactured on JM premises are included. A detailed definition of this KPI is provided on pages 235 and 236.

This year the group's operational carbon footprint per unit of production output reduced from 3.4 to 2.9 tonnes CO_2 equivalent per tonnes of output. This is due to us increasing the proportion of our electricity that is derived from renewable sources.

+ Pages 52, 53, 56 and 57

3

Our KPIs continued

Group non-financial objectives

Operations (continued)

Performance in 2018/19

% strategic suppliers assessed since 1st April 2017

17%

% in compliance with JM Supplier Code of Conduct

76%

Responsible sourcing – strategic suppliers assessed and in compliance with JM Supplier Code of Conduct

We seek to ensure sustainable and responsible business practices in our supply chains through measuring the percentage of our Tier 1 strategic suppliers assessed and compliant with JM's Supplier Code of Conduct. A detailed definition of this KPI is given on page 236.

Since the programme was introduced in 2017, we have assessed 17% of our Tier 1 strategic suppliers and of those, 76% were fully compliant with our Supplier Code of Conduct.

+ Page 50

4

People

LTIIR of 0.53

Health and safety

Making sure our people go home in the same, or better, state than when they came to work is everyone's responsibility in JM. That's why we place huge emphasis on health and safety. We drive the right behaviours through our values and through health and safety programmes across the group. Rigorous health and safety systems apply across all facilities and we actively manage our safety performance through monitoring the incidence and causes of accidents that result in lost time.

Lost time injury and illness rate (LTIIR) is defined as the number of lost workday cases per 200,000 hours worked in a rolling year. A detailed definition of this KPI is provided on page 235.

* Restated, see page 73.

The group's LTIIR was broadly flat this year at 0.53. We are disappointed in our performance against this lagging indicator; we understand the drivers of this and are tackling it. Encouragingly, our leading indicators of performance are improving.

+ Pages 69 to 73: Our approach to health and safety

1

59%

Employee engagement

An engaged workforce is a key driver of performance. Our global yourSay survey, carried out every two years, looks at the key drivers of employee engagement. Further details are provided on page 64.

We use employee engagement as a measure of how committed and motivated our people are to give their best to Johnson Matthey.

A detailed definition of this KPI is provided on page 235.

Our employee engagement score in September 2018 was 59% (November 2016: 62%). We have action plans in place that continue to focus on improving the effectiveness of our employee engagement activities with the aim of increasing our employee engagement score.

+ Pages 60 to 69 and 74 and 75: Further details of what we've been doing to engage our people over the last year

2

Group non-financial objectives

People (continued)

Performance in 2018/19

Volunteering days taken by JM employees

1,116

Volunteering in the community

Caring for others in our communities is part of our culture and is reflected in our values. That's why we support employee volunteering and allow our people two days of paid volunteering leave each year. We measure the number of volunteering days taken by JM's employees per year.

This is part of our wider target of achieving a cumulative total of 50,000 days between 1st April 2017 and 31st March 2025. A detailed definition of this KPI is given on page 237.

In 2018/19 JM employees took 1,116 volunteering days (2017/18: 678 days). This increase is pleasing as we started to raise awareness of the benefits of volunteering during the year. We have also simplified the process of volunteering with a global employee online system for employees to register and track their volunteering.

When combined with the days taken in 2018/19, JM employees have taken 1,794 days of paid volunteering leave.

+ Page 67

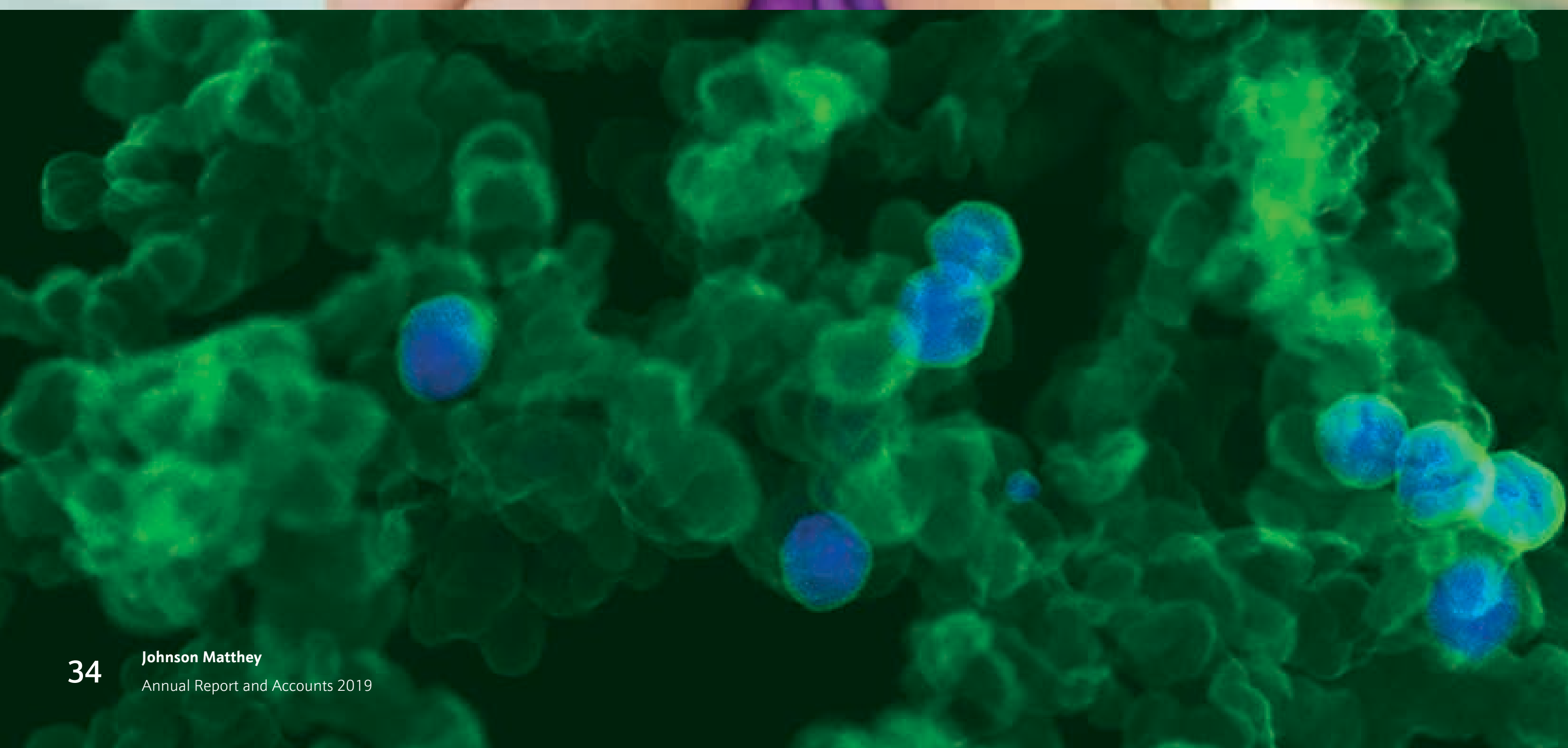
6

Non-financial information statement

JM has a range of different of policies and standards in place to manage our principal risks, and which form part of our internal control framework. These are referenced throughout the Strategic Report. The table below shows how we meet the non-financial reporting requirements contained in sections 414CA and 414CB of the Companies Act 2006. It summarises the material policies identified in line with these reporting requirements and is intended to help our stakeholders understand our position on non-financial matters.

Reporting requirement	Policies and standards that govern our approach and controls	Relevant principal risk	Page reference
Environmental matters	• Environment, Health and Safety Policy*	4	69
	• Policy on animal testing*		55
	• Ethical and Sustainable Procurement Policy*		50
	• Supplier Code of Conduct*		50 to 51
Employees	• Code of ethics*	6	68
	• Equal Opportunities and Training and Development of People Policies*		65
	• Global Flexible Working Policy		69
	• Board Diversity Policy*		113, 121
	• Speak up process		68 to 69
	• Environment, Health and Safety Policy*		69
	• Eight lifesaving policies		69
	• Working Together Policy		69
	• Global Parental Leave Policy		69
	• Mental wellbeing commitment		69
	• Investigations Policy		69
	• Corporate Governance Framework		108 to 109
Social matters	• Employee Volunteering Policy	6	67
Respect for human rights	• Modern Slavery Statement*	10	51
	• Code of ethics*		68
	• Data Protection Policy and Employee Privacy Notice		69
	• Ethical and Sustainable Procurement Policy*		50
	• Supplier Code of Conduct*		50 to 51
Anti-corruption and anti-bribery matters	• Anti-Bribery and Corruption Policy	10	69
	• Code of ethics*		68
	• Trade and Export Controls Policy		69
	• Investigations Policy		69
	• Financial Crime Policy		69
	• Tax strategy		88
	• Conflict of Interests Policy		69
	• Competition Law Policy		69
Due diligence and outcome	–		–
Business model	–	1 2 3 4 5 6 7 8 9 10 11 12 13	22 to 23

* Available on our website



Science and technology, and our ability to translate them into solutions for our customers, are our competitive advantage

Science

Our people deliver world class science which creates differentiation that supports high margins and leading market positions for JM.

Nine core areas of scientific capability, developed over many years, form the foundation of our knowledge, and we draw on them again and again across our businesses and products. We interweave these capabilities into products and services that solve our customers' challenging problems. We focus on the complex and the difficult. And we win based on our technology. Our scientific capabilities provide the opportunities for us to drive growth.

We have over 1,500 dedicated scientists in Johnson Matthey with wide ranging expertise who give us a diverse perspective on the problems we tackle. These scientists collaborate to understand the fundamentals of what's required, explore innovative solutions and deliver the outcomes our customers need. We understand what is happening at the sub-micron level, so we can address complex problems at a global scale.

World class science capabilities **Cleverly applied** **Value for JM**

Solutions for customers

Science continued

The science behind our products

Our scientists draw on a range of skills to design and produce functional materials, including catalysts, with the required performance. We design molecules and understand how they react, and we deliver them in a form that our customers can use. We test their performance from lab scale to manufacturing, ensuring safe handling, operation and disposal.

Our science in action

Tackling global issues

Clean air for all

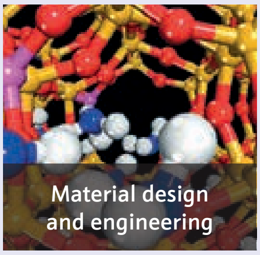
Providing the solution

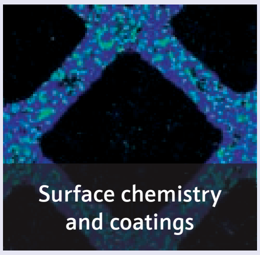
Selective catalyst systems to reduce emissions of harmful gases, like NOx, from vehicle exhaust, combined with filters to remove particulates.

Minimising vehicle emissions to protect health and the environment.

Translating scientific capabilities


Catalysis and advanced materials


Material design and engineering


Surface chemistry and coatings


Scale up of complex manufacturing

Fundamental understanding

Analytical science, models to predict interactions of molecules, fundamental knowledge of materials at the atomic scale

Collaboration

- Universities
  Latest thinking on science fundamentals
- Catalysis Hub
  Leading edge catalyst research
- Diamond Light Source
  Access to UK's national synchrotron and advanced scientific microscope facilities
- Outreach and start ups for fresh perspectives

How we innovate

Having people with such a diverse range of scientific knowledge and experience concentrated at our R&D locations creates opportunities for innovation. We share our knowledge across the company and reach out externally to complement the skill sets we have:

- Supporting PhD students and collaboration with universities to give us access to specialist equipment and science.
- Setting challenges and running ideation campaigns to bring people together with different perspectives on a problem.
- Investing in organisations and facilities, such as the UK synchrotron facility and Catalysis Hub, to build relationships, understanding and access to assets needed.
- Scouting for the best partners where we identify an opportunity to grow.

Catacel SSR – shaping a new era of clean energy

Hydrogen is a versatile energy source which offers an important route in the transition to clean, low carbon power.

Today it is used primarily in oil refineries to remove sulphur from fuels and for ammonia and methanol production. But if future predictions on alternative routes to energy are realised, ten times the current amount of hydrogen will be required. JM already supplies catalysts, in the form of pellets, to produce hydrogen by reacting steam at high temperature and pressure with methane from natural gas (steam reforming). Using this existing knowledge and our world class science, we've developed a new high performance engineered catalytic solution for hydrogen production.

We call it Catacel Structured Steam Reforming (SSR). Why? Because it is a coated, metal foil based, engineered catalyst that is an alternative to the conventional ceramic pellet impregnated with a catalyst.

The outcome for customers is increased plant throughput of up to 20%, without capital investment of a new plant, less wear and tear on the reformer reactor tubes and fuel savings.

So how does it work? The design of the catalyst is a balance between many competing requirements such as its strength, how heat is transferred, how active it is and how evenly gases flow in and around it. The engineered structure of Catacel SSR enables it to stretch many of the limitations imposed by ceramic pellets.

In developing a product like this we draw on a wide range of skills and our collaborations both in-house and through our close liaison with universities and research institutes. And by scaling up the manufacture of the catalyst and designing it as a drop in substitute, our customers have the choice to move seamlessly from pellets to Catacel SSR.

The science and technology behind Catacel SSR, and the customer value it creates, gained external recognition this year when it was awarded as winner of the IChemE Oil and Gas Award 2018.

Watch: How Catacel SSR is changing the game for steam reforming
matthey.com/new-era-clean-energy

We recognise that some of the best ideas will come from open innovation. So we look for partnerships and collaboration in the broader world of innovation.

This means we stimulate thought and hear about new approaches first hand. A few of the ways we have been reaching out to the wider innovation community include:

#cleanairtech

We ran a meet up event called 'The air that we breathe' at London Tech Week 2018 and commissioned a White Paper on clean air technology. We brought together over 50 people all focused on cleaning our air and, together, we catalysed a clean air tech community, #cleanairtech, of start ups, like minded corporations, academics, regulators and influencers. The group looked at issues of air quality measurement, the cost of poor air quality, products and solutions that are being worked on, and leading the drive to improve air quality. Such collaborative working groups give us a freshness in our approach to tackling some of the world's biggest problems.

matthey.com/cleanairtech

Smogathon

We joined the Poland Smogathon event in 2018, which focuses on innovations in air purification. As a partner at the event, we selected challenges and were part of the panel reviewing solutions being pitched by start up companies. This is a great way of hearing about new and exciting ideas to tackle air pollution and support those who present the best projects. We are also able to share our expertise in the field of air purification, providing advice and insights to startups and the broader technical community.

https://smogathon.com

Axisinnovation

We have connected with the innovation ecosystem of Israel, a country renowned as a source of innovative technology and business models, seeking out technologies that relate to our agrochemical and air purification activities. Tapping into this ecosystem, which includes universities, start ups, institutes and accelerators, helped us understand how we can contribute. We are now looking to strengthen our links further and develop mutually beneficial partnerships.

https://www.axisinnovation.com/jmevent

Science continued

Managing science and technology

In 2018/19 we invested £190 million in R&D, including £19 million of capitalised R&D, which represents around 5% of our annual sales (2017/18: £193 million, including £18 million of capitalised R&D, representing 5% of annual sales). We maintained our investment this year as we continued to invest in a more efficient and targeted way, and in alignment with our strategic aims. In this way, we continue to make excellent progress to sharpen our focus on creating value from our leading technology.

Our strategy, aligned with our vision for a world that's cleaner and healthier, helps us focus our science and technology. We use technology road mapping as a tool to identify future growth opportunities for our business and how to deliver them. Technology road mapping facilitates high quality conversations across our sectors and functions about the future of our business. It allows us to map our core capabilities against future opportunity and helps us identify capabilities we can add to enable or accelerate progress. During the last year we have developed road maps that define market drivers, products and the capabilities we will need to innovate across our business.

For us, innovation is the realisation of value from knowledge, and road maps help us to identify where and how to invest in our R&D. Our new product introduction process supports this and is used by our businesses in delivering their strategic plans.

These roadmaps also enable forward looking conversations with current and future customers to identify new product and market opportunities for JM to extend its competitive advantage through our world class science and technology.

Gasoline particulate filters – cleaning the air we breathe

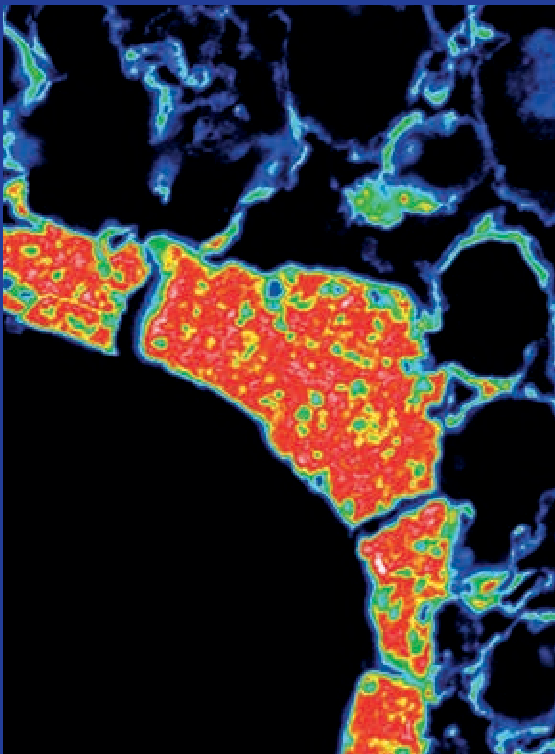
Increasing numbers of petrol (gasoline) vehicles on our roads and the advent of tighter legislation to control their exhaust emissions bring new challenges in cleaning the air.

Gasoline direct injection engines are very efficient, meaning less CO_2 is emitted. But there is a downside; more and smaller particles of soot are produced which are harmful to our health and need to be removed from the exhaust gases. That's why JM has developed a three way filter which acts as both a three way catalyst to significantly reduce harmful gaseous emissions and as a filter to take out the vast numbers of small, fine particles.

Working closely with our customers, we have developed and designed our technology to meet their requirements for catalyst activity and filtration efficiency while minimising the impact on exhaust gas flow.

Many aspects of scientific knowledge must coincide to deliver an engineered product that is fit for purpose. We use advanced imaging techniques to build up a picture of the filter structure, in collaboration with academic experts. We use computers to model how gas flows through the filter walls and along its channels; we formulate catalyst material with long lasting activity; and we evaluate different coating techniques to give a highly effective active coated surface which promotes filtration efficiency but doesn't block up the filter. And to do all this we rely on cutting edge capability in computational modelling and advanced microscopy.

As a result, we have developed gasoline particulate filters that meet the Euro 6d Final legislation, the toughest in the world for particulate number emissions, in both laboratory testing and when tested in real world driving conditions on the road.



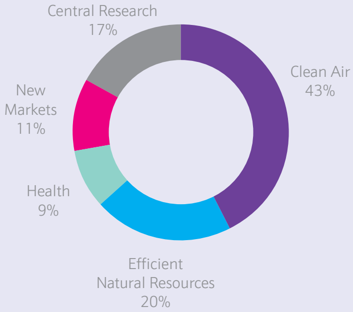
Active pharmaceutical ingredients – helping people live longer healthier lives

Our aim is to make the world a cleaner, healthier place, and we are proud of the positive impact our science can make on the air, the resources of the world and the health of people around us.

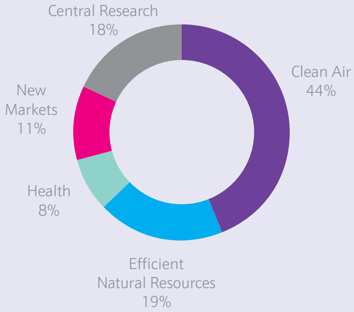
The active pharmaceutical ingredients (APIs) we make are the power behind life changing therapeutics such as apomorphine which is used to treat the symptoms of Parkinson's disease. Treated with this active ingredient, people with severe Parkinson's disease can regain their independence and continue to do the things they enjoy. Our APIs are also found in drugs that are used to manage Duchenne muscular dystrophy, a genetic disorder in children where progressive muscle degeneration causes weakness. It is the complex API molecules that cause the therapeutic effect and our ability to manufacture them reliably and effectively means adults and children can live more fulfilling lives.

JM helps pharmaceutical customers to develop and bring to the marketplace the active ingredients for these life changing drugs. Pharmaceutical ingredients are usually molecules with complex structures and often require many different reaction steps and purification. We use our scientific skill and creativity to find the shortest, most precise and efficient reaction pathways. And from there we develop effective, reliable routes to manufacture high quality complex molecules – molecules that have a profound impact on many people's lives.

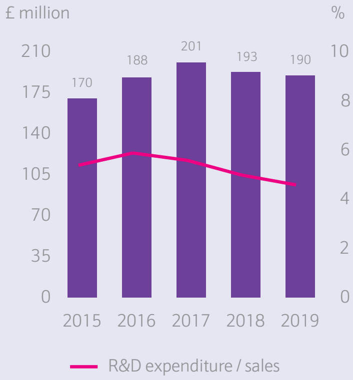
R&D employees

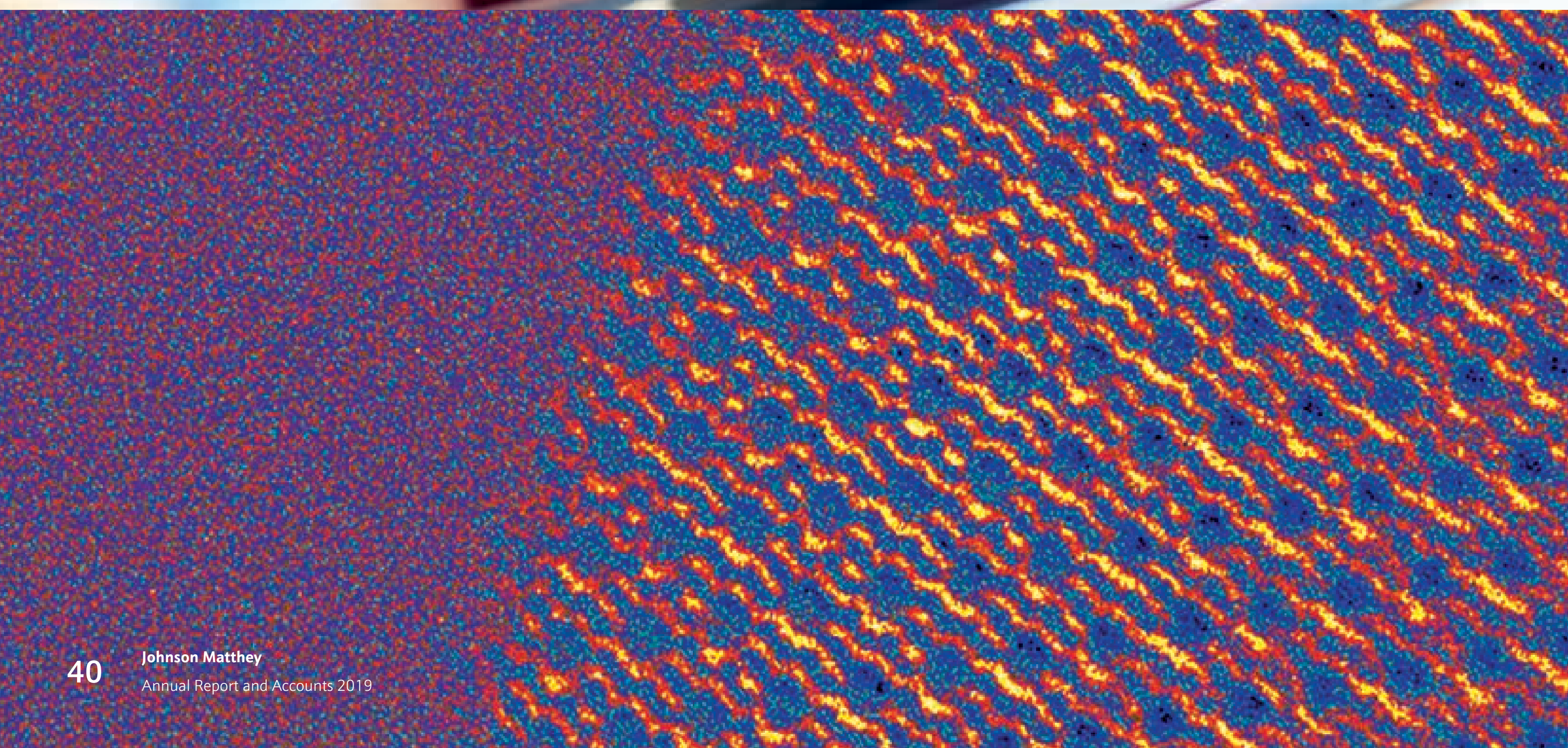


Distribution of R&D expenditure



Gross R&D expenditure





Putting our inspiring science to work for our customers

Customers

Collaboration and strong relationships with our customers are crucial. Together, we put our inspiring science to work to enhance life.

Using our science to solve our customers' complex problems is at the heart of our strategy. Choosing JM enables our customers to bring their products and ideas to market faster, improve the performance of their products and reduce their environmental impact. This creates value for them; and it creates value for JM – through high margin products from which we generate strong returns.

Directed by our vision for a cleaner, healthier world, we operate in growing markets. The breadth of our markets and the depth of our science give us strength.

And we're challenging ourselves to improve. Through our Commercial Excellence programme (pages 43 and 44), we are growing our people, delivering an enhanced experience all round for our customers and, at the same time, creating more value for JM.

Our products and services do amazing things when our customers use them – this is one of the major ways we make the world cleaner and healthier. So we are measuring this through our sustainable business goal 5, and aim to double the positive impact our products and services have by 2025.

Sustainable business goals

Sustainable products
5

Our global markets and segments

The markets we serve are directed by our science and driven by our technology. As a result, we create leading technology positions, often in niches within larger markets.

These markets aggregate into four main global economic segments through which our science can enable prosperity and a cleaner, healthier world. They are:

- **Transport** (principally automotive, with some marine and aerospace).
- **Energy** (fuels and electricity generation).
- **Chemicals** (including agrochemicals, food and beverage).
- **Healthcare** (both pharmaceuticals and medical).

Beyond these, we also monitor the critical raw materials and commodities used in these spaces. In the case of platinum group metals (pgms), we are a globally recognised expert in their market fundamentals and applications.

Customers continued

Segment trends and dynamics

Transport

The automotive industry continues to experience a period of unprecedented change. Economic weakness coupled with powertrain shifts and legislative change (including subsidies) are impacting the industry. As a result, the total production of light duty vehicles (LDVs) fell slightly this year to just under 94 million units[1]. The LDV market (covering all powertrains) is expected to return to growth in the medium term, ~2.4%[1] compound annual growth (CAGR), with total production passing 100 million units[1] in the early 2020s. However, longer term, LDV growth is expected to slow with an increasing proportion of the population living in cities, and consumer behaviour shifting towards different vehicle ownership models, car sharing and alternative modes of transport, for example, cycling.

But for those vehicles that are produced, alternative powertrains are expected to become an increasing part of the mix. Analysts expect a move away from pure internal combustion engine (ICE) vehicles over time, with hybrid, battery electric (BEVs) and / or fuel cell electric vehicles (FCEVs) becoming more common. These powertrain shifts, together with the emergence of innovative vehicle ownership and access models, along with a rising degree of connectedness and automation, are transforming the mobility landscape.

Heavy duty vehicle (HDV) production was 3.7 million units in 2018/19[1] and this remains a cyclical market.

While vehicle production is a growth driver for JM, next generation, tighter emission control legislation, particularly in Asia, is an additional, more significant opportunity for us.

This mobility transition is not expected to be quick, with most market evolution studies showing a gradual uptake of alternative powertrains in LDVs through the 2020s. JM assumes BEV penetration of ~6% by 2025 and notes the high degree of uncertainty associated with these projections. The transition for HDVs is expected to be more gradual.

Alternative powertrains are also starting to appear in other forms of transport (e.g. trains) and industrial applications (e.g. fork-lift trucks). For JM, this means expanding our offering, applying our science to develop solutions to enable and deal with the expected uptick in demand and a potential shift into new applications.

Energy

Fossil fuels are the dominant global energy source today (~81% of primary energy[2]), but the rise of renewables, the drive for energy efficiency, along with the possibility of cost effective energy storage, is changing that dynamic. Most analysts expect the contribution of coal and oil in the world's energy mix to fall, with natural gas expected to become the fastest growing fossil fuel, maintaining its share (~20%) of the global energy mix. This implies strong growth in renewables and other low carbon fuels (including nuclear).

We maintain a focus on this segment as it informs us about changes in the interconnected transport and chemicals markets. This evolution also touches our applications in the stationary energy space, along with several other products and services.

Chemicals

There are a number of competing factors impacting the oil market. In the near term, we expect oil prices to continue to recover from their recent lows followed by much more modest growth[3] towards a plateau and potential decline in the longer term.

The outlook for natural gas is expected to be very modest[3]. However, short term pricing, especially in North America, remains subdued.

Downstream products have benefited from low input prices over recent years, but those advantages are beginning to pass. Through 2022/23, refining and (petro)chemical catalyst growth is assumed to remain in the 3-4% range[4], with specific rates for each catalytic area. Growth at 3% is expected in areas such as ammonia and oxidation processes.

Legislation on sulphur may help accelerate growth in fuels, but this impact is still to be determined.

As a business, we will continue to target the highest growth and most profitable segments to ensure that critical raw materials are used and transformed in the most efficient manner possible.

Healthcare

Global population and life expectancy continue to rise, with a range of medical interventions required to service increasingly old and wealthy populations. To support this trend, healthcare spending is expected to grow in the mid single digits (GDP+) through 2025[5].

For JM, the active pharmaceutical ingredient (API) contract development and manufacturing organisation market continues to be a focus for our Health Sector. Growth in this market is expected to be in the 7-8% CAGR, with some areas within it growing at 10+%. Outlook in the US and European regions remains strong.

JM will continue to focus on how we can serve this growing market through our differentiated science and technology, helping to deliver the products that our growing population requires.

Critical raw materials

Within these markets, commodity prices will play an important role in determining the speed of transition and the technological solutions that are adopted.

We continue to focus on our traditional platinum group metal (pgm) markets and closely watch the evolution of platinum, palladium and rhodium prices as they react to changes in the automotive market. Beyond these traditional metals, we also track movements in the key battery cathode materials (e.g. lithium, cobalt and nickel) and note the recent decline in pricing for these elements.

JM will continue to focus on the most efficient use and transformation of critical raw materials and we will position our business (including our refining expertise) to respond and react to these trends.

Sources

1. JM automotive market assumptions / LMC Automotive.
2. McKinsey Energy Insights – Global Energy Perspective 2019.
3. BP Energy Outlook, 2019 (www.bp.com/en/global/corporate/energy-economics/energy-outlook.html).
4. IHS Chemicals.
5. EvaluatePharma.

Science and technology enabling change

The four economic segments we serve are undergoing major change as a result of global sustainability megatrends. Science and technology is enabling and driving the pace of change. We apply our scientific capabilities, via our four sectors, into markets within these segments. We create new products and services that, through our customers' business activities, are making the world cleaner and healthier.

JM science	World class science capabilities			
JM sectors	Clean Air	Efficient Natural Resources	Health	New Markets
Activity	Catalysts and technologies that abate emissions.	Products and processes that transform, conserve and recycle scarce resources using less energy and fewer raw materials.	Core capabilities in complex chemistry, manufacturing and scale up to create active pharmaceutical ingredients and other solutions for niche areas.	Applying our science into emerging opportunities, such as battery materials and fuel cells.
Segments served	• Transport. • Energy.	• Chemicals. • Energy. • Transport. • Healthcare.	• Healthcare.	• Energy. • Transport. • Healthcare. • Chemicals.
Impact	Cleaner air / Cleaner energy / Achieving more from less / Enhanced health and quality of life			
Outcome	Cleaner, healthier world			

The segments we serve are amongst the most important in the world economy, are universal and supported by strong macro drivers. Maintaining this broad market exposure and managing the balance of our business across these segments of the world economy is part of our strategy.

Many of the customers we serve operate in two adjacent segments and / or markets. For example, fuel companies also have chemical operations; chemical companies manufacture pharmaceutical ingredients. We bring market, technical and regulatory insights from each segment and apply it to adjacent segments. These insights drive business development and create JM's uniqueness in its markets.

Working with our customers across a range of markets and understanding their needs gives us a balanced and robust business. Through serving broad markets, the opportunities to apply our science and technology are greater and our contribution to a cleaner, healthier world is increased.

The value we create for customers

Across our offerings, our customers value the performance of our technology in their applications. The performance of our products delivers different advantages to our customers by:

- Translating directly into the performance of their product.
- Enhancing the reliability of their production.
- Increasing their efficiency.
- Enabling them to reduce the overall cost of their product.

We work with customers to codevelop solutions that maximise this performance advantage. This collaborative development requires strong, long term relationships based on mutual commitment, risk sharing and trust.

In addition to performance, customers also come to JM for additional sources of value:

- Speed and efficiency in development.
- Reliability.
- Responsiveness in problem solving.
- Security and flexibility.

Our customer centric approach to creating value through commercial excellence

JM's competitive advantage is our distinctive, world class scientific and technical capabilities and how we translate them into solutions for our customers. Together with providing them with high quality products and services, we continue to deepen our understanding of their needs and ensure that we capture our fair share of the value we create for them.

Our Commercial Excellence programme, now in its second year, is focused on driving continuous improvement through the lens of our customers to support their growth and maintain our competitive advantage. The programme delivers value through: building commercial capability across JM; enhancing our ability to make value based data driven decisions; measuring and responding to customer satisfaction; and operating leading sales and marketing processes to enable us to provide a seamless service to our customers.

Customers continued

The programme is already delivering benefits through supporting sales and market share growth in our sectors. During the year we launched the JM sales academy to grow our commercial people, equipping them with leading skills to further develop and enhance their capability. Around 350 customer facing employees from three sectors have so far attended the first module across Europe, the US and Asia. They gave positive feedback that the knowledge and skills provided will help improve their job performance. Furthermore, the new frameworks and processes developed and launched through the programme are already being used by commercial teams to deliver improved outcomes with customers.

Further modules of the sales academy will roll out in September 2019, providing more depth to our strategic account management process across the group.

We have also developed a framework for producing and improving propositions to customers, to increase customer centricity. The customer value proposition is designed to identify help communicate how we can create value for a customer in a meaningful and impactful way. Well thought through proposals, and the propositions in them, support customer growth and in turn create value for JM.

Over the last year we have introduced a consistent measure of customer satisfaction across JM to allow us to understand what our perceived strengths are, highlight areas where we need to improve and deliver even better outcomes for our customers. We use an independent external organisation that is a specialist in running customer feedback programmes in the business to business manufacturing market.

We piloted this customer satisfaction survey across our Efficient Natural Resources Sector in November 2018, with a very encouraging response rate of 58%. The sector received an overall rating of 8.3 out of 10 from customers, which is well above an industry norm of 7.6. The survey has provided rich and insightful information which has translated into actionable outcomes for the commercial teams to implement. Teams have also shared their continuous improvement feedback actions with their customers and our proactive approach has been positively received. During 2019/20 we will survey customers of our three other sectors, Clean Air, Health and New Markets, and follow up with a repeat survey for Efficient Natural Resources, creating stronger relationships built on trust, consultation and partnership.

In a world where the pace of change will continue, we are ensuring that we stay fit and agile to understand our customers' complex problems and continue to provide valuable solutions to those challenges.

Beyond customer value – our progress towards a cleaner, healthier world

The value we create for our customers drives growth in our business and returns for our shareholders. But our science-led products and services have a much broader positive impact, driving us towards our vision for a cleaner, healthier world. We want that positive impact to grow.

That's why we have a goal to double the positive contribution of our products by 2025, aligned to the United Nations Sustainable Development Goals (UN SDGs). Thus, our sustainable business goal 5 has two streams by which we are measuring our progress.

The first shows our global impact by measuring the absolute and percentage of JM's sales that have a direct contribution to the UN SDGs. The percentage measure is a key performance indicator for the group as detailed on page 31. Our contribution has increased this year supported mainly by stronger sales of emission control catalysts.

The second relates to JM's vision for a cleaner, healthier world. Our goal is to at least double:

- The tonnes of pollutants (oxides of nitrogen, carbon monoxide, hydrocarbons, particulate matter) removed by our products. Here, the overall tonnes of pollutants removed by our products fell very slightly this year because lower numbers of vehicles were produced globally (see page 81).
- The number of lives impacted by our recently launched pharmaceutical products. Our positive impact was greater this year due to increased use of therapies that include our APIs.
- The quantity of greenhouse gases (GHGs) removed or reduced (CO_2 equivalent) by our products. This year, the tonnes of GHGs removed by our products was slightly down due to a lower contribution from our nitrous oxide abatement technologies.
- The quantity of GHGs avoided (CO_2 equivalent) by our products. An increased number of tonnes of GHGs were avoided this year due to the action of our products. This was principally due to greater demand for our fuel cell components.

Sustainable business goal	Sustainable business KPIs[1]	Baseline	2017/18	2018/19	2025 target
Sustainable products 5 Double the positive impact that JM's products make on a cleaner, healthier world	Annual sales giving contribution to UN SDGs	2017/18 sales data against UN SDG indicators (% of group sales)	86.9%	87.3%	>90%
	Annual aggregation of product sustainability benefits in key areas	2017/18 data relating to: Tonnes of pollutants removed	3.54m	3.43m	7.08m
		Number of lives positively impacted	138,000	181,000	920,000
		Tonnes of GHGs removed ($CO_{2\,eq}$)	10.6m	10.1m	21.2m
		Tonnes of GHGs avoided ($CO_{2\,eq}$)	213,000	216,000	426,000

[1] For full details and definition, see pages 236 and 237.

+ Performance against all six of our sustainable business goals is detailed on pages 31 to 33 and on page 238

Long term view

Shaping a new era of clean energy

The world is moving towards a lower carbon, more sustainable future. Here we look at some aspects of this incoming energy revolution and the key role that JM and its technologies will play within it.

Driving towards a sustainable future

The world is at the start of an energy revolution – the biggest energy transformation since the Industrial Revolution during which the use of fossil fuels drove growth and prosperity. It is only relatively recently that we have started to understand the implications of the potential global temperature increases.

The country signatories of the 2015 Paris Agreement committed to aim to hold increases in global average temperature to "well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C". Then, in October 2018, the Intergovernmental Panel on Climate Change (IPCC) issued a Special Report. In it, they said that to achieve no, or limited, overshoot of 1.5°C, global net anthropogenic CO_2 emissions must decline by about 45% from 2010 levels by 2030, and reach net zero by around 2050. A number of countries and regions including France, Sweden, Norway, the European Union (EU) and New Zealand, are now committing to, or considering moves towards, net zero carbon and / or greenhouse gas (GHG) emissions. In May 2019, the UK Committee on Climate Change, which is the independent adviser on climate change to the UK Government, called for the UK to continue to lead the global fight against rising global temperatures by tightening GHG emission targets to net zero by 2050.

But what will it cost to move towards net zero, and how does this compare with the impact if we don't manage to limit the global temperature increase?

The Energy Transitions Institute estimates that reaching net zero CO_2 emissions by 2050 would cost around 0.5% of global GDP, or around 0.425 trillion US dollars.

And what do we get in return for this? Researchers at Stanford University estimate that the benefits of remaining within a 1.5°C temperature increase to be of the order of tens of trillions of US dollars. So, on top of the other benefits, there is a very good economic return on the climate stabilisation investments.

It is good to hear governments talking openly about the need to tackle global temperature increases as high level commitments, together with robust and far reaching policy, will be essential if we are to create the markets that will deliver the necessary low carbon technologies.

The good news is that we don't have to wait for new technologies to start to reduce the global carbon footprint – we can move towards tackling climate change by a combination of implementing the technologies we have today and developing new, low carbon technologies for the future. For example, the IPCC report points out that the greater the emission reductions achieved by 2030, the better the chance to limit the global temperature increase to 1.5°C.

So let's consider the current situation in some key areas, discuss how we expect this to evolve and take a look at the significant contributions that JM's science and technologies are making, and will continue to make, towards a cleaner, healthier world.

Reducing the carbon footprint of transportation

Globally, transportation is responsible for around 25% of CO_2 emissions, with the majority from the on-road movement of people and goods. Regulators are driving down the permitted levels of CO_2 emitted from vehicle tailpipes; for example, the EU recently approved legislation to reduce the CO_2 emissions from passenger cars by 37.5% from the 2021 baseline of 95 g/km. Such regulations will be met by a combination of approaches; incoming vehicles powered by internal combustion engines will become more fuel efficient through innovation in areas such as engine, tyre and transmission development, and vehicle light weighting by using new materials including composites. However, a more fuel efficient engine generates lower temperature exhaust gases and this makes controlling the associated pollutants more difficult.

JM technology is part of the solution

JM has risen to this challenge by developing new emission control catalysts capable of operating at lower and lower temperatures, supporting our customers, the car companies, as they reduce the CO_2 emissions of the vehicles they produce. Plug-in hybrid electric vehicles, in particular, carry out an even higher number of starts at lower temperatures (cold starts), especially when driving in the city. And we are developing emission control catalysts that are further optimised for cold start performance for this type of vehicle.

Customers continued

The need for vehicles with lower CO_2 emissions will also increase the rate at which so-called zero emission vehicles (ZEVs) are introduced. Current legislation regards ZEVs as vehicles that do not emit any criteria pollutants, such as carbon monoxide, unburned hydrocarbons and oxides of nitrogen (NOx), and that do not emit any CO_2 from their tailpipe. Both battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs) are ZEVs by this definition. Of course, the true CO_2 footprint of such vehicles needs to consider factors such as how much CO_2 was released when generating the electricity used to charge the battery or, in the case of FCEVs, to make the hydrogen (along with emissions during the manufacture of the BEV or FCEV itself, including its powertrain). Over time, these other life cycle emissions will reduce further, for example as we use more renewables to generate electricity (see later). So the life cycle CO_2 benefits of BEVs and FCEVs over vehicles powered by internal combustion engines will increase further.

Enabling battery electric vehicle uptake

JM is developing next generation battery materials with improved energy density (so the mileage of BEVs between charges can be increased), pulse power (for improved acceleration) and safety, while minimising the use of expensive and relatively scarce raw materials such as cobalt. JM's leading ultra high energy density eLNO family of cathode active materials is delivering improvements in all of these critical performance areas. Raw material sourcing is becoming increasingly important in the battery materials area, and here JM's years of experience in sourcing platinum group metals (pgms) will continue to stand us in good stead. Another similarity between the battery materials and pgm areas is the acknowledged need to recycle critical raw materials; JM is a world leader in the recycling of pgms, and we are applying our expertise to explore opportunities in battery materials recycling.

Such innovations are essential to drive the kind of BEV uptake that will be required to meet incoming CO_2 regulations, and, alongside the ongoing reductions in the carbon intensity of electricity generation, deliver step changes in the CO_2 profile of transportation.

We will, therefore, see significant increases in the number of BEVs on our roads as we move towards a lower carbon future and JM technology will make important contributions here.

However, some vehicles, such as long haul trucks, are unlikely to adopt battery technology since the very high daily mileages driven by these trucks would require very large, heavy and expensive batteries to match the requirements of these duty cycles. In addition, tremendous amounts of energy would need to be transferred to the battery in a very short time during battery recharging, in order to meet the needs of the vehicle owners to maintain the very high utilisation of these vehicles.

Hydrogen powered fuel cells are a complementary solution

One alternative with the potential to enable the decarbonisation of long haul trucking is the fuel cell powertrain. Hydrogen (when pressurised in storage tanks) has a much higher energy density than batteries and refuelling with hydrogen can be carried out in a similar timeframe to filling current fuel tanks. Fuel cells also match the needs of cars covering large annual distances, where the long range and fast refuelling advantages make a compelling combination. In addition, we are starting to see the introduction of fuel cell powered locomotives, which could provide a cheaper route than electrification to decarbonise rail transport.

So fuel cells will work alongside batteries to play an important role in reducing the CO_2 footprint of ground transportation. Furthermore, FCEVs also have a battery, so there are some very direct synergies between the two technology approaches.

In the fuel cells area, JM is developing the platinum containing catalysts and membranes which make up the membrane electrode assembly (MEA). This is the component at the very heart of a fuel cell within which the input hydrogen and oxygen are reacted together electrochemically to produce water, electricity and heat. In this area we are focusing on aspects such as improving the efficiency and long term durability of the MEA, along with reducing the platinum content of the catalyst to lower the cost of fuel cell systems. Once again, JM will be a critical part of the solution as fuel cells enable substantial carbon reductions in transportation and other applications.

In the broad transition towards renewable chemicals and fuels, JM's expertise in catalysis, purification and process technology development will be enablers. Our recently announced projects, with BP and Fulcrum BioEnergy to convert waste into aviation fuel, and with Virent for the production of renewable feedstocks and fuels, are testament to this and we continue to invest and collaborate to explore future process technology options.

The broader role for hydrogen in global decarbonisation

Many countries are now looking at how hydrogen can help their broader decarbonisation efforts as hydrogen is an extremely flexible energy vector with a substantial role to play. For example, there is a shift away from electricity generation from fossil fuels (especially coal) and towards increased use of renewable sources such as solar and wind power. The UK, for example, halved the carbon intensity of its electricity generation between 2013 and 2017 as a result of decreasing coal use and increasing renewables. It has plans to reduce this by a further 90% between now and 2050. However, increasing the reliance of electricity generation on renewables brings with it the need for large scale and long term energy storage since the sun doesn't always shine and the wind doesn't always blow.

To ensure the wheels of industry keep turning and the lights in our homes stay on, regardless of the weather, we will need to store and transport very large amounts of energy. Hydrogen is likely to play a key role here. That's because it is uniquely able to provide underground storage of a zero carbon fuel at the multi-terawatt hour scale required for interseasonal energy storage. This underground hydrogen storage can be in depleted gas fields or salt caverns, depending on local geological conditions. And for those unfamiliar with a terawatt hour... one terawatt hour is a billion kilowatt hours. Boiling the water in a kettle uses about 0.1 kilowatt hours of energy; so one terawatt hour of energy is enough to boil 10 billion kettles!

So hydrogen has great potential as a large scale source of energy. It also has great potential to drive substantial reductions in the carbon emissions associated with domestic heating, enable the decarbonisation of high temperature industrial processes and provide flexible, dispatchable power generation.

Hydrogen has a role to play

Many countries are now looking at how hydrogen can help their broader decarbonisation efforts as hydrogen is an extremely flexible energy vector with a substantial role to play. That's because it is uniquely able to provide underground storage of a zero carbon fuel at large scale.

Low carbon hydrogen

JM has developed a new, class leading process to produce low carbon hydrogen from methane. This approach gives a higher hydrogen yield and is more energy efficient than existing technologies. And, crucially, this JM process is easier and cheaper to decarbonise through carbon capture and storage.

With such a key role to play across multiple sectors, cost effective production of low carbon hydrogen at scale is essential to enable the transition to a global low carbon economy. Indeed, the UK's Committee on Climate Change recently stated that moving from a 2050 target of 80% carbon emissions reduction to the recently proposed net zero target "changes hydrogen from being an option, to an integral part of the strategy".

But where is all this low carbon hydrogen going to come from?

Hydrogen can be produced in different ways. Today most of it is manufactured by steam methane reforming (SMR), in which natural gas at high temperature is converted to hydrogen and CO_2. JM has developed a new, class leading process to produce low carbon hydrogen (LCH) from methane using a process technology called a gas heated reformer. This approach gives a higher hydrogen yield and is more energy efficient than existing SMR technologies. And, crucially, this JM process is easier and cheaper to decarbonise through carbon capture and storage (CCS), a technique which captures the CO_2 produced along with the hydrogen, and subsequently stores it.

We are making good progress with this technology – for example, in November 2018, JM received a grant from the UK Department for Business, Energy and Industrial Strategy (BEIS) to understand the costs and performance for our LCH solution at large scale.

Then in March 2019, JM was part of two consortia that were awarded additional grants under the BEIS hydrogen supply competition for low carbon projects to develop the technology further.

There are several areas in the hydrogen economy and its associated value chains which present significant opportunities for JM. That's why we recently joined the Hydrogen Council, a global initiative of leading energy, transport and industry companies with a united vision and long term ambition for hydrogen to foster the energy transition. The ambitions of the companies in the Hydrogen Council are to:

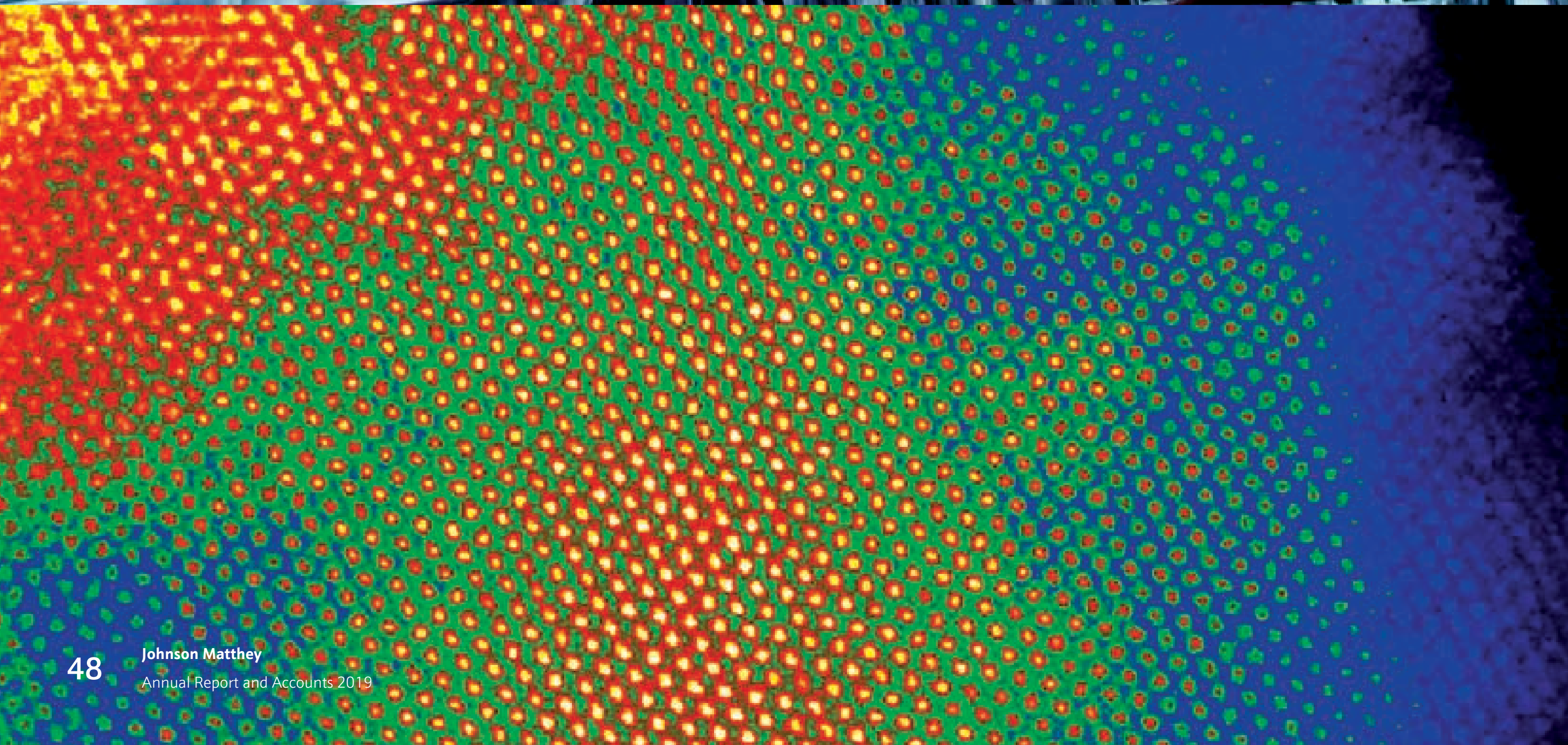
- Accelerate their significant investment in the development and commercialisation of the hydrogen and fuel cell sectors.
- Encourage key stakeholders to increase their backing of hydrogen as part of the future energy mix with appropriate policies and supporting schemes.

In September 2018, Robert MacLeod joined fellow CEOs and senior representatives of the other 32 members (which include Air Liquide, Audi, BMW, Bosch, Daimler, Honda, Hyundai, Shell, Sinopec, Toyota and 3M) at the annual Hydrogen Council CEO event in San Francisco, USA. While there, Robert joined discussions reflecting on the work completed by the Council thus far and meetings on strategy and new ideas to accelerate the Council's ambitions.

The future looks bright

The challenges to tackle climate change issues are significant, but so are the opportunities.

JM's expertise in emission control, catalysis, process technology (through, for example, making industrial processes more energy efficient), hydrogen generation, battery materials and fuel cells are already supporting global moves towards greener economies. Driven by our vision and strategy, we will continue to use our inspiring science to create the solutions that will shape and enable a new era of clean energy.



Our vision for a cleaner, healthier world requires us to operate our business responsibly and with a relentless focus on safety, efficiency and excellence

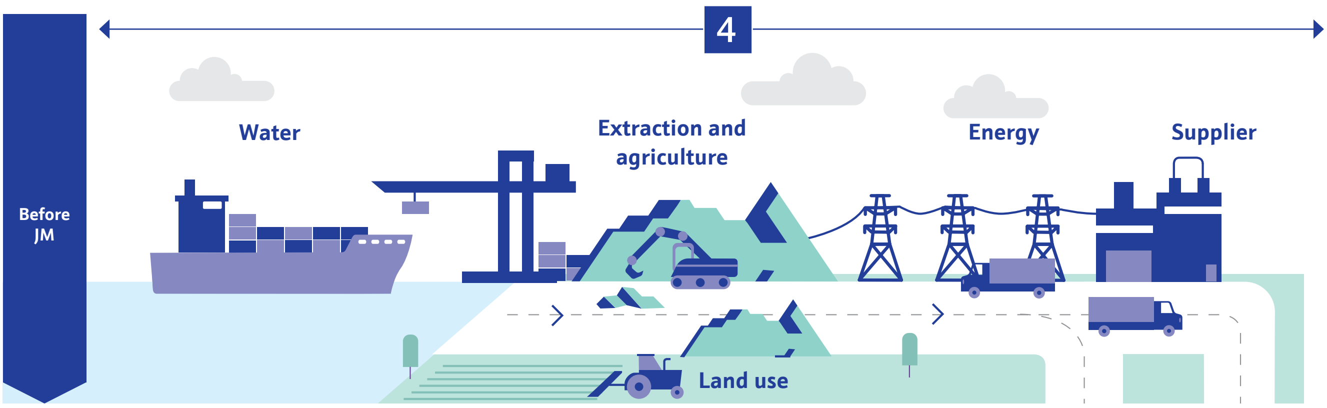
Sustainable business goals

Low carbon operations	Responsible sourcing
3	4

Operations

This focus on safety, responsible business practices, efficiency and excellence cuts across everything we do, from common systems and core processes to the way we manage and drive the environmental performance of our assets. It extends beyond our gates and spans our whole value chain: from 'before JM' and how we source raw materials; how we run every aspect of our operations at 'JM'; and 'after JM', when our products are used by our customers at the end of our products' useful life.

Before JM – Our value chain



The value chain for the commodities that go into our products comprises our suppliers, and we have policies and processes in place to manage our key relationships and risks within both our Procurement function and as part of our ethics and compliance framework.

Procurement

Our business requires us to purchase a broad range of materials, goods and services including:

- Bespoke to commodity raw materials and metals to support laboratory to full production scale operations;
- Non-production items (including technical laboratory equipment, logistics and warehousing, professional services, maintenance items, utilities, IT and telecommunications and facilities management);
- Capital expenditure from individual production equipment to complete manufacturing facilities.

Leveraging the category management approach, our role as procurement business partners is to enable our business to innovate, identify and manage related risks, secure optimal supply and provide commercial agility to enable best value for the near and longer term. We also aim to apply JM's core values, according to the principles in our code of ethics, in our supply chains as well as our own operations.

Operations continued

In 2017/18 we launched our Procurement Excellence programme to drive further value and efficiency through a standardised and consolidated approach across JM. Our annual purchases, excluding precious metal and substrate, are about £1.5 billion. These purchases are made across 118 sites, with historically each site accountable, for the most part, for its own purchases. This has, in the past, limited our ability to leverage our purchases across the group.

Over the last year we have continued to roll out our global procurement strategy and have begun to execute against it. We have made excellent initial progress by bringing together our existing procurement community and by building new capability to ensure that we capture the opportunities in full.

Our Procurement Excellence programme is forging the concept of a One Procurement Community, with one face to market which is able to partner with the business to leverage the scale and capabilities of the company and our value chains to create enhanced value.

The Procurement Excellence 2025 strategic programme is enabled by eight key pillars, aligned with and embedded in the business, which include Responsible Sourcing and Supplier Partnerships.

We are already seeing cost management and value creation successes across all of our major spend categories.

We are on track to deliver our goal of saving more than £60 million over three years.

4

Responsible sourcing

Responsible sourcing is a key pillar of our Procurement Excellence programme, as well as one of our sustainable business goals (goal 4). This is how we seek to understand and appropriately manage our environmental and social impacts 'before JM' in our value chain, and work to improve sustainable business practices among our supplier partners.

Some of our suppliers operate in countries where there are high risks of human rights, environmental or business ethics abuses, and we are committed to ensuring that such abuses do not enter our supply chain.

We have a JM Supplier Code of Conduct, issued in 2017 and available on our website in English, German, Japanese, Polish and Mandarin to which we expect all our suppliers to comply. Our Supplier Sustainable Development Programme enables us to monitor whether our suppliers are following our code of conduct; it also enables us to classify risk in our suppliers, determine what level of due diligence is required, identify corrective actions and follow up on progress. We report annually on the numbers of strategic Tier 1 suppliers assessed and of those, how many meet our responsible supplier compliance criteria.

matthey.com/supplier-code-of-conduct

	Sustainable business goal	Sustainable business KPIs	Baseline	2018/19	2025 target
Responsible sourcing 4	Improve sustainable business practices in our supply chains	Tier 1 strategic suppliers assessed and compliant with Supplier Code of Conduct	% of Tier 1 strategic suppliers assessed in 2017/18	17%	100%
			% of these compliant with the code	76%	100%

Performance against all six of our sustainable business goals is detailed on pages 31 to 33 and 238

Supplier sustainability assessments 2018/19

Sustainable business topic of concern	Number of suppliers assessed for this concern	Number of new non-conformances identified in 2018/19	Total number of non-conformances open at 31st March 2019
Child labour	78	–	–
Forced labour	78	–	–
Wages and working hours	78	1	1
Discrimination	78	1	1
Freedom of association	78	–	–
Health and safety	78	27	31
Environmental	78	–	–
Anti-bribery and corruption	78	5	5

In 2018/19, we assessed 78 suppliers using a combination of desktop self-assessment questionnaires and formal on-site audits. The table above summarises the governance topics evaluated for each supplier and where non-conformances were identified. We have not identified any incidences of child labour or forced labour in our value chain.

Included in these were 13 strategic Tier 1 supplier assessments which contribute to our goal 4 target. Over the last three years we have assessed 17% of suppliers classified in this way. Of those assessed, 76% complied with the expectations of JM's Code of Conduct.

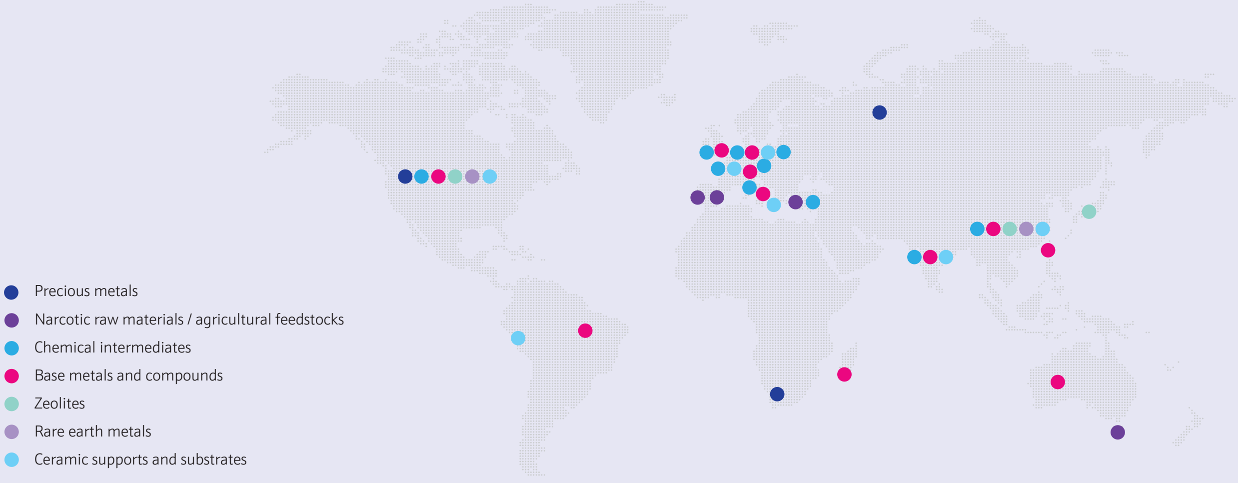
Human rights

We support the principles set out in the UN Universal Declaration of Human Rights and the International Labour Organisation Core Conventions, including the conventions on child labour, forced labour, non-discrimination, freedom of association and collective bargaining.

We also support the principles endorsed under the UN Global Compact and the UN Guiding Principles on Business and Human Rights (the 'Ruggie' Principles). We are working to embed them throughout our operations and whenever we enter into business in a new territory, make an acquisition or enter a joint venture. There were no human rights grievance reports made against Johnson Matthey during the year.

Where we source strategic raw materials

We procure goods and services globally and our supply chains are multi-tiered. Sourcing of strategic materials is a principal risk (see page 94) and monitoring and understanding the risk is challenging but essential. Some of our strategic raw materials are available from only a limited number of countries. The countries we rely on for these materials are highlighted in the map below.



Modern slavery

Research from the Walk Free Foundation shows that over 40 million people worldwide are trapped in some form of modern slavery, including forced labour. This is an important social issue and JM is proactively taking steps to ensure high ethical standards throughout our value chain, including through our sustainable business goal 4 on responsible sourcing.

The UK Modern Slavery Act 2015 requires certain UK companies to make an annual statement describing the steps they have taken during the year to ensure that slavery and human trafficking are not taking place, either in their businesses or their supply chains.

Our annual statement is posted on our website. Steps we are taking include public policies and codes (including our code of ethics and Supplier Code of Conduct), implementing an independent confidential 'speak up' line available to all stakeholders to report concerns and grievance and running our Supplier Sustainable Development Programme.

matthey.com/modern-slavery

Conflict minerals

The term 'conflict minerals' refers to tin, tungsten, tantalum and gold (3TG) which originate from the Democratic Republic of Congo (DRC) and surrounding countries, in particular from areas of military conflict where most mining is artisanal and linked to serious human rights abuses.

Our conflict minerals due diligence process is based on the Organization for Economic Co-operation and Development (OECD) Guidelines and includes keeping records that enable us to track the suppliers of all the raw materials we use and identify which smelter the conflict minerals came from. We are working towards being compliant with the new European Union Conflict Mineral Regulation, which was enacted in July 2017, ahead of the January 2021 deadline.

We aim only to use material from refiners and smelters which conform to the Responsible Minerals Assurance Process (RMAP) assessment protocols and are listed on the RMI (Responsible Minerals Initiative) database. We have identified 157 3TG smelters across all tiers of our supply chain and 97% are listed as conformant with the RMAP process, an increase of 8% on the previous year.

We also use our in-house database to respond to customer requests for information on conflict minerals in our products and to provide them with a tailored answer to any query they have. This year we have responded to 86 customer requests for information, an increase of 23% on the previous year.

matthey.com/conflict-minerals

Critical metals for battery materials

During the year we have broadened our due diligence activities in our minerals supply chains to include the active ingredients that go into our cathode materials for batteries: lithium, cobalt and nickel. At present, the DRC holds about 50% of the global reserves of cobalt.

Although there are some mining companies which are operating ethically in the country, there is a significant amount of illegal artisanal mining in uncontrolled conditions, leading to serious human rights abuses.

We are committed to using only cobalt, lithium and nickel that have been ethically sourced. We have worked with third party experts RCS Global to develop and implement a world leading due diligence programme which ensures that we have full transparency 'back to mine' for all the materials that contain lithium, cobalt and nickel that are going into our cathode products.

Our critical minerals supplier audit programme conforms to the standard laid out in the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (third edition) and provides assurance against the standards laid out in our Supplier Code of Conduct. All on site audits of JM suppliers for battery materials are completed by RCS Global to the ISO 19011 standard.

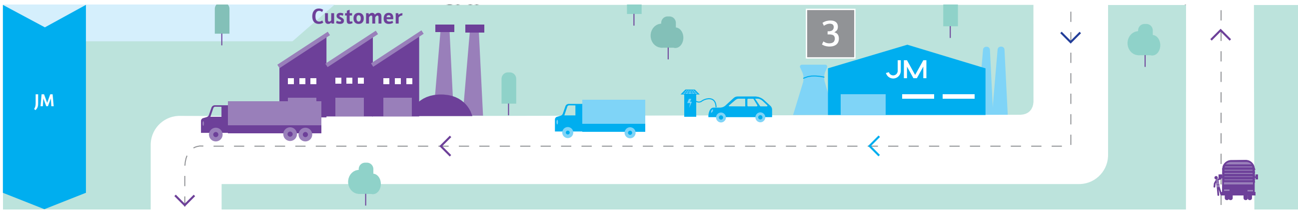
www.rcsglobal.com

Platinum group metals

We continue to monitor carefully our supply chains for platinum group metals (pgms). We work collaboratively with both our customers and peer pgm fabricator companies to ensure that our sourcing from mines in South Africa and elsewhere is ethical and responsible.

Operations continued

The heart of our value chain: JM's operations



Our own operations are at the centre of our value chain. It is here that we have the greatest control over our environmental impacts.

Pages 56 to 59 – our environmental performance

Manufacturing Excellence

In 2012, we put in place our Manufacturing Excellence programme to encourage a culture of continuous improvement to drive operational efficiency and reduce cost. During 2018/19, our production output of sold product increased by 7%. Despite this, we have also seen a 6% improvement in energy efficiency (36.4 GJ/tonne) and 10% improvement in water efficiency (18.6 m^3/tonne) across the group. Our waste efficiency (0.6 tonnes/tonnes of production output) worsened by 11% this year, mainly due to an increase in waste for one of our operations (see waste performance pages 58 and 59).

There are multiple separate goals within the overall Manufacturing Excellence programme. One of the many methodologies used to bring visibility to our operations is the adoption of a system of identifying new opportunities for improvement by hands-on scrutiny and review on the factory floor. These are called 'gemba' walks in Lean management, from a Japanese term, meaning 'the actual place'. The concept assists in collaboratively seeking out improvements.

We also run a recognition programme known as MEER – Manufacturing Excellence Efficiency Recognition – which makes awards to our highest performing sites at three levels: silver, gold and platinum. This past year, three manufacturing sites were awarded with silver MEER status (West Whiteland in the US, Clitheroe in the UK, Taloja in India) and two manufacturing sites were awarded gold status (Panki in India, Queretaro in Mexico). The Panki site met strict criteria within ten stringent improvement goals – a result of hard work by the team there, under the guidance of our Group Continuous Improvement team. 'Gemba' walks were a clear enabler of the improvements and Panki realised efficiency savings in excess of £1 million.

Training is also provided under the Manufacturing Excellence programme. Our global manufacturing leadership programme runs alongside ongoing training of manufacturing leaders to identify personnel who are ready for higher roles.

We are pleased with the results that Manufacturing Excellence is bringing. It is developing the next generation of operational leaders, sharing best practice and standardising tools and processes – in short, establishing our factories for the future.

2018/19

JM production output of sold product	7% increase vs 2017/18
Energy efficiency	6% improvement vs 2017/18
Water efficiency	10% improvement vs 2017/18
Waste efficiency	11% less efficient vs 2017/18

3

Low carbon operations

Goal 3 – one of our six goals for sustainable business to 2025 – concerns low carbon operation. Here our goal is to reduce our greenhouse gas emissions by 25% per unit of production output, an ambition that forms part of our approach to low carbon operations. We are achieving it through a combination of energy efficiency savings through our Manufacturing Excellence Programme and cost effective, low carbon electricity purchases by our Procurement function.

	Sustainable business goal	Sustainable business KPIs	Baseline	2018/19	2025 target
Low carbon operations 3	Reduce our greenhouse gas (GHG) emissions per unit of production output by 25%	Annual GHG emissions (Scope 1+2) / tonnes manufactured product sold	$CO_{2\,eq}$ emissions intensity for 2016/17	2.9	2.8

+ Performance against all six of our sustainable business goals is detailed on pages 31 to 33 and 238

Setting ourselves a greenhouse gas emissions target as a function of production output (intensity target), rather than as an absolute value, allows us to monitor any operational efficiency improvements while also growing our business.

Our target considered the operational plans in our strategy and was based on an assessment of potential installations and energy procurement opportunities across our manufacturing footprint. We will continue to review in the coming year.

Renewable energy

28% of the electricity we consumed during the year came from certified renewable energy sources for which JM has the associated Renewable Energy Certificates, saving us around 47,000 tonnes of GHG emissions, compared to purchasing grid average electricity in those countries.

During the year we have continued to negotiate additional renewable electricity contracts at key locations, to increase this percentage even more next year, in line with our goal 3 for 2025.

Since 1st April 2019, all our UK sites have been operating on renewable electricity. The energy source has a Renewable Energy Guarantee of Origin (REGO) certificate, the highest form of renewable energy validation.

We are now buying our electricity from Drax Power Station in Yorkshire which has the biggest renewable generator in the UK and is the largest decarbonisation project in Europe. It uses sustainable biomass from forests that absorb more carbon than is emitted when the biomass is burnt for power.

Safe use of substances and metals

We seek to replace 'high hazard' substances – chemicals with significant potential to harm human health or the environment – where safer and economic alternatives are available. When replacement is not possible, through detailed risk assessment backed by extensive data packages, we ensure robust risk management measures are identified and in place. If a true risk is identified, industry regulators could take action that effectively eliminates use of the substances in that market. We work actively with other companies to provide regulators with the best available information on industry practice such that any regulatory restrictions are evidence based.

Our policies, especially on new product innovation, emphasise the need to investigate whether safer alternatives are available.

We have set up a dedicated committee known as PARS (Prior Approval Required Substances) to review certain high hazard substances of relevance to JM in order to rate the risks in using them to develop new products. The committee has established its initial index of substances that need internal approval before they are used, and further substance nominations will be reviewed in the coming months. Approval to use, if given, will be time limited. We are driving a more considered evaluation of the justifications for use for these high hazard PARS substances and we will continue to embed our PARS approach in the coming year, with further PARS-related training being rolled out.

Many JM sites handle pgms. As part of our approach to responsible operations, we have provided significant input into a comprehensive user guide to pgms ('Safe Use of Platinum Group Metals in the Workplace', International Platinum Group Metals Association (IPA), 2017). The user guide provides practical advice on workplace monitoring, the medical surveillance of workers, control measures, training and regulatory controls.

The IPA guide is the most visible of our recent efforts in this area, but we continue to work with peer companies in trade associations and consortia to develop best practice on stewardship.

+ See more on our safety processes under 'Health and safety' pages 69 to 73

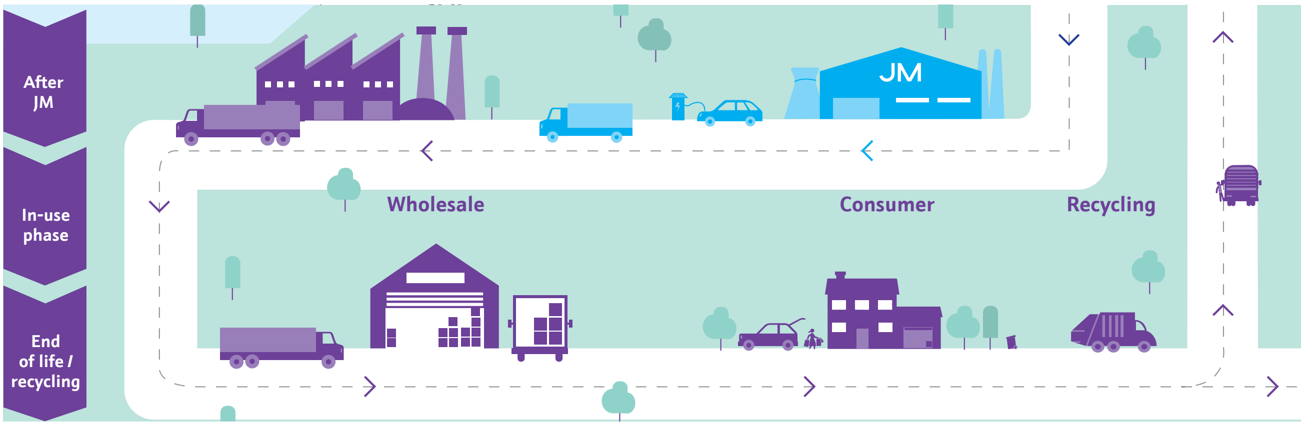
We use or manufacture only a very limited number of substances considered regulated[1], or of international concern[2]. As a proportion of our portfolio, approximately 5% of products consist of, or use in their production, such substances.

1 e.g. SVHCs under REACH, RoHS or California Prop 65 listed substances.

2 e.g. controlled by the Montreal Protocol, Stockholm and Rotterdam Conventions, GHS category 1A/1B carcinogens, mutagens or reprotoxins, etc.

Operations continued

After JM – Our value chain



Immediately downstream of our operations are our customers. We work closely and collaboratively with them to develop the products they need to go into their own manufacturing.

The products we sell to our customers often form an important part of the end product supplied to the user. For example, we supply catalytic coated substrate as a component for engine emission control systems for car manufacturers. The catalyst is incorporated into the catalytic converter in the exhaust system of a car which is bought by the end user who drives it. We do not manufacture the car, but we are concerned with the whole life of the catalyst until the end of its life, and beyond, e.g. to recovery of components for subsequent reuse. So our responsibilities extend far downstream of our own operations.

More broadly, JM, as a leading global recycler of pgms, has a significant role in the value chain of the global pgm industries. Our pgm recycling and refining operations process a wide range of pgm containing materials, including emission control catalysts at the end of a vehicle's life and other pgm containing catalysts and products.

Product stewardship and toxicology

This 'whole life' responsibility is what we call product lifecycle management, also known as product stewardship. We set ourselves high standards; our customers want to see evidence that we understand any hazards inherent in our products and that, through understanding their uses, we can, in turn, help them manage any consequent risks. Equally, our external stakeholders want assurance that the potential impacts – on the environment, our employees and downstream users – are well managed. Some stakeholders are starting to demand that chemical companies, like us, move towards safer chemistries.

We continue to strengthen our understanding of our toxicology and communicate the hazards of JM products to customers. At the same time, we use that knowledge to move us towards safer, more sustainable chemistries. We consider legal compliance simply as a minimum requirement, as legal developments may not have kept fully up to speed with the science as it develops. As we research and develop our products, we may be better placed than regulators to react quickly to new science and take the right decisions for people and the planet more rapidly.

Internally, our product lifecycle management supports our value of protecting people and the planet. More pragmatically, it is essential to our business that we identify and mitigate any risk to our portfolio. Our social licence to operate depends on our compliance with safety regulations and, of powerful importance, our voluntary stewardship of our products all the way down the value chain.

It is important we design-in green chemistries at the start of a product's life, and product stewardship is now better integrated into new product innovation. We are developing a groupwide product stewardship IT system to allow sites to manage inventory and know the properties of the materials they are handling. We plan to launch the new system during 2019/20.

We implement our product lifecycle management through well established systems to ensure the sound management of our products throughout their lifecycle. We have groupwide policies and guidance which align our approach with the global framework set by the Strategic Approach to International Chemicals Management (SAICM) to promote chemical safety around the world. The Strategic Approach, begun in 2006, is hosted by the UN Environment Programme.

We have procedures in place at group and sector level to identify regulatory obligations, both future and current, and create the documentation necessary to ensure compliance. Our internal committees assess hazard and exposure data to identify opportunities for risk reduction in our operations. Potential new products are assessed at an early stage of their development against safety and regulatory criteria, with higher hazard products being put through more detailed assessments. Finally, business compliance with lifecycle management policies forms part of our environment, health and safety (EHS) audit. We plan to create a separate audit process for product stewardship.

Product lifecycle regulatory compliance

We made good progress during 2018/19. We completed our 1 to 100 tonne per annum substance registrations for our operations in the EU in good time for the May 2018 deadline under the REACH requirements (the European Regulation on the registration, evaluation, authorisation and restriction of chemicals). We realise that one scenario of Brexit is a situation which could mean there is divergence of regulations. We would support the chemical industry in its case for regulatory consistency and continuity. Regardless of the political outcome, we would like to see a 'UK REACH' equivalence, with equal standards that would enable us to secure access to the EU marketplace. We will continue to monitor the changes to the regulations to ensure we maintain our compliance with the specific regulation.

We use a systematic product responsibility reporting scheme to monitor the performance of our operations and maintain surveillance of the company's products and services. In 2018/19, there were no notifications of significant end user health effects involving our products. We did not identify any non-compliance with regulations or voluntary codes concerning health and safety impacts of products and services or product and service information, labelling and marketing communications.

Policy on animal testing:
matthey.com/stewardship-testing

Third party intermediaries

JM uses third party intermediaries (TPIs) to support our business and our customers, and has policies and processes in place to manage the risks, especially in the area of bribery and corruption. During the year, we concluded our strategic review of all our high risk TPIs and reduced their number by 70%. The new standards, together with ongoing monitoring processes, have been firmly embedded in our sectors and a corresponding onboarding process will be undertaken for future TPIs. Our derisking activities are already bringing results and are hugely significant in protecting the reputation of JM.

Climate change disclosures and benchmarking

We disclose our environment, social and governance (ESG) performance through the Carbon Disclosure Project (CDP) climate change programme, which looks at risks and opportunities of climate from the world's largest companies on behalf of institutional investors.

matthey.com/cdp-investor

A changing global climate brings with it a number of risks and opportunities for JM, which we continually consider and review annually as part of our CDP disclosure. The most significant of these continues to be tightening clean air environmental legislation.

JM is also a signatory of L'Appel de Paris (the Paris Pledge for Action), committing us to play our part in delivering the agreement's ambition to limit global temperature rise to 2°C. Our sustainable business goal 3 supports this and through our science and technology we are enabling solutions to reduce greenhouse gases (see page 44).

Water is an essential resource, which is also impacted by climate change. The World Resources Institute reported in June 2016 that in the industrialised world, fresh water is becoming scarcer due to increased demand and higher pollution levels. Availability is often transient, dependent on changing weather patterns.

A reliable supply of fresh water is required by all our manufacturing sites and, often in considerably greater quantities, by our strategic suppliers. To examine our exposure, we periodically undertake water stress surveys of our business. We also report our principal water risk publicly through the annual CDP water survey.

matthey.com/cdp-water

In 2016 we conducted a survey using the World Business Council for Sustainable Development (WBCSD) Global Water Tool™ (version 1.3). Of the 66 principal sites surveyed, 15 were identified as being in regions of extreme water stress. Our water usage in most of these locations is very low. However, there are four where we are close to using the locally available freshwater supply per capita: Taloja, India; Yantai, China; New Mexico, USA; and Brimsdown, UK. We are using the data from the survey to prioritise water conservation projects for the sites that are at the greatest risk of an interruption to supply.

To this end, this year we have built a new, above-ground freshwater ring main at our Brimsdown facility in the UK to replace ageing pipework buried deep below the plant. It came into operation early in 2019 and we have already seen a significant decrease in water withdrawals at the plant, indicating there was leakage in the old pipework.

Our largest risk to water is in our supply chain, where we are exposed to industries that are significant water users, such as mining and agriculture. The next step is to gather the exact locations of our strategic suppliers' facilities and evaluate them with the WBCSD tool.

Environmental management

Environmental performance summary

	% change	2019	2018	% change
Goal 3: carbon footprint per mass sales	Tonnes CO_2 per tonne sales	**2.9**	3.4	-12
Operational carbon footprint (Scope 1 and 2 market method)	thousand tonnes CO_2 equivalent	**414**	445	-6
Energy consumption	thousands GJ	**5,144**	5,104	+1
Electricity consumption	thousands GJ	**2,170**	2,055	+6
Natural gas consumption	thousands GJ	**2,608**	2,722	-4
Total waste sent off site	tonnes	**84,824**	71,787	+18
Total hazardous waste sent off site[1]	tonnes	**57,087**	44,020	+30
Waste to landfill	tonnes	**3,886**	6,271	-38
Water withdrawal	thousands m^3	**2,630**	2,729	-4

[1] Excludes hazardous waste sent for beneficial reuse.

All percentages and ratios in this section are calculated on unrounded numbers.

Environmental management governance

We have group policies, processes and systems to provide the guiding principles necessary to ensure that high standards of environmental protection are achieved at all our sites.

The company provides environmental policies on areas including emissions to atmosphere, energy management, waste management, protection of waste water discharge systems and discharges to surface and ground water.

Regulatory requirements for environmental protection increase each year in the territories where JM operates. This year, as part of our internal governance programme, we have engaged third party consultants to undertake a number of comprehensive compliance reviews in North America and China.

In addition to these reviews, we have updated our corporate environmental standards in part to reflect the changing regulatory requirements and to tighten our internal environmental management standards across the group.

As an example, in addition to our legal requirements to engage with regulators this year, our UK pgm refining facility has invited inspectors from UK environmental agencies to visit more frequently to help drive continuous improvement. This has resulted in the implementation of a new waste tracking system to improve internal and external reporting of waste.

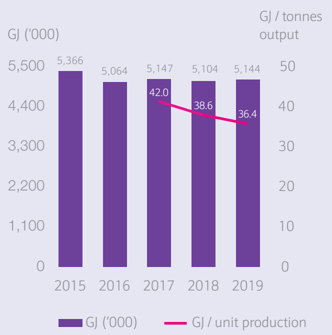
All our major manufacturing sites are required to maintain certification to the ISO 14001 environmental management system as a means of setting, maintaining and improving standards.

The group also requires new or acquired sites to achieve ISO 14001 certification within two years of beneficial operation or acquisition; 86% of sites are currently ISO 14001 compliant.

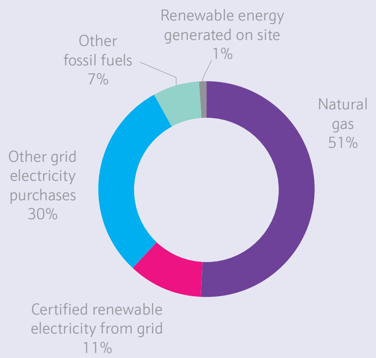
Going beyond this, 10% of our manufacturing sites are also ISO 50001 compliant. ISO 50001 builds on ISO 14001 and looks specifically at the development of energy management systems to systematically and continuously improve energy efficiency. Our manufacturing sites in North Macedonia, South Africa and our major sites in Germany have all achieved this standard.

Annually we undertake a comprehensive review of group environmental performance across all our manufacturing sites, R&D facilities and large offices that are under our financial control.

Energy consumption



Energy mix



Operational carbon footprint

During the year we have introduced a new software system across JM to collect and manage key environmental data. This will enable us to improve the quality of the information collected and increase visibility of performance on demand across JM so that we can take appropriate action to address any negative trends more quickly.

Energy consumption

Energy is a valuable resource on which we spent £64 million in 2018/19. We recorded a 1% absolute increase in energy usage within our facilities during the year but a 6% decrease in energy consumption per unit of production, partly through our focus on manufacturing excellence (see page 52).

Electricity usage across the group rose by 6% while gas usage declined by 4%. 1.2% of our electricity came from local solar power facilities that are not grid connected. In total, 28% (601,427 GJ) of the electricity we consumed during the year came from certified renewable energy sources for which JM owns the associated Renewable Energy Certificates.

Our electricity consumption increased principally because the combined heat and power (CHP) plants which we use to generate electricity to power our facilities in Royston and Brimsdown, UK were out of service during the year. These CHP plants underwent a significant efficiency upgrade and are expected to return to operation in early 2019/20. This should substantially reduce energy costs but may have a negative impact on our operational carbon footprint.

3

Greenhouse gas emissions

Our headline environmental KPI is a measure of our operational carbon footprint. In 2017 we set ourselves the target of reducing our Scope 1 and 2 carbon footprint by 25% per unit of sold manufactured product by 2025 (goal 3).

We have enthusiastically embraced this challenge, and our successes in procuring low carbon electricity to power our plants have enabled us to achieve 93% of target after two years.

We report greenhouse gas emissions from our manufacturing processes and energy usage in accordance with the 2015 revision of the Greenhouse Gas Protocol (www.ghgprotocol.org) dual reporting methodology. Our total operational carbon footprint is based on:

- Scope 1 emissions – generated by the direct burning of fuel (predominantly natural gas) and process derived greenhouse gas emissions (CO_2, N_2O, CH_4 and refrigerants).
- Scope 2 emissions – generated from grid electricity and steam use at our facilities.

Competitive electricity markets for the supply of grid electricity are operational at 78% of our sites and at 67% of these sites, the carbon intensity of electricity we purchased was lower than the national or regional average. 21% of our sites, responsible for 39% of all our grid electricity purchases, are purchasing zero carbon grid electricity.

Thus, our Scope 2 carbon footprint calculated by the market method is 10% lower than that calculated by the location based method.

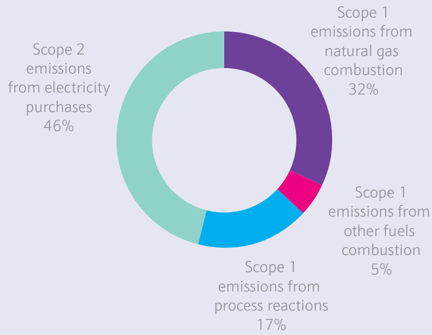
Our Scope 1 and 2 carbon footprint calculated by the market method decreased by 6% in 2018/19 whereas our carbon footprint calculated using the location method reduced by 1%. This was mostly a result of our sites in the Philadelphia area switching to a zero carbon electricity contract from April 2018. As of April 2019, all of our UK sites are operating on renewable electricity, so we are expecting the differential between our carbon footprints calculated by the two methods to increase next year. Our focus on procuring electricity derived from renewable sources (page 53) means that for the first time our Scope 1 carbon footprint is higher than our Scope 2 carbon footprint.

Emissions to air

Emissions from our operations are typically licensed by local regulations and are generated from a number of sources including combustion processes, materials handling and chemical reactions. All licenced sites monitor emissions to ensure compliance with local regulations and set their own absolute targets aimed at reducing significant emissions as part of their local environment, health and safety improvement plans.

Operational carbon footprint

	2019 thousand tonnes CO_2 equivalent	2019 % of total carbon footprint	2018 thousand tonnes CO_2 equivalent	2018 % of total carbon footprint
Scope 1	224	54%	215	48%
Scope 2 (market based method)	191	46%	230	52%
Scope 2 (location based method)	272	55%	279	56%
Scope 3 (from electricity transmission and distribution)	22	n/a	20	n/a
Total operational carbon footprint (Scope 1 and 2 market based method)	**414**	**100%**	**445**	**100%**
Total operational carbon footprint (Scope 1 and 2 location based method)	**496**	**100%**	**494**	**100%**



Environmental management continued

We continue to look for ways to reduce the emissions to air from our manufacturing activities. In China we began operating equipment to prevent volatile organic compounds (VOCs) emissions from our Shanghai, China sites. At our Health Sector facility in West Deptford, USA we implemented a project to replace the existing air abatement equipment with more modern and more reliable equipment. The investment has led to better control of local air emissions.

In 2018/19, our reported NOx ($NO + NO_2$) emissions were 538 tonnes, up 41% on the previous year due to increased production in our Catalyst Technologies business.

Our total SO_2 emissions increased by 39% to 62 tonnes due to one of our large manufacturing sites reporting emissions for the first time.

Our emissions of VOCs remained broadly flat at 101 tonnes.

Our emissions to air data covers 56% of our manufacturing sites and engine test facilities. Within these numbers, we believe we have captured the majority of emissions across the group but will be working to increase coverage of our emissions to air reporting over the coming year to confirm this.

		2019	2018	% change
NOx	tonnes	**538**	383	+41
SOx	tonnes	**62**	44	+39
VOCs	tonnes	**101**	100	+2

Waste disposal

We disposed of 84,824 tonnes of waste via third parties in 2018/19, an increase of 18% on the previous year. Over half of this (54%) is waste from our UK pgm refinery, largely liquid hazardous waste. This waste material is designated as hazardous due to its corrosive nature. It currently cannot be treated by our on site effluent treatment plant. The increase is due to the rerouting of additional refining effluent waste stream to tankered waste due to increased levels of metal contamination.

Of the total waste sent off site for treatment, 34% was sent for reuse or recycling. Excluding waste from our UK pgm refinery, almost 60% of our waste was reused or recycled off site.

Our total waste sent to landfill this year decreased by 38%. We now have only one plant (based in the USA) which has a significant waste stream which is being sent to landfill; we continue to investigate alternative means to treat and dispose of this material.

70% (57,087 tonnes) of our total waste sent off site was classified as hazardous waste. 94% of our hazardous waste is liquid waste and over half of it comes from our pgm refinery in the UK.

Only 3,185 tonnes (6%) of our hazardous waste is solid material that is not reused after it has been sent off site. 1,668 tonnes of our hazardous waste was shipped internationally for disposal, 3% of all our hazardous waste.

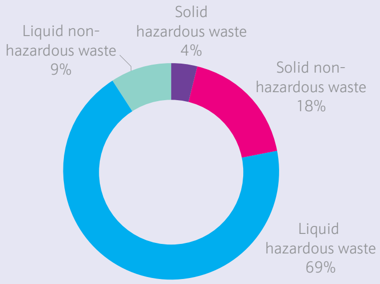
We also incinerated 3,642 tonnes of waste within our own facilities, principally waste sent to our refineries for precious metal recovery.

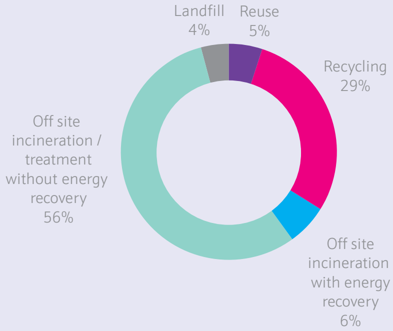
Water withdrawal

Water withdrawal decreased this year to 2.6 million m^3, a 10% decrease relative to production output. 92% was supplied by local municipal water authorities, 6% was abstracted from ground water and 2% was abstracted from fresh surface water.

50% of our manufacturing sites operate their own waste water treatment facilities treating 1.2 million m^3 of waste water per year, no change since last year. 19% of the water treated on site is recycled back into our processes rather than being discharged as effluent, reducing the sites' water demand. Our Clitheroe, UK site is leading our initiatives, recycling 54% of its water treated on site.

Total waste disposed of by third parties





Our total effluent increased by 5% to 1.7 million m^3 in 2018/19 due to increase in reported effluent at Clitheroe. 86% of our total effluent was discharged to local authority sewers after treatment and in accordance with local discharge consent agreements. The remainder was discharged to surface water courses after treatment and within quality limits set by local water authorities.

Our net freshwater consumption (water withdrawn that is not returned directly to the environment for reuse at least as clean as it was when it was withdrawn) was 2.36 million m^3, a 6% decrease on last year. More information is available on our website in our CDP disclosure.

matthey.com/cdp-water

The chemical oxygen demand (COD) test is commonly used to indirectly measure the amount of organic compounds in water and is a useful measure of water quality. In 2018/19 the group discharged organic chemicals equivalent to an average COD of 171 mg/L into water courses, as regulated by local emission limits at each manufacturing facility, a decrease of 9% on the previous year.

This average COD was calculated from readings collected at sites representing 79% of our total water discharged, a 22% increase in coverage on last year. Some of our sites use a different measure of water quality which cannot be translated directly to a COD calculation and are therefore not included in this measurement.

This year we have installed new waste water treatment at our Shanghai, China sites. Mechanical vapour recompression systems have been installed to reduce the salt content and eliminate chloride ions in the sites' waste water. A similar system is being considered at the Taloja site in India. A comprehensive waste water monitoring system has been installed at the Taloja site to keep track of its waste water discharge to the common treatment plant of the industrial zone where the site operates. The system provides continuous monitoring and is linked to the local environment regulator for its monitoring of the discharge trade effluent quality.

Environmental incidents

JM has a robust and effective management system that requires all sites to report environmental incidents to our Group Environment, Health and Safety department. All spills that occur on unmade ground or near drinking water sources are classified as significant.

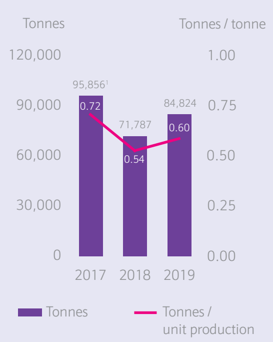
During 2018/19 we received one fine due to power outages at our precious metal refinery in West Deptford, USA. It was determined that our process air emission abatement plants were not operating correctly during power outages at the site and this resulted in excess air emissions. A fine of US $60,000 (approximately £46,000) was issued by the local regulator.

There was one significant spill during the year. A fault in the fire detection system at our Health Sector's West Deptford facility resulted in the site's fire water and foam deluge system activating. The system contained approximately 25,000 gallons of water and foam of which most was retained in the storm water pad. A small amount of the material was not contained and approximately 20 gallons of the foam and water mixture made its way into a local creek. The incident was voluntarily reported to the local regulator. No action was taken by the regulator in this case.

Environmental spills

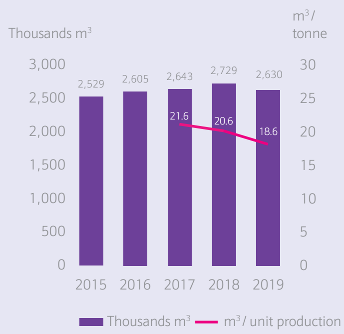
Location	Volume (litres)	Material	Impact
West Deptford, USA	100	Chemicals	Under investigation

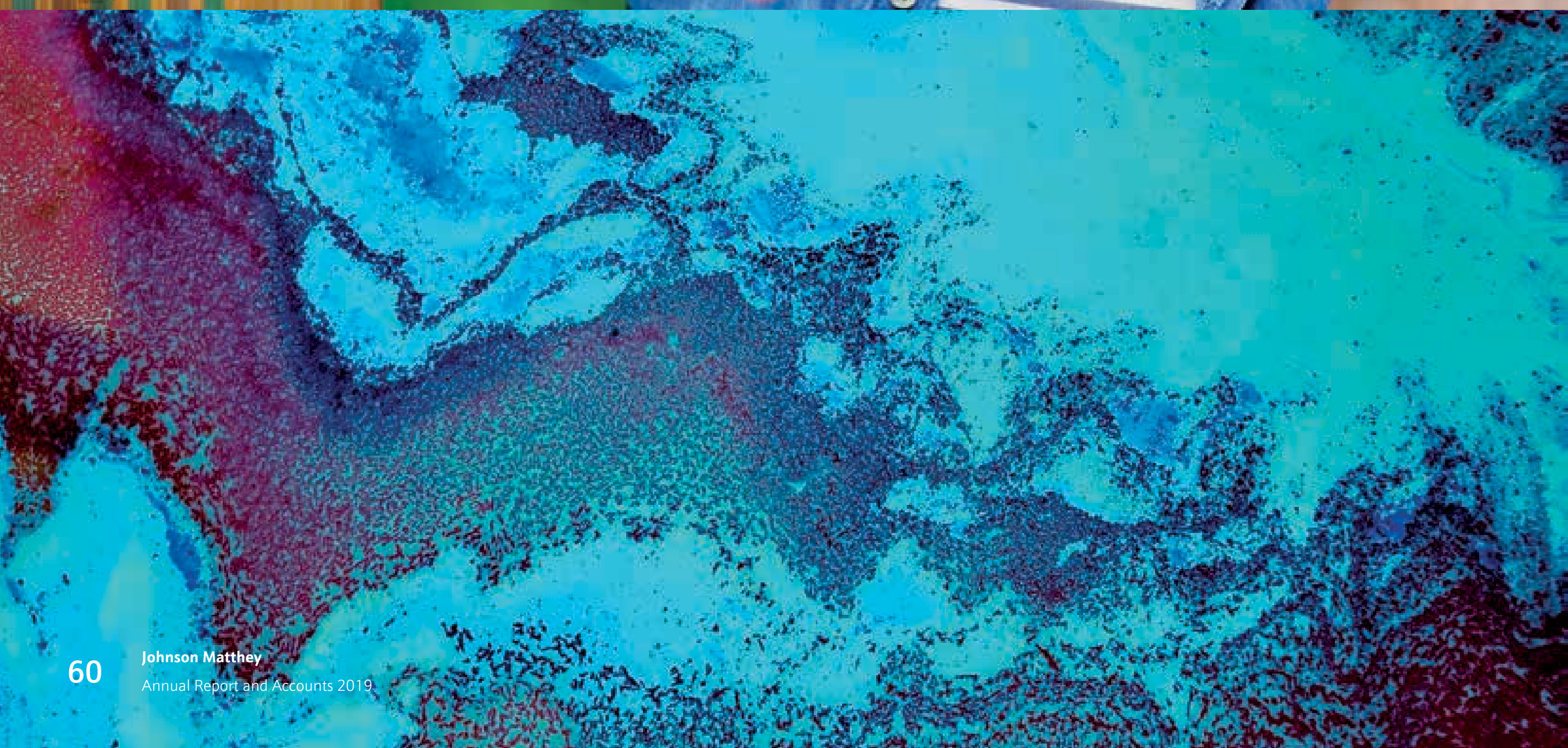
Total waste



[1] Includes 17,682 tonnes of uncontaminated soil from a construction project in Redwitz, Germany which was classified as non-hazardous waste to landfill under local law.

Water withdrawal





Our people are at the heart of JM's business strategy. For us to deliver solutions from our world class science and realise our vision, we are creating a culture in which people can be successful; one which attracts, retains and develops the very best talent

People

Sustainable business goals

Health and safety	Our people	Community engagement
1	2	6

Market, economic and technological trends, and what these are demanding of JM, are having a significant impact on the people agenda, and for this reason it is a strategic pillar to which all organisation objectives are aligned.

A culture for success

The environment we create through our values is fundamental to the success of our organisation. They shape how people behave with each other, with our customers and with our other stakeholders. Our values drive individual and collective actions that help create a safe working environment and an ethical, diverse and inclusive organisation. When successfully embedded and lived, they determine the kind of company that JM is to work for.

Our values are aligned to the needs of our long term strategy and we are embedding them into all our people processes. We define our values as:

- Protecting people and the planet.
- Acting with integrity.
- Working together.
- Innovating and improving.
- Owning what we do.

Our culture at JM sets safety, wellbeing, inclusion and collaboration as priorities, using our diversity as a strength and challenging ourselves to be open, efficient, ethical and personally responsible. With this culture, we are well placed to deliver on our vision to make the world a cleaner, healthier place and solve the complex problems of our customers – it is a culture for success.

Our values

Protecting people and the planet	Acting with integrity	Working together	Innovating and improving	Owning what we do
We practice the **highest standards of health and safety, promote wellbeing** for people both inside and outside of work, and seek **to safeguard our planet**.	We **do the right thing**, for people and for the world. We **do what we say we'll do**, expect the same of each other and **speak up when there's a problem**. We place importance on relationships internally and externally, **treating others with respect and care**.	We **encourage collaboration inside JM and out**, sharing and **embracing diverse viewpoints**. We tackle problems together, put our ideas into practice and **take pride in combining our contributions** to create something better for JM and our customers.	We adapt and **embrace new ideas** to make us stronger and our world cleaner and healthier. We are **confident and resilient through change; growing and developing ourselves and JM**, to ensure we are a **leader** in our chosen markets.	We **take accountability** for our own work, and know we are also part of something bigger. We **take the initiative, seek clarity and demand high standards** from ourselves and our colleagues.

People continued

A great place to work

Executing our strategy needs a workforce that is highly engaged, diverse and inclusive with the best talent across our global organisation.

We want our people to feel that JM is a great place to work, where working safely is a priority, where diversity is valued, and working together is very much encouraged, all within an environment that promotes growth and development.

We enable this with a people strategy and key aims which define an aligned set of global processes, programmes and systems that support our people to fully engage with the business priorities through which we execute our strategy.

These key aims are to:

- Attract and retain the best talent.
- Develop all employees to deliver high levels of performance and achieve their career potential.
- Create an environment where our employees are recognised and rewarded for their overall contributions to JM.
- Foster a culture where values matter and guide people to do the right things.
- Support employees through an evolution of change and transformation.

We are implementing progressive, global people policies and practices that will help us realise our vision. We offer excellent opportunities that enable people to fully develop and realise their potential with JM, through contributing to a more sustainable future, while having a meaningful career.

Our people policies meet local statutory requirements and we often go beyond them to recognise best practice. Our policies and procedures are a combination of global, country and some site specific. When staff are inducted into JM, we fully explain those that are relevant to them. We review our people policies and risks in accordance with our governance framework, with the board being responsible for overseeing the overall people strategy. The Nomination Committee oversees talent and succession plans, and decisions. The Remuneration Committee is responsible for overseeing and ensuring the Remuneration Policy is adhered to.

Attracting and retaining the best

Talent is critical to enable us to maintain our world class science and leading market positions. Our headcount has increased over the last year, reflecting the growth in our business. In our more established locations we have remained stable. The increases have been in India, North Macedonia and Poland.

Levels of recruitment have increased, driven by business growth in some regions (as detailed above) and the need to build capability in certain functions such as IT and Information Security, Procurement and Finance to support our transformation programmes. In 2018/19, the total number of internal appointments and promotions increased from 595 to 874. This reflects a deliberate attempt to maximise opportunities for our current employees by offering them further career development opportunities. We have been successful in attracting women into JM; the percentage of female hires is above our overall company total of 27%. Currently, a lower proportion of women in JM overall occupy science, technology and engineering roles. We aim to address that through our diversity and inclusion aspirations and roadmap to 2025 (pages 65 and 66).

At the same time as hiring for immediate business requirements, we are also investing in our future talent pipeline. Following the successful launch of our global graduate rotational programme last year, we are continuing to hire graduates into science, operations and commercial disciplines. A new cohort of 37 graduates are set to join JM in the UK, US and China in this cycle. Of this group, 58% are female compared with 39% in the previous year. Our female graduate diversity compares very favourably with other chemical and engineering companies. The number of females choosing to study STEM subjects at university undergraduate level remains low. Although this is a challenge for us, we are increasing our efforts to position JM as an employer of choice.

Overall voluntary attrition has increased slightly this year compared with last. This is partly due to the highly competitive new markets we are operating in and the changes we are experiencing. We have also seen an increase in the numbers of people leaving us in their first two years. We are addressing this through our work to define our employee promise and our broader investments in our people processes. These are all focused on ensuring we can attract and retain the skills we need to deliver our business strategy.

There have been a small number of restructuring programmes across the business and this, coupled with retirements in the year, takes our total employee turnover to 13.2%.

Employee promise

We have a compelling case to sell as an employer. We are developing our employee promise that will help us attract and retain the very best talent. It will make the most of our unique purpose and provide more clarity for employees on what they can expect from JM as an employer and what we expect from them in return. The employee promise will be launched in the coming year and will emphasise themes such as personal autonomy, collaboration and purpose. We have engaged our existing workforce in the creation of our employee promise through workshops that have been held globally as well as using insight from the external recruitment market.

Reward and recognition

We continue to work hard to ensure that our reward and benefit packages are competitively aligned with local markets. We have refreshed our online benefits portal 'Elements' and this is now available to all employees globally.

Internal and external research is showing us that employee recognition can significantly improve engagement and promote innovation.

We celebrate our achievements with the annual JM global awards. They highlight activities that provide inspiring evidence of our values and how our employees are living them. This year we presented eight awards including the Chief Executive's Award for Outstanding Contribution (see pages 74 and 75). The awards were announced at the Natural History Museum in London in January 2019.

A formal event and prestigious venue are not in themselves essential to recognition. We are also piloting a more informal 'Say thanks' programme, which enables employees to give and share recognition. The 'Say thanks' tools include a recognition portal, e-cards and awards that can be redeemed in the form of small gifts.

Number of staff* as at 31st March

	2018				2019			
	Permanent employees	Temporary employees	Agency employees	Total	**Permanent employees**	**Temporary employees**	**Agency employees**	**Total**
Europe	6,460	342	926	7,728	**6,714**	**397**	**1,185**	**8,296**
North America	3,028	20	92	3,140	**3,105**	**13**	**51**	**3,169**
Asia	2,236	32	330	2,598	**2,376**	**73**	**159**	**2,608**
Rest of World	595	2	67	664	**662**	**59**	**1**	**722**
Total group	12,319	396	1,415	14,130	**12,857**	**542**	**1,396**	**14,795**

* For definitions, see page 234

New joiners by gender and age

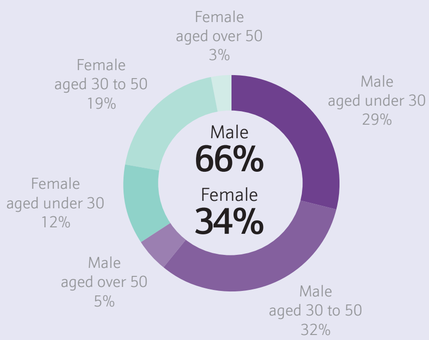
	Male				Female				Aged under 30	Aged 30 to 50	Aged over 50	
	Aged under 30	Aged 30 to 50	Aged over 50	Total	Aged under 30	Aged 30 to 50	Aged over 50	Total	Total	Total	Total	Total new joiners
2018	456	509	92	1,057	184	270	38	492	640	779	130	1,549
2019	**696**	**777**	**135**	**1,608**	**293**	**446**	**77**	**816**	**989**	**1,223**	**212**	**2,424**

Employee turnover by region

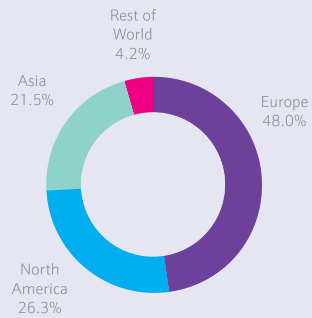
	2018			2019		
	Voluntary leavers	Voluntary employee turnover %	Total employee turnover %	**Voluntary leavers**	**Voluntary employee turnover %**	**Total employee turnover %**
Europe	526	7.9%	10.8%	**597**	**8.7%**	**10.7%**
North America	330	10.8%	15.1%	**382**	**12.5%**	**18.3%**
Asia	233	11.6%	17.4%	**312**	**13.1%**	**14.7%**
Rest of World	29	4.9%	8.1%	**55**	**8.4%**	**9.8%**
Total group	1,118	9.1%	12.8%	**1,346**	**10.4%**	**13.2%**

Of the total voluntary leavers, 669 (54%) had less than two years' service (2018: 471, 42%)

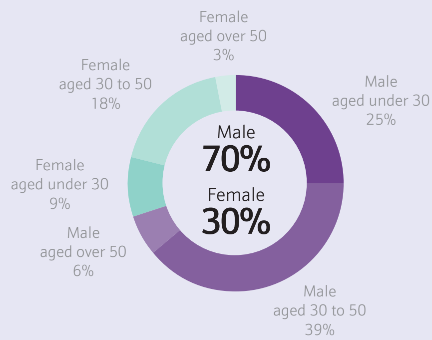
New employees in 2018/19 by gender and age



New employees by region



Voluntary employee turnover in 2018/19 by gender and age



People continued

Talent management

We have refreshed our approach to talent management to better define the talent pools we need for future business requirements and to support our people in reaching their full potential, whether that is in specialist or management disciplines. This approach to reviewing our talent and supporting people's development is fundamental in enabling us to understand what talent we have, what we need for the future and how we address capability gaps.

We are prioritising the importance of our performance and development conversations in JM. We have already streamlined our performance management and development processes into one global approach. We are monitoring the number of performance discussions through our management grade population to evaluate the effectiveness of this process.

2

Employee engagement

In a period of change, it is especially important to know whether our employees are engaged as we continue to evolve as an organisation. Every two years we conduct an employee survey, known as yourSay, and we welcome employee feedback and insights. The results of our 2018 survey provided rich data, confirmed our achievements and highlighted areas where we still have more work to do.

There were variations across our four business sectors and functions and analysis of the data has allowed us to create new action plans to respond to the findings and continue to shape future efforts to support our goal of making JM the place to work.

The scores on employee understanding of our strategy have risen – showing that we have responded well to calls in 2016 for better clarity and communication. Our efforts on these priority areas were recognised and we are continuing to make improvements. The results for health and safety and ethics were once again higher than the industry norms, and our work-life balance score has also improved.

However, the 'employee engagement' measure – indicating how committed and motivated our people are – has dropped by three percentage points since 2016 from 62% to 59%. Our 'employee enablement' score – showing whether people feel they have the right resources, support and work environment to perform at their best – was flat at 63%. These scores are unsurprising, given the fundamental changes we are making across all aspects of JM, and the survey results have enabled us to chart a course for improvement.

Employee engagement is a group non-financial KPI and is one of our sustainable business goals. In 2019 we will conduct an interim pulse employee survey aligned to the key drivers of engagement and enablement in JM.

Our aim is to improve our scores for engagement and enablement by two percentage points as a result of the targeted actions in response to employees' feedback in the 2018 survey.

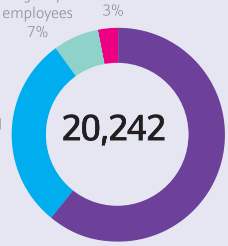
Training and career development

We continue to invest in resources and programmes to develop capability and leadership so that we support all employee groups in being able to fully realise their career aspirations with us and perform at the highest levels. Career development was highlighted as an important theme in our 2018 employee survey.

Our Aspire leadership development programmes, launched in 2018, represent JM's ambition to develop all levels of leaders to be great coaches and role models, which will help to drive the business performance and growth that will deliver our vision and strategy. The programmes align and interconnect and, to date, we have launched programmes for our mid level and executive level leaders. During 2019, we aim to launch our senior leader programme and will pilot a new programme for first time leaders.

We launched the R&D career path earlier this year to further develop our technical capabilities and to support people in this function to achieve their potential and career goals. We are building a sales academy to strengthen our commercial capability. In addition, we are investing in the capability of our line managers so they can have better development and career conversations with their employees.

Average full time equivalent workers* on JM sites during 2018/19



* For definitions, see page 234.

Gender of people employed by employment type

As at 31st March 2019	Full time % Male	Full time % Female	Part time % Male	Part time % Female
Europe	72%	28%	22%	78%
North America	77%	23%	46%	54%
Asia	82%	18%	10%	90%
Rest of World	66%	34%	51%	49%
Total group	**75%**	**25%**	**28%**	**72%**

Percentage of people employed by gender

As at 31st March 2019	% Male	% Female
Europe	69%	31%
North America	77%	23%
Asia	82%	18%
Rest of World	65%	35%
Total group	**73%**	**27%**

We also launched two new digital e-learning platforms in 2018 called 'myCareer' and 'iLearn'. These provide our employees with on demand learning tools, materials and resources that are focused on general business skills, career and leadership development. The platforms can be accessed anywhere, anytime, allowing employees to continuously learn and take more active ownership of their development.

Embedding our values and protecting our culture

Research from GreenBiz and other organisations shows that people may want to work for companies with sustainability credentials. On this, JM offers a compelling proposition. We emphasise this in our values, particularly that of protecting people and the planet, and we show that in being part of JM, our workforce is making a real difference to the world.

In the past year, we have been engaging our workforce in our values and how we embed them in our everyday behaviours. We held 27 workshops at 18 of our sites. The workshops revealed a strong sense of purpose around our vision but also revealed that there is more to do to really create a culture within which people can be successful and feel engaged.

Taking this on board, we created a values toolkit for managers to help them communicate our values to their teams and create a momentum in applying them day to day – in other words, using the values to guide the behaviours we want to see employees now practising.

Together, our values and employee behaviours create our distinctive corporate culture. We have also embedded values into our performance management process to ensure we are rewarding and recognising our role models and we will continue to embed them across all our people processes in 2019/20.

2

Diversity and inclusion (D&I)

Our values are critical to creating a diverse, inclusive and safe environment. In line with our Equal Opportunities Policy, we recruit, train and develop employees who are the best suited to the requirements of the job role, regardless of gender, ethnic origin, age, religion or belief, marriage or civil partnership, pregnancy or maternity, sexual orientation, gender identity or disability.

People with disabilities can often be denied a fair chance at work because of misconceptions about their capabilities, and we work to enhance their opportunities by attempting, wherever possible, to overcome the obstacles. This might mean modifying equipment, restructuring jobs or improving access to premises, provided such action does not compromise health and safety standards. This is set out in our policy, which extends to employees who have become disabled during their employment and who will be offered employment opportunities consistent with their capabilities. We would also look to make reasonable adjustments for new recruits.

There is significant research that demonstrates the impact an effective D&I strategy can have on business performance. In JM, D&I is integral to the very essence of who we are. Our unique vision means that D&I needs to be at the bedrock of our culture.

We have made progress on this agenda; as part of our sustainable business framework, we have set a goal to foster a truly inclusive culture by 2025; we offer a range of D&I programmes to raise awareness and help educate our people; our revised talent processes provide a foundation for D&I; and we have been successful in attracting female candidates into JM as outlined on page 62.

However, clearer outcomes and better coordination is needed to fully embed this agenda and keep pace with other quality organisations. With this we have refreshed our ambition:

'D&I forms the core foundation of who we are in Johnson Matthey and our vision for a world that's cleaner and healthier; today and for future generations. D&I enables our innovation and agility because of the value we place on diversity of all kinds. Our leadership team enables strong business performance because they empower and engage their teams by role modelling inclusion in their everyday conversations. Our shareholders and customers trust us because our rich diversity is a hallmark of a sustainable, well run business.'

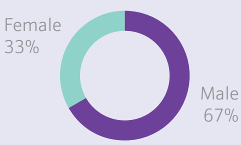
Gender diversity statistics

The table below shows the gender breakdown of the group's employees as at 31st March 2019.

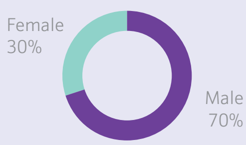
As at 31st March 2019	Male	Female	Total
Board	6	3	9
GMC	7	3	10
Subsidiary directors	108	10	118
Senior managers*	48	16	64
New recruits	1,608	816	2,424
Total group	**9,797**	**3,602**	**13,399**

* Senior managers is defined as the direct reports of the GMC. Some individuals are included in more than one category.

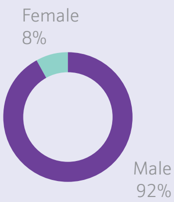
Board



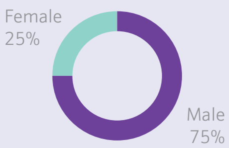
GMC



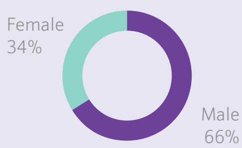
Subsidiary directors



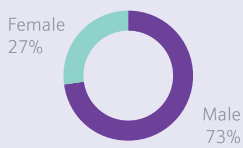
Senior managers*



New recruits



Total group



People continued

'Our reputation for an environment where difference matters means as an employer, we stand out from the crowd and attract a broad talent pool. Integral to our culture are two fundamental beliefs that all differences matter and that all people are valued. Our integrity is a direct result of ensuring that all voices, however quiet, are heard. In JM everyone thrives and brings their full-self to work'.

We have created a refreshed roadmap to execute our ambition from which objectives will be cascaded and monitored via business reviews. This roadmap outlines the outcomes we will achieve over a three year period and specific actions we will take to build awareness, create more diversity and embed a culture of inclusion.

To better measure our progress against our sustainable business goal, we have introduced a target based upon the Refinitiv Diversity & Inclusion Index. This internationally recognised standard is very comprehensive and helps us benchmark against the full range of activities within our D&I agenda. The methodology can be downloaded at:

https://www.refinitiv.com/en/financial-data/indices/diversity-and-inclusion-index

We are looking to improve our overall score, from a 2017/18 baseline, by 40% by 2025. Based on today's rankings that would place JM in the top 100 companies globally.

Task force and employee resource groups

We have a D&I task force made up of volunteers from around the world who act as a sounding board and forum through which we engage the wider organisation. We also have four employee resource groups.

Pride in JM launched in October 2017 to support LGBT+ employees and allies. Good progress has been made over the last year, with a global committee set up and a local chapter in Devon, US being developed.

The Black Employee Network followed in December 2018, with the aims of promoting JM as a diverse employer and improving the recruitment, retention and development of black employees at JM.

Supporting UN Sustainable Development Goal 5 on gender equality, a Gender Equality Network launched in March 2019 to advance gender balance in JM. The group is seeking a greater balance of male and female employees across all roles (including leadership and manufacturing), and the appropriate facilities for working mothers.

Most recently, in May 2019, our DiversAbility employee resource group was launched to support people in JM who have physical, mental and social health conditions and help the company to maximise the use of their talents.

Gender pay gap

In March 2019, we published our second gender pay gap report, covering UK employees. Our UK gender pay gap has narrowed from 9.2% to 8.5% and we continue to be well placed when compared with the national average gender pay gap of 17.9%.

Our gender pay gap is largely down to female under-representation and the gender split in our different functions – we have fewer women than men in our science, technology and engineering jobs. This, in turn, reflects a gender bias in university education; only 24% of UK graduates studying science, technology, engineering and maths (STEM) subjects are women. Our manufacturing jobs, often with a shift allowance, are also dominated by men.

As at 31st March 2019, women represent 27% of UK employees (25% of senior management and 33% of the board). We are taking steps to tackle the root causes of gender imbalance, the pay gap and female under-representation through our D&I and talent action plans.

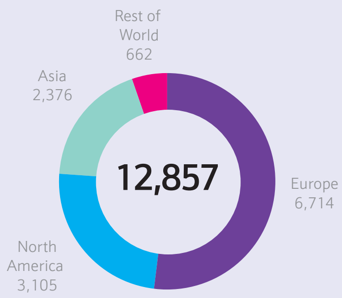
Our efforts were recognised in a report by independent consultancy Equileap in 2018, which ranked JM at number 75 in a listing of top performing companies. Over 3,000 public companies were researched and ranked, with scores based on a wide variety of factors. It was a significant achievement to have performed so well against thousands of other companies, but the report has also reminded us of the work still to be done.

matthey.com/gender-pay-18

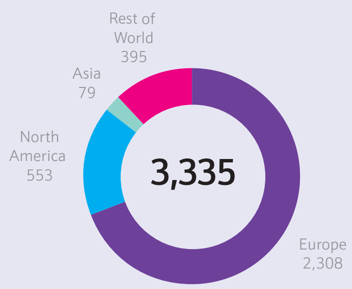
Trade union representation

26% of our employees (2017/18: 26%) belong to a recognised trade union. We have positive and constructive relations with all the recognised trade unions that collectively represent our employees. The following table sets out the average number and percentage of employees who were covered by collective bargaining arrangements and represented by trade unions by geographical region in 2018/19.

Permanent employees



Represented



% Represented

	% represented
Europe	34%
North America	18%
Asia	3%
Rest of World	60%
Total group	**26%**

6

Volunteering and STEM – connecting with our communities for social impact

If more girls chose to study science at university, the female talent pool would grow and with it, female representation in companies like our own. Through our school and university outreach activities, we are encouraging girls to think about a career in STEM areas.

Volunteering has a part to play here and JM employees are entitled to two days of paid volunteering leave a year. There is a pipeline of scientific talent in JM which this year we have used to greater effect through volunteering in schools. 235 days were dedicated by our employees to inspire young people in science careers; 60 employees alone from our North of England sites supported over 700 students to improve their understanding of, and interest in, science.

Volunteering leave can be spent in many other ways and, supported by our refreshed global volunteering policy, this year our employees volunteered a total of 1,116 days around the world – a 65% increase from last year – and we are working to improve even further so we can achieve our sustainable business goal to donate a cumulative 50,000 volunteer days by 2025.

But encouraging our employees to use their volunteering entitlement is just one part of our community engagement. The history of our community investment shows an abiding and consistent desire to do good, and this will never change.

We have donated money through partnerships, and company time through volunteering. We have given back to our communities because it's the right thing to do.

During 2018/19 a global team has formed to create a new strategic framework for social investment at JM with a clear and distinct aim; to create global impact through science education.

In our ambition to improve access to a quality science education for all, we are looking at the many reasons for low uptake of STEM subjects. They include gender inequality, distance from school and negative perceptions of what a career in science can offer. Another issue is quality of STEM teaching, which may arise from out of date learning materials, inadequate science equipment and a lack of science education standards. Our new strategic framework will help enable us to tackle both the barriers to access and inclusion and the barriers to quality STEM education.

The passion of our people remains the foothold of our success and JM is proud to have matched almost £80,000 raised by our employees this year – our best ever match giving performance and almost double last year's figure. Mountains were climbed and marathons run; one employee completed a parachute jump and another zip-lined over the river Clyde in Scotland. The personal goals achieved by our employees this year have been a driving inspiration behind JM's new social impact ambition. Our direct company donations in 2018/19 were £840,000, up 24% on last year. Including employee volunteering time, our total community investment in 2018/19 was £1.1 million (2017/18: £0.83 million).

We believe that science education is a catalyst for a cleaner, healthier world. With our sustainable business goal on volunteering in place, embedded in a strategic framework and powered by our people's drive to deliver solutions, we have a clear direction ahead of us. Working together across our sites globally, we aim to be actively implementing our framework midway through 2019/20, exploring new ways of protecting this planet, and continuing our history of finding solutions to some of the world's greatest challenges.

Community investment summary

	Investment in 2018/19 £'000	Investment in 2017/18 £'000	% change
Direct expenditure	**840**	**680**	+24
Corporate donations to charities	331	300	+10
Donations by sites to local charities and community projects	509	380	+34
Indirect expenditure	**249**	**152**	+64
Employee volunteering time	249	152	+64
Total group	**1,089**	**832**	+31

1,500 hours that made a difference in San Diego

At our annual JM Awards ceremony in January, we were proud to announce a team from San Diego as the winners of our 'working together: in our communities' award. Through 1,500 hours of community volunteering, employees in San Diego have worked with over 1,000 students, cleaned beaches, worked at local food banks, and supported hundreds of local residents who were struggling to survive. They donated their £5,000 prize to the San Diego Youth Services shelter for homeless teenagers.

See pages 74 and 75

People continued

Acting with integrity

A strong culture of 'doing the right thing' is shaped by our value of acting with integrity and we believe it is critical to achieving our vision and strategy. Our aim is to eliminate ethical lapses and breaches of compliance and in doing so, turn our reputation for doing the right thing into our strategic advantage.

Our approach to this has two pillars: (i) promoting an ethical culture across the company; and (ii) implementing a compliance programme underpinned by a framework applied to each risk area.

Our global code of ethics, 'Doing the Right Thing', is central to the way we act as a company and one of the main ways we promote an ethical culture. The code is available in 22 languages and contains information and resources that help our employees to make decisions in line with our values and demonstrate the highest standards of integrity and ethical behaviour.

In December 2018 we published a refreshed code of ethics – on our website and in hard copy, bringing it up to date to reflect new legislation and our redefined company values, and to bring scenarios to life so that employees can easily see how the code applies to ethical behaviour and choices in real working situations that are relevant in JM today.

In April 2019 we launched our online ethics and compliance training for the year. All employees are required to take a code of ethics module every year, reinforcing basics and taking a deeper dive into a selection of topics chosen every year.

Everyone is also required to complete the code acknowledgment each year confirming that they will work in accordance with the commitments in the code. Additionally, targeted compliance training is provided to people whose roles expose them to specific risk areas. We regularly review our training and communications materials and methods for delivery to ensure they remain relevant to the risks our business and employees face.

We have a growing network of approximately 115 ethics ambassadors located throughout our business globally. They are a sounding board for employees and provide guidance on where to go for help or to raise a concern. This year, they played an important role in bringing our refreshed code of ethics to life, supporting senior leaders with their responsibilities for ethics and compliance and promoting a good ethical culture. They took a key part in hosting launch events during which people were encouraged to get to know their way around the refreshed code while recycling their paper copies of the 2015 code.

Within JM we promote a 'speak up' culture encouraging everyone to speak up when they have a concern or are unsure about something. We encourage individuals to do this through their local management, ethics ambassador, HR or legal function wherever possible. We also provide employees (and third parties) with an independently run speak up helpline (which can also be accessed online) where concerns can be raised. This helpline also allows individuals, where local law permits, to remain anonymous. The helpline is available to everyone and not just those employees directly employed by JM. An Ethics Panel made up of senior leaders meets monthly to provide oversight of investigations into all speak ups received. The panel reports three times a year to the board, with a particular focus on identifying themes and opportunities to continually look to improve the way we do things in JM.

Speak up reports

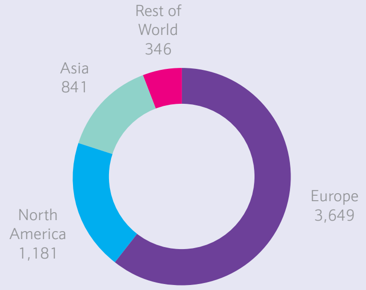
During 2018/19, 125 speak ups were received and investigated which, given our size, is in line with the industry norm in terms of volume (see table below).

Concern / allegation raised	Number of cases
Bribery and corruption / supply chain	9
Business and financial reporting	8
Computer, email and internet use	1
Confidential Information and intellectual property	2
Conflict of interest	10
Data protection	1
Discrimination including harassment and retaliation	47
Environment, health and safety	8
Fraud, money laundering and embezzlement	6
Employee rights	9
Insider trading	1
Misconduct or inappropriate behaviour	8
Other or general query	8
Physical assets	1
Violence or threats	6

We note the number in the 'discrimination' category is high in relation to the other categories and, upon investigation, we found a number of these related to broad employee relations issues which were subsequently addressed.

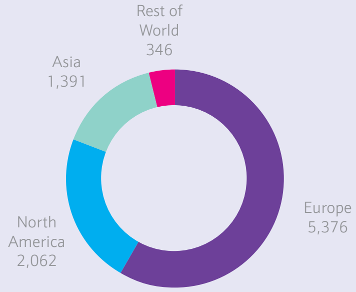
Anti-bribery and corruption training by region

number of employees



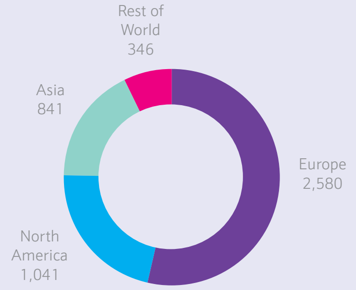
Code of ethics training by region

number of employees



Competition law training by region

number of employees



We view the total number of speak ups (125) as a positive reflection of the confidence in the process and many recommendations arising from investigations have been actioned in our businesses.

In order to have an effective ethics and compliance programme we apply our compliance programme framework to each risk area, which includes having policies and training in place. We keep the programme under continuous review. The risk areas include bribery and corruption, data protection, export controls and sanctions, conflicts of interest, competition / anti-trust, financial crime (including the recently introduced corporate criminal offence of failing to prevent the facilitation of tax evasion), modern slavery (see page 51) and activities regulated by the UK Financial Conduct Authority.

A new data protection law came into force in the EU in May 2018. Known as the General Data Protection Regulation or GDPR, it is designed to protect the personal data and privacy of all EU citizens.

In response, we have developed and issued our global data protection policy and are implementing a global programme to adjust our processes to meet requirements under the new legislation. This includes focused training for employees who handle personal data at work to help them understand what they should do to ensure a culture of data privacy and information security throughout our organisation.

Supporting employee wellbeing

As we execute our strategy, the accompanying changes, through growth, business transformation and new programmes, all make an impact. Against this background, employee wellbeing is particularly important. An independent global survey across 21 industries showed that employees are looking to their employers for a commitment to health and wellbeing. At the same time, organisations that actively promote health and safety will find their employees significantly more likely to be engaged. In response, we have developed a global wellbeing framework to support our employees in their emotional, financial, physical and social wellbeing. Our principal themes for 2019 are: mental health; work-life harmony; musculoskeletal disorders; and cancer awareness. We have introduced a support service called Assist. This is confidential and globally available 24 hours per day.

This year we have also introduced global flexible working policies. New working arrangements will allow employees to have some level of influence over how, when and where they work and provide arrangements for parental and bereavement leave. All this represents an improvement over purely statutory obligations and marks a significant step forward in how we look after our people and their families in an inclusive way.

In the UK, as uncertainty surrounding the UK's withdrawal from the EU remains, we continue to support our employees who are EU nationals working in the UK and our UK citizens working in the EU. We also provide information and take the opportunity to engage with our people to help them understand what the developments and different scenarios could mean for them. Our Brexit working group works closely with our HR team to ensure we are able to navigate the best outcome for our people.

Mental health

External research indicates that one in four people will suffer from mental ill health in the course of any one year. But indicators of poor mental wellbeing sometimes go unnoticed, as those who are suffering can be reluctant to admit to a change in mental health because of a fear of stigma or discrimination.

In April 2019 our Chief Executive, on behalf of the whole company, committed to creating a climate of greater openness on mental wellbeing, as well as providing support to anyone who would like it.

As part of our commitment, we are taking action in a number of areas. We are also working with the UK mental health campaign, Time to Change, and will be making a public commitment on its website by signing its employer pledge.

1

Health and safety

The first of our sustainable business goals is to aspire to zero harm in matters of health and safety. The goal has ambitious KPIs and we track any injuries and illnesses using common safety indicators. We have rolling safety programmes and continue to launch new safety campaigns and programmes to refresh awareness and deepen our safety culture among employees.

We are committed to conducting all our activities in ways that achieve high standards of health and safety for all employees and those affected by our operations. We want to achieve year on year improvements in performance as we progress towards our 'zero harm' goal.

We expect our leaders to 'walk the talk', for example, through site visits and getting involved in questions, conversations and updates. We also expect our line managers to take responsibility and give continuous emphasis and clarity on health and safety requirements. And employees are being empowered to participate actively in environment, health and safety (EHS) activities and draw lessons from any near miss incidents.

Across JM, everyone is required to follow five clear and simple safety principles and, with a health and safety element a requirement of all employees' performance reviews, we ensure it remains firmly on everyone's radar and that they are clear about what is expected from them.

Accompanying our Group Environmental, Health and Safety Policy, we have a core group of eight of our health and safety policies which we call 'lifesaving policies'. These policies cover high risk areas, where policy breaches could endanger life or lead to serious injury. They are available in local languages and we have continued to provide guidance to our sites on how to implement them, using tools such as e-learning, gap assessments and internal audits. All sites have action plans for the implementation of our lifesaving policies and good progress is being made against those plans. In addition, e-learning modules on three of the policies were rolled out this year to employees to raise their awareness.

There are two broad areas of focus for us in workplace health and safety. The first is process safety, which is about how we safely manage our most hazardous processes. The second area is occupational health and safety which is about incidents that happen more frequently but are less severe, like slips, trips, falls, cut injuries, sprains and strains. We have more work to do in our safety behavioural programmes to drive more ownership for personal safety throughout all levels of the organisation.

People continued

Process safety

We introduced a new process safety risk management strategy in 2017, followed by a new process safety severity rate indicator in April 2018, and early signs of a reduction in severity rates are emerging as shown in the chart below. We still have more work to do to ensure we are accurately capturing the data and to maintain our good progress to reduce the severity rate further.

Our process safety risk management (PSRM) is based on a framework developed by the Centre for Chemical Process Safety (CCPS). We have created a working infrastructure, with a group process safety team, subcommittees with defined responsibilities, selected site process safety champions and provided JM specific training; 112 senior managers, 312 site leadership teams and 96 process safety champions have all been trained.

We have conducted site surveys to identify sites with process safety risks – and whether the risks are high, medium or low – to enable us to target our process safety efforts. All these sites have carried out maximum credible event (MCE) studies. Several high risks were identified with many actions; around 80% of these have now been completed which has resulted in significant reduction of risk. Any process safety event and its severity rate are logged in our specialist reporting system to ensure a standardised approach.

Eight of our high risk sites had a PSRM audit in 2018/19, providing useful indications of where approaches to process safety needed to be strengthened. We have also created a new protocol for our process safety audit, based on our process safety framework and aligned with the CCPS.

Other activities include: a pilot for our process safety competency assurance programme, with individual site personnel assessments; ongoing roll out of our risk related process safety and engineering standards which cover topics common across JM such as pressure relief; and implementation of lagging and leading process safety indicators.

Improving safety behaviour

The second area of focus is 'behavioural' – simple accidents like tripping over that could be avoided with greater awareness of the risk. Around three quarters of our injuries are due to behaviour and the main types are: sprains and strains; slips, trips and falls; and hand injuries.

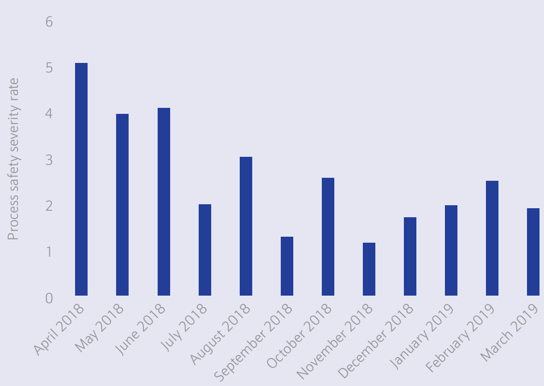
Over the last ten years, we have seen a long term reduction of 50% in lost time incident rates but the figure has been flat over the last few years. Among our efforts to reverse this, we identified the 12 sites that had poor leading and lagging indicators and put in place targeted safety improvement plans. All have now seen a good reduction in injury rates, and seven out of the 12 sites have reduced their total recordable injury rate by more than 40%.

We have continued to emphasise the benefit of learning events to help bring down our total recordable injury rates. This year we reported a greater number of learning events, where we looked at near misses, unsafe conditions and unsafe acts – injuries that had been avoided, but sometimes only just. There are valuable lessons to be learnt here and these events have been successful in reducing injury rates.

Safety can be improved and maintained both by a leadership approach and on the ground through engaging people in safety, providing training and raising their awareness. At the leadership end of the spectrum, we have an EHS leadership committee in place which assists the company in meeting its EHS responsibilities and in creating a positive safety culture across the whole of JM. Site visits, having safety conversations, personal safety messages and reviews of EHS actions all highlight the visible involvement of leadership.

At the same time, EHS leadership training has been integrated into JM leadership programmes at all levels, and a global EHS induction programme for leaders and managers has recently been developed. Regional EHS conferences with site operations have been set up, with the first taking place in September 2018.

Process safety severity rate



Trade union committee representation

23 (43%) of our manufacturing sites have active trade unions and 74% of them have a trade union representative on their local health and safety committee. 78% of sites have formal trade union agreements that cover health and safety topics (listed in the table on the below).

Topics covered by trade union agreements

Topic	% of sites covered
Use of personal protective equipment	71
Participation of worker representatives in health and safety inspections and investigations	88
Training and education	82
Complaints mechanisms	82
The right to refuse unsafe work	94
Periodic inspections	82

At the onsite local level we have completed the rollout of 'My Team, My Responsibility', a training scheme that builds on our EHS behaviour awareness programme and aligns with our EHS behaviour standard. All sites have benefited and there have been some outstanding successes.

Occupational health

Occupational health also remains very important for us. The number of occupational illnesses reported each year remains low, and while the number of occupational health cases has come down from 25 in 2013/14 to 21 in 2018/19, we saw a year on year rise from 2017/18. We are seeing an increase in work related stress cases, though the overall number is small. There is better awareness and we are encouraging our staff to report these cases, but we are taking the increase seriously.

We have identified three factors that are leading to stress in our workplaces: work relationships; work pressures; and organisational change. In the UK alone, over 11 million working days a year are lost because of mental health problems, with one in four people affected.

During the year we began to introduce a number of programmes and services globally across JM to support the health and wellbeing of our people, with more to follow in 2019/20. These are explained more fully on page 69.

We tackle occupational health at both group and site level. At group level, for example, we set policy and provide guidance for the management of chemical exposure, which is implemented at our sites. Chemical exposure is a major area of focus for us and incidents are declining. We continue to conduct work on key areas such as platinum salt exposure as platinum salt sensitivity can occur in some, but not all, employees who are exposed to certain types of platinum salts during the course of their work.

Ergonomics remains a focus area. Lack of correct physical movement – at a workstation, in a lab or on the factory floor – can lead to musculoskeletal disorders. We issue guidance at group level which is then implemented at site level. To enhance our assessment of ergonomic risks, this year we ran a trial of the Humantech system across 20 of our sites globally in JM. The system provides online awareness and risk assessment training as well as risk assessment survey records and reporting. After this successful pilot, we are now implementing the programme in all sectors at most of our sites.

We have also updated our policy and guidance on industrial hygiene – the recognition and control of environmental factors that may cause sickness – and are now rolling them out, with an emphasis on training and collaboration among employees.

Driving further improvement

We provide ongoing training on health and safety to maintain employees' awareness towards known risks and advise on the top injury trends. Our Enablon health and safety reporting platform is used for reporting and analysing risks, which helps us target areas of concern.

We have an ongoing programme of regular EHS assurance audits which are undertaken using global protocols. In 2018/19, we undertook 26 audits (including eight process safety audits) at our manufacturing and R&D facilities and completed 14 audit action reviews.

A total of 40% of our manufacturing sites are compliant with BS OHSAS 18001, the internationally recognised British Standard that sets out requirements for good practice in occupational health and safety management.

All of our manufacturing sites have formal health and safety committees to help monitor, collect feedback and advise on occupational safety programmes. They are led by site senior management and meet on a regular basis to cascade plans and ideas to and from our workforce. Over half of our manufacturing sites have a formal joint worker-management health and safety committee comprised of representatives from both staff level and management grades, covering 81% of employees globally.

My Team, My Responsibility brings improvement in EHS culture

In Pennsylvania, US, a behaviour based safety team ran the 'My Team, My Responsibility' programme for all the departments at three of our sites. Around 70 supervisors were trained. The programme strengthened the supervisor / employee relationship, encouraged novel thinking on EHS topics and raised safety awareness. At the same time, the employee recognition scheme was refreshed. As a result of the programme, the EHS culture maturity rose from level two to level four and the people involved were winners in the 'protecting people and the planet' category at our annual JM awards.

+ See pages 74 and 75

People continued

In 2019/20 we will continue to focus on process safety and occupational health and safety. We have introduced EHS personal safety action plans for our GMC leaders and at all levels down to our frontline leaders. Their plans include practical activities to promote a proactive safety culture by demonstrating more visible, higher quality safety leadership. The successful outcome for us is greater employee engagement and, in turn, improved EHS performance. We are also increasing the regularity and quality of our EHS communications with targeted and measurable campaigns to drive awareness, engagement and personal ownership.

1

Health and safety performance

During the year, reported injuries across JM were of relatively low severity (none were life threatening or life altering) but disappointingly, despite continued focus on health and safety over the last year, our lagging indicators of performance for employees continued to be flat. Our lost time injury and illness rate (LTIIR) of 0.53 and total recordable injury and illness rate (TRIIR) of 0.97 were both marginally higher than last year (2017/18: LTIIR 0.52[1], TRIIR 0.96[1]). When we analyse our performance further, we can see that this plateauing is isolated to a combination of poor performance at two sites and an increase in work related stress cases in the UK; if we exclude occupational related stress cases this year, our LTIIR was 0.45.

Interventions are already well under way; both sites are on safety improvement plans and we are rolling out a range of wellbeing support services and activities.

There were a total of 80 lost time accidents and illnesses across the group during 2018/19. There were no employee fatalities in the year; the last employee fatality at Johnson Matthey occurred in July 2015. Our performance is summarised in the charts below.

More positively, in the year we saw a 50% increase in the number of EHS learning events that were reported. This leading performance indicator shows that we are making progress in increasing awareness of potential 'near miss' incidents and that we are developing and embedding an EHS culture across JM. Our leaders also had a greater number of safety conversations during the year.

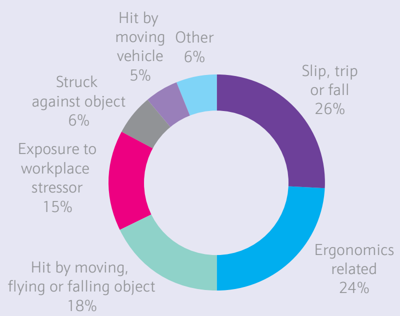
Our construction projects use a contractor workforce and we work hard to ensure the safety of all contractors who work for us. Overall, contractor LTIIR dropped from 0.74 to 0.40. Lost time incidents involving contractors fell during 2018/19 to six (2017/18: eight). This improvement in performance comes from focusing on and auditing our lifesaving policies and was achieved despite a 39% increase in reported contractor hours worked from 2,171,462 during 2017/18 to 3,009,338 in 2018/19. This reflects the increased activity due to increased capital investment across the group. There were no contractor fatalities in 2018/19; the last one occurred in October 2010.

The number of occupational illnesses reported during 2018/19 was 21, giving a rate of 0.140 illnesses per 200,000 working hours in a rolling year in 2018/19 (compared with 0.085 in 2017/18). Of the 21, 13 were in Europe and eight were in North America. No contractor illnesses were reported in 2018/19.

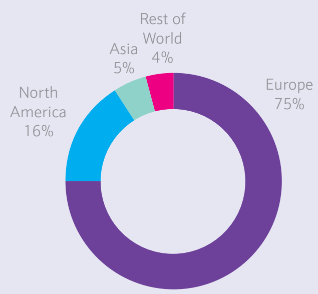
Our overall number of occupational illnesses remains low although there has been a noticeable increase in cases this year, principally due to increased reporting of work related mental wellbeing cases which represented 13 of the 21 cases reported. All 13 were in the UK. We have been aware of the rising trend in reported cases of mental ill health in the UK and have focused efforts to tackle the problem, support our people and provide proactive guidance (as described on page 69) across JM globally.

We have continued to use a health scorecard system developed by the UK Chemical Industries Association to monitor our health performance. This year 61 sites completed the scorecard questionnaire, compared with 64 sites the previous year. Of these, 64% reported scores of A or B (which corresponds to best practice); 30% reported C scores (which corresponds to our current minimum target score); and 6% reported an average D score (below our current minimum standards).

Lost time injuries and illnesses by event type



Lost time injuries and illnesses by region



Occupational illness cases

	Sustainable business goal	Sustainable business KPIs	Baseline	2018/19	2025 target
Health and safety 1	For health and safety, aspire to zero harm	Annual TRIIR	TRIIR in 2016/17	0.97	0.6
		Annual LTIIR	LTIIR in 2016/17	0.53	0.2
		Annual OSHA severity rate	Rate in 2016/17	27.9	6.0

+ Performance against all six of our sustainable business goals is detailed on pages 31 to 33 and 238

All scores were in line with the previous year although within these, occupational illness leadership was a topic which reported a lower performance and so is an area we will focus on in the coming year.

Alongside our other health and safety performance metrics, we also monitor our OSHA severity rate. The severity rate from the US Occupational Safety and Health Administration (OSHA) is a calculation that gives us an average of the number of lost work days per recordable incident. The premise is that an incident that resulted in an employee missing time from work to heal and recover has greater significance than one where the employee can immediately return to work. It is therefore a useful metric for us as we strive to reduce the severity of the incidents that occur at our facilities by improving our workplaces and our behaviours to avoid incurring these more significant incidents. The rise in our rate this year comes from a combination of the increased number of work related stress cases and the fact that these cases have required longer periods of time off work. Excluding work related stress cases, our OSHA severity rate is 24.4.

Communicating with external stakeholders

We maintain ongoing communications with our external stakeholders and update them on our activities through regular publications (including this report), our website, surveys and topic specific meetings. We outline details of our major stakeholders on pages 28 and 29.

We are also active members of a number of trade associations and groups which help us to understand, inform and contribute to issues and discussions that are relevant to our stakeholders. Associations we have worked with in 2018/19 include the UK Chemical Industries Association, The European Chemical Industry Council (CEFIC), the Society of Motor Manufacturers and Traders, the Association for Emission Control by Catalyst, the International Platinum Group Metals Association, the European Precious Metals Federation, Eurometaux (which represents the European non-ferrous metals industry), and Aldersgate Group. In September 2018, we joined the Hydrogen Council as a steering member (see page 29).

Shareholders are an important stakeholder group. We meet with our major shareholders regularly, as described in the Corporate Governance Report.

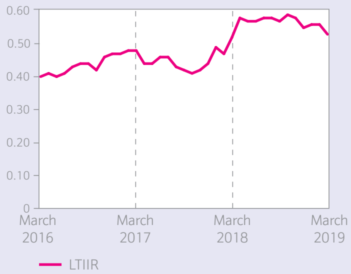
+ Pages 117 and 118

For investors particularly interested in ethical and socially responsible investments, we meet with specialists from their organisations to discuss sustainability and corporate social responsibility issues where applicable and participate in key sustainable investment benchmarking studies. These include the Carbon Disclosure Project (CDP), the Dow Jones Sustainability Index (DJSI) and FTSE4Good.

In March 2018, we received an 'AAA' ESG rating from investment index provider MSCI for the seventh consecutive year. This is the highest possible rating for a company's risk and performance against a range of environmental, social and governance factors, and one that places us above our chemical industry peers. We are a constituent of the FTSE4Good UK 50 Index.

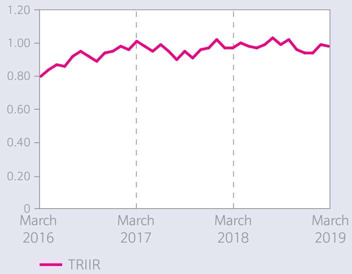
Lost time injury and illness rate (LTIIR)[1]

per 200,000 working hours in a rolling year



Total recordable injury and illness rate (TRIIR)[1]

per 200,000 working hours in a rolling year



OSHA severity rate

At 31st March	2017	2018	2019
OSHA severity	18.5[1]	18.4[1]	**27.9**

[1] Restated due to incidents that were reported after the year end.

[1] Data for 2017/18 has been restated due to injuries and illnesses that were reported or reclassified after the year end.

Recognising our people

Our JM Awards categories are aligned with our values, which guide the behaviours of everyone in the business. The winners have been recognised as individuals who truly embody the core of what JM is and strives to be.

Protecting people and the planet

This award recognises achievements and significant contributions to improving health and safety and / or safeguarding the environment. The winning projects demonstrated visionary and leading commitment to enabling a cleaner, healthier world through driving progress in reducing environmental impact or improving health, safety and employee wellbeing.

Owning what we do

"Owning what we do" focuses on areas of our business which link directly with fulfilling our strategic goals, taking accountability for driving business performance and leading in line with our vision, strategy and values. The winners of this category went the extra mile to achieve the very highest standards and deliver what they promised.

Innovating and improving: operations

This award focuses on how hard work, including practices, processes, systems, methods and business models, has led to manufacturing and / or value adding improvements in efficiency for a team, a site or the company as a whole.

Working together: in our communities

The winner of this category recognises community investment initiatives that make a positive impact to local communities.

Acting with integrity

"Acting with Integrity" can take many forms, from engagement and the way we treat each other, to the decisions we make about the way we do business. This award recognises an individual who takes action to ensure JM is doing the right thing. This has been at the core of JM since its foundation and is key to ensuring we build and protect our reputation. Our winner advocates integrity, inclusivity and respect for others through their everyday activities.

> " As a young female scientist at the start of my career, I found it a privilege to be part of the awards and meet world class scientists who pioneer research to protect our planet.
>
> " The JM Awards has shown me the remarkable things we can do when we work together, and that we are a global family which continues to grow, innovate, connect and celebrate our achievements. "

Emma Gledhill, Scientist

Explore more
Find out more about the 2019 JM Awards
matthey.com/jm-awards

Innovating and improving: science and technology

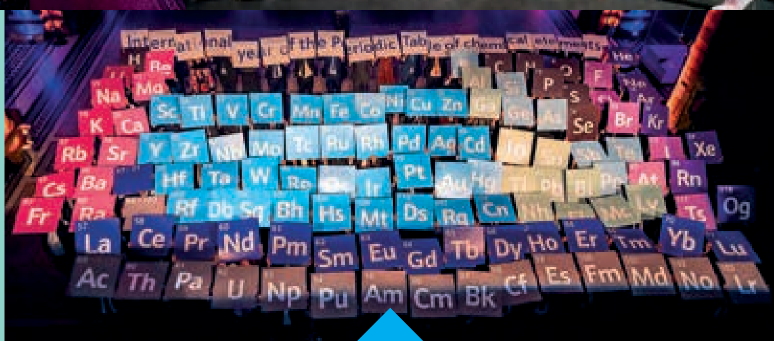
This category recognises the value that new ideas and innovations in science and technology bring to Johnson Matthey and our customers, and the value created when we improve our working practices. Innovations and improvements can arise from a single eureka moment, or from extensive collaborations with colleagues and customers. However they emerge, they strengthen our technology portfolio and enhance our reputation, and business or process performance. Our winners were part of a team that has shown how an innovative approach can be used to create valuable opportunities for Johnson Matthey.

Working together: in business

This category recognises the very best examples of working together in JM. Collaboration can happen at all levels and is often a part of what we do day to day; this award was given to employees that go above and beyond expectations and that have a real impact on the success of the company.

Chief Executive's award for outstanding contribution

This award pays tribute to the immense contribution our people make to JM's success. Today we have an exceptionally diverse and global workforce and our tradition of engaging, developing and recognising the best of our people is continued through this award. This peer nominated award gave our people the opportunity to champion a colleague and tell us how they have inspired or excelled by taking initiative and carrying on responsibilities beyond their regular job, in a way that embodies JM's culture and values.



A human periodic table

To celebrate the 150th year of chemistry's most iconic image in true JM style, we created our very own human periodic table. With a little help from 150 finalists, judges and guests under one giant blue whale, we snapped the memorable image from the balcony above Hintze Hall at London's Natural History Museum.

Financial performance review

Group performance review

Reported results

		Year ended 31st March		
		2019	2018	% change
Revenue[1]	£ million	**10,745**	10,274	+5
Operating profit	£ million	**531**	359	+48
Profit before tax (PBT)	£ million	**488**	320	+53
Earnings per share (EPS)	pence	**215.2**	155.2	+39
Ordinary dividend per share	pence	**85.5**	80.0	+7

Underlying performance[2]

		Year ended 31st March			
		2019	2018	% change	% change, constant rates[3]
Sales excluding precious metals (Sales)[4]	£ million	**4,214**	3,846	+10	+10
Operating profit	£ million	**566**	525	+8	+8
Profit before tax	£ million	**523**	486	+8	+7
Earnings per share	pence	**228.8**	208.4	+10	

Notes

1 Revenue for the year ended 31st March 2018 has been restated, see note 39 on page 220.

2 Underlying is before profit or loss on disposal of businesses, gain or loss on significant legal proceedings together with associated legal costs, amortisation of acquired intangibles, major impairment and restructuring charges and, where relevant, related tax effects and significant tax rate changes. For definitions and reconciliation of other non-GAAP measures, see note 4 on page 179.

3 Unless otherwise stated, sales and operating profit commentary refers to performance at constant rates. Growth at constant rates excludes the translation impact of foreign exchange movements, with 2017/18 results converted at 2018/19 average exchange rates.

4 Revenue excluding sales of precious metals to customers and the precious metal content of products sold to customers.

Summary

Underlying performance[2]

- Sales grew 10% and underlying operating profit grew 8% at constant rates[3] driven by strong growth in Clean Air.
- Underlying EPS was up 10% and ahead of operating profit, benefiting from a lower tax rate.
- Free cash was an outflow of £13 million, impacted by platinum group metal (pgm) refinery downtime, driving higher precious metal working capital and higher capex.
- Average working capital days excluding precious metals improved by three days to 59 days.
- Return on invested capital (ROIC)*, excluding net pension assets, decreased from 17.0% to 16.4% mainly due to higher precious metal working capital.
- Strong balance sheet with net debt of £866 million; net debt to EBITDA of 1.3 times.

Reported results

- Reported revenue increased 5%.
- Reported operating profit was £531 million, up 48%. In the prior year, we recognised a major impairment and restructuring charge of £90 million, and a legal settlement of £50 million.
- Reported EPS was therefore up 39%, reflecting the higher operating profit in the current year.
- Cash inflow from operating activities was £334 million.
- Recommended ordinary dividend up 7% to 85.5 pence for the full year, reflecting our strong performance and confidence in the group's future prospects.

* Underlying operating profit divided by the monthly average of equity, excluding post tax pension net assets, plus net debt for the same period. We have changed our definition of ROIC to exclude net pension assets as these are not operating assets.

Sector performance review

Performance summary by sector

Clean Air

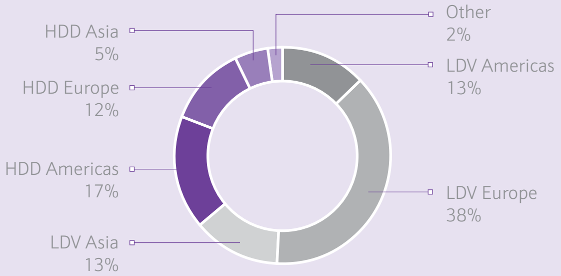
£2,720m

Sales[1] **+11%**[2]

£393m

Operating profit[3] **+13%**[2]

Sales[1] by business



Heavy Duty Diesel (HDD) 34%

Light Duty Vehicles (LDV) 64%

- A global leader providing catalysts to reduce harmful emissions from vehicles.
- **Light Duty Vehicles** – catalysts for gasoline and diesel light duty vehicles, including hybrids.
- **Heavy Duty Diesel** – catalyst systems for diesel powered trucks and buses and non-road machinery.
- **Other** – catalyst systems for stationary equipment.

Customer profile

- Car companies.
- Heavy duty truck and engine manufacturers.
- Local Chinese producers.
- Global customer base.

Major competitors

- BASF
- Umicore
- Cataler

Margin 14.4%

Return on invested capital 30.0%

Employees 5,919

1 Sales excluding precious metals.
2 At constant rates (see note 3 on page 77).
3 Underlying (see note 2 on page 77).

Efficient Natural Resources

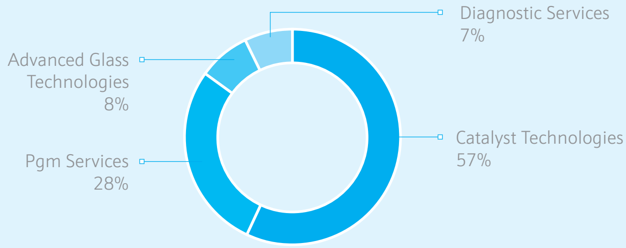
£991m

Sales[1] **+4%**[2]

£181m

Operating profit[3] **+15%**[2]

Sales[1] by business



- Creating value from efficient use and transformation of critical natural resources including oil, gas, biomass and platinum group metals (pgms).
- **Catalyst Technologies** – manufactures speciality catalysts and additives, licenses process technology and delivers services to the chemical and oil & gas industry.
- **Pgm Services** – marketing, distribution, refining and recycling of pgms, fabricates products using precious metals and related materials and manufactures pgm chemicals.
- **Advanced Glass Technologies** – precious metal pastes and enamels primarily for the automotive industry.
- **Diagnostic Services** – for the oil and gas industry.

Customer profile

- JM businesses and their customers.
- Chemical companies.
- Engineering contractors.
- Oil and gas companies.
- Industrial pgm users.
- End of life autocatalyst collectors.
- Automotive industry suppliers.

Major competitors

- Haldor Topsøe
- Clariant
- BASF
- Lurgi
- Albemarle
- Grace
- UOP
- Heraeus
- Umicore
- Ferro
- DuPont

Margin 18.3%

Return on invested capital 12.6%

Employees 3,645

Health

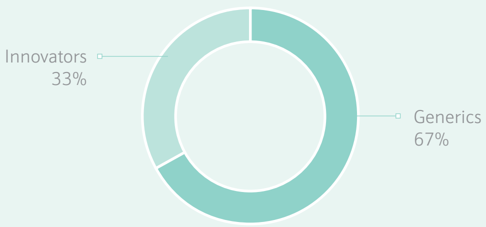
£257m

Sales[1] **+3%**[2]

£43m

Operating profit[3] **-4%**[2]

Sales[1] by business



- Leading provider of solutions to the complex problems of both generic and innovator companies.
- Develops and manufactures active pharmaceutical ingredients (APIs) for a variety of treatments.
- Operates in the large and growing outsourced small molecule API market.

Customer profile

- Generic pharmaceutical companies.
- Innovator pharmaceutical companies.

Major competitors

- Noramco
- Francopia
- Siegfried
- Cambrex
- AMRI
- Alcami
- Hovione
- Almac

Margin 16.7%

Return on invested capital 9.0%

Employees 858

New Markets

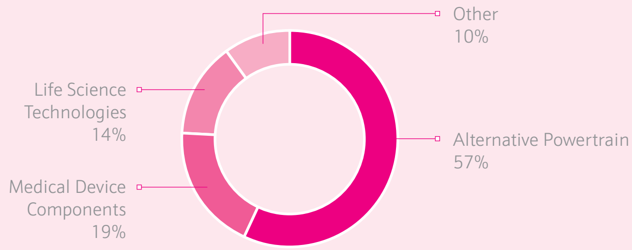
£362m

Sales[1] **+17%**[2]

£2m

Operating profit[3] **-85%**[2]

Sales[1] by business



- Accessing new areas of potential growth aligned to global priorities of cleaner air, improved health and more efficient use of natural resources.
- **Alternative Powertrain** – provides battery materials, including eLNO, our leading ultra high energy density cathode material, for automotive applications, battery systems for a range of applications and fuel cell technologies.
- **Medical Device Components** – leverages our science and technology to develop products found in devices used in medical procedures.
- **Life Science Technologies** – provides advanced catalysts to the pharmaceutical and agricultural chemicals markets.

Customer profile

- Automotive and heavy duty vehicle companies.
- Lithium-ion cell manufacturers.
- Fuel cell manufacturers.
- High performance cordless tool and niche transport manufacturers.
- Medical device companies.
- Pharmaceutical, fine chemical and agrochemical companies.

Major competitors

- Umicore
- BASF
- LG
- BMZ
- WL Gore
- 3M
- Heraeus
- Evonik

Margin 0.7%

Return on invested capital 1.1%

Employees 1,934

Financial performance review continued

Operating results by sector

Clean Air

	Year ended 31st March			
	2019 £ million	2018 £ million	% change	% change, constant rates
Sales				
LDV Europe	**1,031**	855	+20	+21
LDV Asia	**361**	351	+3	+3
LDV Americas	**346**	358	-3	-4
Total Light Duty Vehicle Catalysts	**1,738**	1,564	+11	+12
HDD Americas	**476**	395	+20	+19
HDD Europe	**334**	320	+4	+4
HDD Asia	**128**	131	-2	-1
Total Heavy Duty Diesel Catalysts	**938**	846	+11	+11
Other – stationary	**44**	44	-	-
Total sales	**2,720**	2,454	+11	+11
Underlying operating profit	**393**	349	+13	+13
Margin	**14.4%**	14.2%		
Return on invested capital (ROIC)	**30.0%**	30.5%		
Reported operating profit	**390**	296	+32	

Double digit sales growth in both LDV and HDD catalysts

- Light Duty Europe sales up 21% with strong growth in both diesel and gasoline.
- Achieved share gains in European light duty diesel and a market share of circa 65% at March 2019.
- Light Duty Asia sales grew 3%, ahead of market production.
- Light Duty Americas sales were down 4% driven by weaker diesel sales.
- Sales of HDD catalysts were up 11% primarily due to continued strength in higher value US Class 8.
- Operating profit was up 13% and margin improved 0.2 percentage points to 14.4%.

Light Duty Vehicle (LDV) Catalysts

Our LDV Catalyst business provides catalysts for emission control after-treatment systems that reduce emissions for cars and other light duty vehicles powered by diesel and gasoline. The business grew 12%, well ahead of the decline in global vehicle production.

In Europe, where diesel accounts for around 85% of our LDV business, sales grew 21% primarily driven by our diesel market share gains.

Sales of diesel catalysts were up 22% reflecting our market share gains and were significantly ahead of diesel market production which declined 9% year on year. As expected, we achieved the circa 20 percentage point increase in our market share from 45% to circa 65% by the end of the financial year. There was also a small benefit from higher value sales of more complex catalyst systems.

In Western Europe, diesel accounted for 35% of new passenger car sales in 2018/19 compared with 42% in the last financial year. Light duty commercial vehicles remain largely diesel today. When these are included, the overall share of diesel sales in Western Europe was 42% for 2018/19, compared with 49% in 2017/18. These trends do not change our assumption of a diesel share of around 25% of total light duty vehicles and 20% of cars in 2025.

Sales of gasoline catalysts were up 18%, well ahead of market production. Growth was driven by an improved sales mix with an increased number of high value coated gasoline particulate filters (GPFs) sold in the period. We expect the number of vehicles with coated GPFs to increase in the medium term, significantly increasing our sales value per gasoline vehicle.

The World Harmonised Light Duty Testing Procedure (WLTP) was introduced from September 2018. There was some disruption to phasing of European automotive production and sales, but we experienced no material impact on our business in the year. In the longer term, due to the different technical requirements to meet these standards, some auto original equipment manufacturers (OEMs) have changed solutions. Consequently, as we previously indicated, our anticipated five percentage point market share gain in gasoline will not be achieved by 2020/21. We continue to increase R&D spend on gasoline catalysts given the development of the market.

Sales in Asia LDV grew at 3%, ahead of the decline in market production. Within this, sales in China declined 5%, broadly in line with the market which slowed significantly during the second half of our financial year. China currently represents a small portion of our Clean Air Sector and therefore the impact of the Chinese market decline was not material. Over the medium term, our Asian business will double in size as we capture growth from tightening legislation, particularly in China and India.

Sales in Americas LDV were down 4% while market production was flat. This was driven by a weaker performance in diesel following strong growth in the prior year and the ramp down of a platform.

Heavy Duty Diesel (HDD) Catalysts

Our HDD Catalyst business provides catalysts for emission control after-treatment systems that reduce emissions for trucks, buses and non-road equipment. The business had another good year with sales growing 11%, significantly ahead of global market production, driven by strong growth in the higher value US Class 8 market.

The Americas HDD Catalyst business grew sales 19%. Sales of catalysts for Class 8 trucks were broadly in line with market production of 22% and we continue to expect high levels of production to peak in the middle of the 2019 calendar year.

Sales in our European HDD Catalyst business grew 4%, ahead of the market. This outperformance was driven by the increase in the proportion of sales related to higher value non-road extruded products.

Estimated LDV sales and production (number of light duty vehicles)*

		Year ended 31st March		
		2019 millions	2018 millions	% change
North America	Sales	**20.6**	20.8	-1
	Production	**16.9**	16.9	-
Total Europe	Sales	**20.4**	20.8	-2
	Production	**22.0**	22.2	-1
Asia	Sales	**43.4**	44.8	-3
	Production	**47.2**	48.8	-3
Global	Sales	**93.0**	95.8	-3
	Production	**91.8**	94.0	-2

Estimated HDD truck sales and production (number of trucks)*

		Year ended 31st March		
		2019 thousands	2018 thousands	% change
North America	Sales	**615**	535	+15
	Production	**624**	540	+16
Total Europe	Sales	**506**	502	+1
	Production	**645**	653	-1
Asia	Sales	**2,257**	2,297	-2
	Production	**2,298**	2,314	-1
Global	Sales	**3,515**	3,450	+2
	Production	**3,710**	3,631	+2

* Source: LMC Automotive.

Sales in the Asian HDD Catalyst business were broadly flat, in line with the market. In China, sales fell 10%, also in line with the market. This followed a period of strong production growth driven by increased demand for trucks as a result of loading limit legislation. We continue to see strong sales growth in India from a low base.

Underlying operating profit

Operating profit grew 13% and margin improved by 0.2 percentage points, benefiting from volume leverage.

ROIC

ROIC, excluding net pension assets, was down slightly at 30.0% reflecting higher precious metal working capital.

Outlook

We expect a year of more modest growth in 2019/20, weighted to the first half as we realise the benefit of annualised share gains, partly offset by reinvestment into R&D, our ERP system and new manufacturing capacity. We anticipate that these investments for growth and efficiency will lead to a slightly lower margin than in 2018/19. Beyond 2019/20, we expect sales and operating profit growth to be increasingly driven by the introduction of new legislation in China and India.

Financial performance review continued

Efficient Natural Resources

	Year ended 31st March			
	2019 £ million	2018 £ million	% change	% change, constant rates
Sales				
Catalyst Technologies	**567**	564	-	+1
Pgm Services	**281**	253	+11	+10
Advanced Glass Technologies	**75**	82	-9	-9
Diagnostic Services	**68**	57	+21	+24
Total sales	**991**	956	+4	+4
Underlying operating profit	**181**	158	+15	+15
Margin	**18.3%**	16.5%		
Return on invested capital (ROIC)	**12.6%**	11.8%		
Reported operating profit	**175**	138	+27	

Growth in sales and margin improved

- Sales growth driven by double digit growth in catalyst refills and higher average pgm prices, partly offset by lower catalyst first fills.
- Operating profit grew strongly and margin improved by 1.8 percentage points to 18.3%, benefiting from higher average pgm prices and net benefits from improved efficiency partly offset by reinvestment in the safety and resilience of our pgm refineries and weaker performance in Advanced Glass Technologies.

Catalyst Technologies

Our Catalyst Technologies business licenses technology and manufactures speciality catalysts and additives for the chemicals and oil and gas industries. Sales were broadly flat with double digit growth in refill catalysts offset by lower sales from first fill catalysts while licensing was stable at a low level.

Refill catalysts and additives is recurring business which makes up the majority of sales within our Catalyst Technologies business. Sales grew double digit, outperforming our markets in aggregate. We saw very strong performance in methanol but weaker performance in ammonia, primarily driven by the phasing of customers' orders. There was also good growth, above the market, in catalysts for petrochemical and hydrogen plants.

Sales of catalyst first fills were significantly down. These are one-off in nature and driven by the start up of new plants. Sales of methanol first fills were lower following increased activity in 2017/18 as industry capacity came on stream and hydrogen first fills were also down reflecting a large order in 2017/18.

Our licensing business is dependent on new plant builds and income is recognised over the period of construction. In the year, licensing income was stable and activity around new plant builds, particularly for the technologies we license, remains subdued. We signed five new licences in the period which include our newly developed technologies such as mono ethylene glycol and waste to aviation fuel. Whilst we do not expect a material recovery in licensing income in the near term, we are pleased with our progress in developing and commercialising new technologies.

Pgm Services

Our Pgm Services business primarily provides a strategic service to the group, mainly supporting Clean Air with security of metal supply in a volatile market. This business is expected to grow at low single digits over the medium term. It comprises our pgm refining and recycling activities and produces chemical and industrial products containing pgms.

In the period, sales grew 10%. We saw strong growth in our refining and trading businesses due to higher and more volatile average pgm prices. Average palladium and rhodium prices were up 20% and 83% respectively, while the platinum price declined 11% compared to the same period last year. Sales of chemical products grew slightly driven by growth in Clean Air which uses pgm materials in its catalyst products. However, sales of industrial products containing pgms were down.

In the period, we had unscheduled downtime in one of our pgm refineries which, in conjunction with higher average pgm prices, resulted in a significant increase in precious metal working capital. We expect to make progress in reducing our precious metal working capital in our refineries during 2019/20 and anticipate being at normalised levels by the end of 2020/21. We are improving the performance of our refineries and, as previously stated, we are investing to ensure our assets operate effectively and reliably, improving returns. This programme amounts to around £100 million over three years and is already included within our group capex guidance.

Advanced Glass Technologies

Advanced Glass Technologies mainly provides black obscuration enamels and silver paste for automotive glass applications. Sales declined primarily driven by the automotive segment reflecting a slowdown in global car production and weaker performance in China, partly due to destocking in the supply chain. Demand for non-automotive enamels and ceramics was also lower.

Diagnostic Services

Diagnostic Services provides specialised detection, diagnostic and measurement solutions for our customers in the petroleum industry. Our Diagnostic Services business grew strongly. The higher oil price drove greater activity in the upstream oil and gas industry leading to higher capital investment and increased operating expenditure by our customers. This resulted in improved demand for our services.

Underlying operating profit

Operating profit was up 15% and margin improved by 1.8 percentage points, benefiting by around £16 million from higher pgm prices, around £7 million of savings from the restructuring programme and further net benefits from improved efficiency across the sector of which around £5 million will not repeat. This was partly offset by higher operating costs in the pgm refineries and investment in their safety and resilience.

ROIC

ROIC, excluding net pension assets was up by 0.8 percentage points to 12.6% reflecting higher operating profit.

Outlook

In 2019/20, we expect sales growth with operating profit growth ahead of sales as we continue to drive efficiencies in our business and maintain our focus on higher growth segments.

Health

	Year ended 31st March			
	2019 £ million	2018 £ million	% change	% change, constant rates
Sales				
Generics	**171**	173	-1	-2
Innovators	**86**	74	+16	+14
Total sales	**257**	247	+4	+3
Underlying operating profit	**43**	44	-3	-4
Margin	**16.7%**	18.0%		
Return on invested capital (ROIC)	**9.0%**	8.4%		
Reported operating profit / (loss)	**50**	(12)	n/a	

Sales growth with operating profit slightly down

- Generics sales were broadly flat whilst Innovators continued to grow.
- Operating profit was slightly down as expected and margin was 1.3 percentage points lower. This was mainly due to a weaker product mix because of a continued decline in high margin products as they moved through their lifecycle and net costs associated with footprint optimisation.
- There are 46 molecules in our generic API pipeline, which includes one launch in the year. We remain on track to deliver an additional £100 million of operating profit by 2025.

Generics

Our Generics business develops and manufactures generic active pharmaceutical ingredients (APIs) for a variety of treatments. Sales were broadly flat, with a mixed performance across the business.

Sales of controlled APIs grew slightly. We saw sales growth in bulk opiates in Europe with strong demand from one key customer following a weaker prior year. Sales of speciality opiates also grew, primarily driven by buprenorphine with higher volumes supported by increased capacity from the ramp up of our manufacturing site in Annan, UK. Our sales of APIs for ADHD treatments were flat. Although we saw a reduction in pricing and volumes of certain high margin ADHD APIs as they move through their natural lifecycle, we benefited from a new customer launch following a recent product approval.

Our non-controlled APIs declined as expected. This primarily reflected a reduction in sales of dofetilide as new competitors for our customer entered the market.

Innovators

Our Innovators business performed well. We saw growth from sales of APIs where our customers are increasing volumes as they move into late stage testing ahead of commercialisation.

In the period, we also announced a strategic manufacturing partnership with Immunomedics for the manufacture of a drug linker used in the production of an immuno-oncology treatment for triple negative breast cancer. The drug is currently under review with the US Food and Drug Administration (FDA).

API product pipeline

We continued to invest in our new product pipeline across both our Generics and Innovators businesses, and this is substantially on track. We have 46 products in our pipeline of generic APIs (31st March 2018: 39 products), which includes one product that launched in the year and four that moved into regulatory stage. Within our pipeline of innovator APIs, three products are nearing commercial launch with new drug approvals (NDAs) filed with the FDA by our customers.

Financial performance review continued

Underlying operating profit

Operating profit was slightly down and margin decreased by 1.3 percentage points. This mainly reflected a significant decline in high margin products as they moved through their natural lifecycle. Operating profit was also impacted by net costs associated with the optimisation of our manufacturing footprint due to the closure of Riverside, US and ramp up of Annan, UK. Whilst the optimisation delivered savings of £15 million in the year and will deliver significant benefits over the medium term, associated one-off costs in the period outweighed early savings.

ROIC

Return on invested capital, excluding net pension assets, improved 0.6 percentage points to 9.0% due to footprint optimisation.

Outlook

In 2019/20, we expect sales to be broadly stable whilst operating profit will grow double digit, primarily due to cost savings associated with footprint optimisation.

New Markets

	Year ended 31st March			
	2019 £ million	2018 £ million	% change	% change, constant rates
Sales				
Alternative Powertrain	**206**	156	+32	+33
Medical Device Components	**70**	74	-5	-6
Life Science Technologies	**49**	45	+10	+12
Other	**37**	37	-1	-1
Total sales	**362**	312	+16	+17
Underlying operating profit	**2**	17	-85	-85
Margin	**0.7%**	5.3%		
Return on invested capital (ROIC)	**1.1%**	7.9%		
Reported operating loss	**(15)**	(20)	+29	

Strong sales growth; commercialisation of eLNO on track

- Sales growth driven by strong demand for our non-automotive battery systems and fuel cells.
- Operating profit declined 85% due to further investment in our Battery Materials business and weaker profitability in Medical Device Components.
- Continued progress in commercialising eLNO with board approval for the initial capital investment and site selection for our first commercial plant.

Alternative Powertrain

Our Alternative Powertrain business provides battery systems for a range of applications, fuel cell technologies and battery materials for automotive applications. Our battery materials business comprises lithium iron phosphate (LFP) materials as well as eLNO, our portfolio of leading ultra high energy density materials. Alternative Powertrain sales grew over 30% driven by significant growth in battery systems for e-bikes and continued momentum in fuel cells.

Commercialisation of eLNO

We are making good progress in the development and commercialisation of eLNO which will compete with future materials such as NMC 811.

We continue to test our materials with our target customers and feedback remains very positive. It is especially pleasing that as the market for cathode materials develops, auto OEMs are increasingly looking for customised solutions to solve their specific problems, which plays to our strengths in science and technology.

Consequently, we have been tailoring eLNO for our customers and now have a portfolio of materials. As we progress through various stages of testing, we will work with customers to test eLNO in their own specific applications. To facilitate this, we are constructing three customer application centres – two in the UK and one in Japan. One of the UK centres will be completed in 2019 and the remaining two centres will be completed in 2020.

In scaling up, we have moved from lab scale to our pilot plant which is now complete. We recently selected a site in Poland for the first 10,000 metric tonnes commercial plant, which has the potential for expansion to 100,000 metric tonnes, and we are carefully considering how we scale beyond our initial 10,000 metric tonnes. We also signed our first long term supply agreement for raw materials with Nemaska Lithium.

Lithium iron phosphate

In battery materials, sales of lithium iron phosphate remained at a low level and were flat year on year.

Fuel Cells

Fuel Cells is now profitable, with improved demand for non-automotive applications and new business wins in China resulting in sales growth of 41%. We are also investing in new capacity to support growth in demand.

Medical Device Components

Our Medical Device Components business leverages our science and technology to develop products found in devices used in medical procedures. Sales declined 6% due to quality issues which have now been resolved and an increase in dual sourcing from our customers.

Life Science Technologies

Our Life Science Technologies business provides advanced catalysts to the pharmaceutical and agricultural chemicals markets. Sales grew 12% in the period, supported by sales to two large customers.

Underlying operating profit

Operating profit declined 85% and margin reduced by 4.6 percentage points to 0.7%. This was impacted by higher costs in our Battery Materials business as we continue to build strategic customer relationships to support commercialisation of eLNO. The margin was further affected by the quality issues and dual sourcing in Medical Device Components and a strong increase in lower margin Battery Systems sales.

ROIC

ROIC declined to 1.1% reflecting lower operating profit.

Outlook

New Markets is expected to deliver sales and operating profit growth in 2019/20.

Financial review

Overall, we have had a good year and, despite challenges in some of our end markets, we are doing exactly as we said.

At constant rates, our sales excluding precious metals were up 10% and underlying operating profit was up 8%. Underlying EPS was up 10% and the board has recommended an increase of 7% in the final dividend. Further aspects of the group's financial performance in 2018/19 are outlined below.

IFRS 15 and related statements

IFRS 15, Revenue from Contracts with Customers, is effective for annual reporting periods beginning on or after 1st January 2018 and replaces IAS 18, Revenue. IFRS 15 provides a principles-based approach for revenue recognition. As part of considering the impact of IFRS 15 we have also performed a detailed review of how we account for commodity contracts, which has resulted in a change to the way we are presenting our accounts.

We have concluded that swaps and sale and repurchase agreements entered into by our Platinum Group Metals Services business within Efficient Natural Resources should not be included within statutory revenue. Consequently, we have excluded these transactions from statutory revenue in 2019, and we have also fully restated the prior year financial statements to reflect these changes. This results in both years now being presented on a consistent basis.

The impact of these restatements is to reduce revenue and cost of sales by £3.9 billion for the year ended 31st March 2018. There is no impact on sales excluding precious metals, operating profit, working capital, cashflows or net assets. The overall impact on equity is less than £5 million. Historic business performance measures communicated by Johnson Matthey are unchanged. Full details are given in note 39 on page 220.

IFRS 16

IFRS 16 is effective from 1st April 2019 and replaces IAS 17, Leases. There is no impact on the year ended 31st March 2019. Upon transition, the group will recognise right-of-use assets and lease liabilities of approximately £75 million on the balance sheet.

For the year ending 31st March 2020, we anticipate an increase in underlying operating profit of £2 million and an additional interest cost of £3 million. Consequently, the group estimates that profit before tax will be reduced by approximately £1 million for the year ending 31st March 2020 as a result of adopting IFRS 16.

Corporate

Corporate costs in the period were £53 million, an increase of £10 million from 2017/18 due to higher legal costs and costs associated with building further capability within group functions. Corporate costs are expected to be slightly higher in 2019/20.

Research and development (R&D)

We invested £190 million in R&D in the period, including £19 million of capitalised R&D, around 5% of sales. Spend was broadly flat partly due to more focused investment. Key areas of spend included next generation technologies in Clean Air, improving the efficiency and resiliency of our refineries in Efficient Natural Resources, our Health API product pipeline and investment in our eLNO battery material.

Foreign exchange

The calculation of growth at constant rates excludes the impact of foreign exchange movements arising from the translation of overseas subsidiaries' profit into sterling. The group does not hedge the impact of translation effects on the income statement.

The principal overseas currencies, which represented 85% of non-sterling denominated underlying operating profit in the year ended 31st March 2019, were:

	Share of 2018/19 non-sterling denominated underlying operating profit	Average exchange rate Year ended 31st March		
		2019	2018	% change
US dollar	39%	**1.310**	1.328	-1
Euro	37%	**1.134**	1.134	–
Chinese renminbi	9%	**8.81**	8.79	–

Overall, for the year as a whole, the impact of exchange rates decreased sales by £3 million and increased underlying operating profit by £1 million, following a £27 million and a £4 million decrease respectively in our first half.

If current exchange rates (£:$ 1.295, £:€ 1.157, £:RMB 8.72) are maintained throughout the year ending 31st March 2020, foreign currency translation will have a negative impact of approximately £2 million on underlying operating profit. A one cent change in the average US dollar and euro exchange rates each have an impact of approximately £2 million on full year underlying operating profit and a ten fen change in the average rate of the Chinese renminbi has an impact of approximately £1 million.

Pgm prices

Higher average pgm prices benefited operating profit by around £16 million in the period in Efficient Natural Resources.

Anna Manz
Chief Financial Officer

Reconciliation of underlying operating profit to operating profit (£ million)

	Year ended 31st March 2019	2018
Underlying operating profit	**566**	525
Loss on disposal of businesses[1]	**(12)**	(7)
Loss on significant legal proceedings[1]	**(17)**	(50)
Amortisation of acquired intangibles	**(14)**	(19)
Major impairment and restructuring charges[1]	**8**	(90)
Operating profit	**531**	359

1 For further details on these items please see notes 5 and 6 on page 179 and note 8 on page 180.

Summary of efficiency initiatives

Global procurement – as our global procurement process builds, we are beginning to realise benefits and are on track to deliver the expected £60 million of savings over three years, with three quarters benefiting the income statement. In 2018/19, we achieved £26 million of savings, of which £19 million benefited the income statement. We anticipate a similar level of savings in 2019/20.

Group restructuring programme – this is substantially complete with delivery of the vast majority of annualised cost savings of around £25 million.

Health footprint optimisation – closure of our manufacturing plant in Riverside, US, is now complete as we build our platform for breakout growth.

Initiative £ million	Total	Achieved in the year	Achieved to date
Procurement	60	26	28
Restructuring	25	12	24
Footprint optimisation	20	15	15
Total	**105**	**53**	**67**

Major impairment and restructuring charges

We had no major impairment and restructuring charges in the year ended 31st March 2019. Cash spend in relation to ongoing restructuring in 2018/19 was £8 million.

Our group restructuring programme is expected to deliver annualised cost savings of around £25 million and is substantially complete, having delivered £24 million of savings in 2018/19.

The closure of our manufacturing plant in Riverside, US, is now complete and we expect to deliver annualised cost savings of £20 million, having delivered £15 million of savings in 2018/19.

See below for a breakdown showing the cost, cash costs and cost savings achieved to date:

Year ended 31st March 2019 £ million	Impairment and restructuring credit	Cash costs
Group restructuring programme	**(1)**	**5**
Health – Closure of Riverside, US	**(7)**	**3**
Total	**(8)**	**8**

Year ended 31st March 2018 £ million	Impairment and restructuring charge	Cash costs
Group restructuring programme	43	19
Health – Closure of Riverside, US	36	4
New Markets – Impairment of Water	11	–
Total	90	23

Loss on disposal of businesses

Profit or loss on disposal of businesses is shown separately on the face of the income statement and excluded from underlying operating profit. On 1st February 2019, the group sold its water disinfection business, Miox. After costs, the net proceeds were £2 million which resulted in a loss on sale of £12 million. In the prior year, the group sold its UK automotive battery systems business. After costs, the net proceeds were £5 million which resulted in a loss on sale of £7 million.

Finance charges

Net finance charges in the period amounted to £43 million, up from £38 million in 2017/18. This was primarily driven by higher precious metal funding costs following downtime during the first half in one of our pgm refineries.

We anticipate that net finance charges will be significantly higher in 2019/20 due to higher average net debt as we invest for future growth, higher precious metal funding costs and the impact of IFRS 16.

Financial review continued

Taxation

The effective tax rate on reported profit for the year was 15.3%, up from 6.9% for the year ended 31st March 2018.

The tax charge on underlying profit before tax was £83 million, an effective tax rate of 15.9%, down from 17.7% for the year ended 31st March 2018. This decrease was primarily due to changes in the US tax legislation and the mix of profits by country.

We currently expect the tax rate on underlying profit for the year ending 31st March 2020 to be around 16%.

Our approach to tax

Johnson Matthey has developed a reputation over the last 200 years for integrity and our people take pride in doing the right thing across all aspects of our business. These principles underpin our approach to the management of tax.

We want to be clear and open on our approach so that our stakeholders understand it. Today we have operations in over 30 countries and, for each of those countries, we endeavour to pay our fair share of tax. We follow the laws of the relevant country and our group tax strategy so that we pay the correct and appropriate amount of tax at the right time.

Through implementation of our tax strategy we plan to:

- Optimise global tax incentives and exemptions, such as those which support the research and development of our next generation of sustainable technologies. We will only engage in tax planning which is supported by a clear commercial rationale.
- Have clear and consistent tax policies and procedures to support our business strategy. All our tax policies and guidelines are managed and maintained by our professional tax function which is supported by external advisers. This ensures compliance and allows us to properly respond to global tax changes and developments.
- Proactively identify, evaluate, manage and monitor tax risks arising from our business operations to ensure they remain in line with the group's risk appetite, seeking external advice where necessary.
- Ensure that all tax returns are accurate, complete and are submitted in a timely manner through the activation of a thorough tax risk compliance management process.
- Maintain open, positive and cooperative relationships with governments and global tax authorities.

We also partake in constructive discussions on taxation policies that are relevant to our business. The board approves our tax strategy each year and reviews compliance against it on a regular basis. That way, our strategy will encompass any learning and remain relevant and consistent with our values. The tax strategy satisfies the requirements of UK Finance Act 2016. In line with our code of ethics and commitment to doing the right thing, together with the requirements of Part 3 of The Criminal Finances Act 2017, we have taken steps to put in place adequate procedures to prevent the facilitation of tax evasion.

Post-employment benefits

IFRS – accounting basis

At 31st March 2019, the group's net post-employment benefit position, after taking account of the bonds held to fund the UK pension scheme deficit, was a surplus of £159 million.

The cost of providing post-employment benefits in the period was £56 million, down from £69 million last year, primarily reflecting a decrease in the current service cost due to a change derisking the UK plan.

On 26th October 2018, the High Court ruled that UK defined benefit pension schemes should be amended to equalise pension benefits for men and women in relation to guaranteed minimum pensions. The past service credit includes a charge of £1 million in respect of this ruling. The additional liabilities have been treated as a plan amendment and, therefore, this past service cost has been reflected in the income statement.

Actuarial – funding basis

The UK pension scheme has a legacy defined benefit career average section which was closed to new entrants on 1st October 2012 when a new defined benefit cash balance section was opened.

The last triennial actuarial valuation of the career average section as at 1st April 2018 revealed a deficit of £34 million, or a surplus of £9 million after taking account of the future additional deficit funding contributions from the special purpose vehicle set up in January 2013. The valuation results as at 1st April 2018 allowed for the equalisation of Guaranteed Minimum Pension.

The last triennial actuarial valuation of the cash balance section as at 1st April 2018 revealed a surplus of £0.2 million.

In order to reduce the company's long term pension risk exposure a number of changes to the UK pension scheme became effective from 1st July 2018, including:

- Contributions from those employees who remain in the career average section increased and will further rise over the next few years to help fund the increased cost of providing these benefits.
- The accrual rate in the career average section reduced from 1/80th to 1/100th for each year of future service after this date.
- New benefit levels with varying employee contribution rates were introduced in the cash balance section.
- Employees in the career average section were given the option of switching to the cash balance section.

The latest actuarial valuations of our two US pension schemes showed a deficit of £2 million at 1st July 2018, an improvement from an £11 million deficit at 1st July 2017.

Capital expenditure

Capital expenditure was £323 million in the year, 2.1 times depreciation and amortisation (excluding amortisation of acquired intangibles). In the period, projects included:

- Clean Air manufacturing plants in Poland, China and India. This increased capacity will drive efficiency and improve flexibility, enabling us to support demand from tightening legislation in Europe and Asia.

- Investment in development and commercialisation of eLNO. We completed our pilot plant and began construction of three customer application centres – two in the UK and one in Japan. We selected a site in Poland for the first 10,000 metric tonnes commercial plant, which has the potential for expansion to 100,000 metric tonnes. The first commercial plant is on track to start production in 2021/22 and supply platforms in production in 2022/23.
- Upgrading our core IT business systems.
- Investment in our Health manufacturing and development facilities in Annan, UK and continued investment in our API product pipeline.
- Improving the efficiency and resilience of our pgm refineries within Efficient Natural Resources.

Capital expenditure for 2019/20 is expected to be up to £500 million as our investments into growth projects increase. Key projects include:

- Investment in eLNO as we continue to commercialise our market-leading ultra high energy battery cathode material.
- Clean Air plants in Poland, China and India to meet the growing demand.
- Upgrade of our IT systems as we continue to roll out our single global ERP system, with eight roll outs in 2019/20.

Depreciation and amortisation (excluding amortisation of acquired intangibles) is expected to increase by around £16 million in 2019/20 primarily as we depreciate our investment in upgrading our core IT systems.

Free cash flow and working capital

Free cash flow was an outflow of £13 million. This was due to a working capital outflow of £224 million, of which £198 million related to precious metal primarily reflecting downtime at one of our pgm refineries during the first half.

Excluding precious metal, working capital days improved to 48 days compared to 50 days at 31st March 2018, better than our target for year-end working capital days excluding precious metal of 50 to 60 days.

Average working capital days excluding precious metals improved by three days to 59 days, despite planned inventory build ahead of the first implementation of SAP and the UK's planned withdrawal from the European Union.

Dividend

The board has recommended an increase of 7% in the final dividend to 62.25 pence per share. Together with the interim dividend of 23.25 pence per share this gives a total ordinary dividend for the year ended 31st March 2019 of 85.5 pence per share (2017/18: 80.0 pence per share). Subject to approval by shareholders, the final dividend will be paid to shareholders on 6th August 2019, with an ex dividend date of 6th June 2019.

Return on invested capital (ROIC)

ROIC excluding net pension fund assets slightly declined to 16.4% from 17.0% at 31st March 2018 driven by higher precious metal working capital. ROIC including net pension fund assets would have been 15.4% compared with 16.4% at full year 2017/18.

Capital structure

Net debt at 31st March 2019 was £866 million. This is a decrease of £170 million from 30th September 2018 and an increase of £187 million from 31st March 2018. Net debt increases to £912 million when adjusted for the post tax pension deficits. The group's net debt (including post tax pension deficits) to EBITDA was 1.3 times (31st March 2018: 1.1 times). Our target range is 1.5 to 2.0 times, as this ensures we have flexibility to invest further in the future growth of the business.

Contingent liabilities

The group is involved in various disputes and claims which arise from time to time in the course of its business including, for example, in relation to commercial matters, product quality or liability, employee matters and tax audits. The group is also involved from time to time in the course of its business in legal proceedings and actions, engagement with regulatory authorities and in dispute resolution processes. These are reviewed on a regular basis and, where possible, an estimate is made of the potential financial impact on the group. In appropriate cases a provision is recognised based on advice, best estimates and management judgement. Where it is too early to determine the likely outcome of these matters, no provision is made. Whilst the group cannot predict the outcome of any current or future such matters with any certainty, it currently believes the likelihood of any material liabilities to be low, and that such liabilities, if any, will not have a material adverse effect on its consolidated income, financial position or cash flows.

On a specific matter, Johnson Matthey previously disclosed that it had been informed by two customers of failures in certain engine systems for which the group supplied a particular coated substrate as a component for their customers' emissions after-treatment systems. The particular coated substrate was sold to only these two customers. Johnson Matthey has not been contacted by any regulatory authority about these engine system failures. The reported failures have not been demonstrated to be due to the coated substrate supplied by Johnson Matthey. In the period, we settled with one of these customers on mutually acceptable terms with no admission of fault. Under this settlement, Johnson Matthey recognised a charge of £17 million in the year ended 31st March 2019 and made the associated cash settlement post year end. This charge has been excluded from underlying operating profit.

Having reviewed its contractual obligations and the information currently available to it, the group believes it has defensible warranty positions in respect of its supplies of coated substrate for the after-treatment systems in the affected engines remaining at issue (as it believes it had in respect of the matter settled in the period). If required, it will vigorously assert its available contractual protections and defences. The outcome of any discussions relating to the matters raised is not certain, nor is the group able to make a reliable estimate of the possible financial impact at this stage, if any. While Johnson Matthey works with all its customers to ensure appropriate product quality, we have not received claims in respect of other emissions after-treatment components from these or any other customers. Our vision is for a world that's cleaner and healthier; today and for future generations. We are committed to improving air quality and we work constructively with our customers to achieve this.

Treasury policies and going concern

Treasury policies and financial risk management

Group Treasury is a centralised function within JM based in the UK and US. The role of Group Treasury is to secure funding for the group, manage financial risks and provide treasury services to the group's operating businesses. Group Treasury is run as a service centre rather than a profit centre. The group does not undertake any speculative trading activity in financial instruments.

Funding and liquidity risk

The group's policy on funding capacity is to ensure that we always have sufficient long term funding and committed bank facilities in place to meet foreseeable peak borrowing requirements.

At 31st March 2019 the group had cash and cash equivalents of £378 million and £597 million of undrawn committed bank facilities available to meet future funding requirements. The group also has a number of uncommitted facilities, including overdrafts and metal lease lines, at its disposal. The maturity dates of the group's debt and committed borrowing facilities as at 31st March 2019 are illustrated in the chart below.

Of the committed bank facilities, £114 million have a final maturity date within the 15 months to 30th June 2020 (the going concern period). These will be refinanced in the first quarter of 2019/20 for a further three years with long term relationship banks. In addition, £107 million term debt matures in December 2019 which was pre-financed in 2018/19

Going concern

The directors have assessed the future funding requirements of the group and the company and compared it to the level of long term debt and committed bank facilities for the 15 months from the balance sheet date. The assessment included a sensitivity analysis on the key factors which could affect future cash flow and funding requirements. Having undertaken this work, the directors are of the opinion that the group has adequate resources to fund its operations for the foreseeable future and so determine that it is appropriate to prepare the accounts on a going concern basis.

Foreign currency risk

JM's operations are located in over 30 locations, providing global coverage. A significant amount of profit is earned outside the UK. In order to protect the group's sterling balance sheet and reduce cash flow risk, the group has financed a significant portion of its investment in the US and Europe by borrowing US dollars and euros respectively. Additionally, the group uses foreign currency swaps to hedge a portion of its assets. The group uses forward exchange contracts to hedge foreign exchange exposures arising on forecast receipts and payments in foreign currencies. Details of the contracts outstanding on 31st March 2019 are shown on pages 192 and 207.

Interest rate risk

At 31st March 2019 the group had net borrowings of £866 million of which 94% was at fixed rates with an average interest rate of 3.1%. The remaining 6% of the group's net borrowings was funded on a floating rate basis. A 1% change in all interest rates would have an immaterial impact on underlying profit before tax.

Precious metal prices

Fluctuations in precious metal prices have an impact on JM's financial results. Our policy for all manufacturing businesses is to limit this exposure by hedging against future price changes where such hedging can be done at acceptable cost. The group does not take material exposures on metal trading.

A proportion of the group's precious metal inventories are unhedged due to the ongoing risk over security of supply.

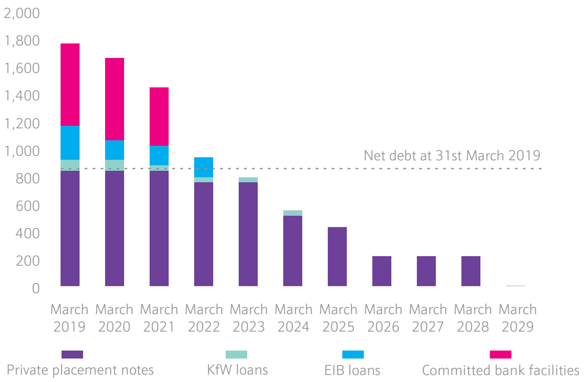
Credit risk

The group is exposed to credit risk on its commercial and treasury activities.

In both cases, counterparties are assessed against the appropriate credit ratings, trading experience and market position. Credit limits are then defined and exposures monitored against these limits. In treasury and precious metal management, these exposures include the mark to market of outstanding transactions and potential settlement risks.

+ Pages 93 to 96: Our principal risks

Maturity profile of debt facilities



Risks and uncertainties

A holistic approach to managing risk

Risk is central to the creation and delivery of our strategy. We have an established risk management and internal controls framework to identify, assess, mitigate and monitor the risks and uncertainties facing our business which enables us to create and protect value. Our approach to risk provides meaningful challenge to our sectors, functions and to our Group Management Committee (GMC) and board, to help them make informed decisions.

During the year we have:

- Scrutinised our forward looking risks which confirmed our coverage of emerging risk.
- Conducted a JM-wide root cause analysis on our group and sector risks and uncertainties which has informed our audit plan and controls assessment.
- Explicitly identified and considered opportunities, including them as part of our mitigations.
- Reviewed the link between our principal risks and the policies and processes identified to mitigate them so that we could focus our key control questionnaire on confirming these policies and processes were embedded.
- Implemented a 'named owner' requirement for individual controls to further embed our requirements for transparency, ownership and accountability of risk.
- Invested in skills and technology to further improve our risks forecasting and management capability.

The effective management of risk enables JM to:

- Deliver our strategic objectives.
- Improve our decision making, planning and prioritisation.
- Pursue opportunities while continuing to mitigate our risks in a rapidly changing external environment.
- Implement controls to mitigate or prevent risks from materialising.
- Consider risk and reward and implement controls in the areas that matter most to us.
- Comply with UK Corporate Governance Code requirements.

Risk management framework and process

The risk management framework incorporates both a top down approach to identify the company's principal risks and a bottom up approach to identify operational risks.

Our board has overall responsibility for JM's risk management process. Together with the GMC, they perform a robust assessment of the principal risks facing the business twice a year. The GMC also focuses on selected risks. The risk reviews are embedded within the relevant business and / or functional review to ensure that the risks and our response to them is considered in the context of our strategy, our values and our strategic objectives.

Risk management framework

Top down

Board

✓ Has overall responsibility for the approach to risk management and internal control
✓ Owns principal risks and uncertainties
✓ Determines risk appetite
✓ Sponsors the framework for enterprise risk management at Johnson Matthey
✓ Determines the organisational risk management approach
✓ Monitors the nature and extent of exposure to our principal risks

Audit Committee

✓ Oversees process and review of controls testing

Group Management Committee (GMC)

✓ Champions risk management
✓ Carries out top down identification and review
✓ Develops company strategy in line with board risk appetite
✓ Reports on principal risks and uncertainties to the board and on process to the Audit Committee

Sector level

✓ Carries out top down review activities
✓ Responsible for ensuring that sites and functional areas have developed risk registers
✓ Reviews and challenges risk registers
✓ Carries out continuous monitoring
✓ Reports to GMC on sector risk and issues

Site / Functional areas / Programmes / Projects

✓ Carries out risk identification, assessment and mitigation
✓ Reports top risks to sector and Corporate Assurance and Risk
✓ Carries out regular reviews on effectiveness of existing controls and progress with control implementation

Bottom up

Risks and uncertainties continued

Functional leaders, sector and site teams are responsible for identifying and assessing their risks, considering the likelihood of occurrence and the potential impact to JM. Sector risks are aggregated and analysed for trends and anomalies across the sectors and group; this is fed back to sector leadership teams so that insights can be incorporated in key activities such as strategic planning and budgeting.

The role of the Corporate Assurance and Risk team is to constructively challenge and assist sectors and functions in considering the range of risks identified and their materiality. The team particularly focuses on the progress of mitigating projects and programmes, their implementation and their likely effectiveness in reducing risk in line with our risk appetite.

We are developing robust qualitative and quantitative modelling techniques to identify and assess any risks that may impede delivery of our strategic objectives. All risks are described, analysed and reported using a standardised framework across the business. Likelihood of occurrence and the potential impact to the company are considered and scored using impact measures including financial, operational, reputational and people factors. The effectiveness and adequacy of controls are assessed regularly with assigned owners and reported at least twice a year.

Evolution of our framework during 2018/19

We continually strive to improve risk management and have made the following enhancements over the last 12 months:

- To ensure greater transparency in our assessment of emerging risks and in response to the 2018 UK Corporate Governance Code, we conducted specific risk sessions to ensure our GMC and board understood the new requirements, our approach and their role.
- We applied greater scrutiny on defining and assessing the effectiveness of mitigating activity.
- We applied additional analysis on sub sector risks such as root cause and correlation against their likely principal risks to provide additional information as to where our risks are originating from and how we can effectively mitigate them.
- We further embedded the bottom up risk management process to ensure that our sector risks are adequately consolidated and reviewed by sector and group leadership twice a year.
- We continually reviewed internal and external environment changes / movements at the board and GMC to ensure that the top down risk management process is fully informed.
- We identified and considered likely opportunities to leverage and ultimately create value.
- We continued to lead open and honest conversations with the business to drive deeper, more informed and challenging discussions.

+ See pages 110 and 111 to read how these risks relate to the board activities

Our principal risks and uncertainties

We critically assess our principal risks to ensure that we continually reflect on the challenges facing our business and the changes that we need to make in response.

We consider our principal risks and uncertainties alongside our strategic and business plans to ensure our risk coverage and analysis supports decision making, and to inform our audit efforts. This year we sought external advice to ensure we were managing our cyber risk effectively. We also gave specific and detailed consideration as to whether metal liquidity and supply should be considered a principal risk.

Ensuring a reliable supply of platinum group metals remains an area of importance for JM. This includes anticipating our customers' demands at the same time as having a detailed understanding of metal mining and supply. While the gross risk associated with metal supply, price and liquidity is significant, we concluded that the risk is being adequately mitigated through a number of activities including persistent monitoring of triggers that may cause deviation from our forecasts.

We sought external assurance on our plans to modernise and improve our IT infrastructure, specifically to gain assurance that the modernised estate would have the resilience to respond to the scale, sophistication and impact of future cyber threats.

Risk process

We have concluded that for the most part, our key areas of risk remain unchanged. In all cases, we continue to review and refine the documented mitigations for each risk. We continue to report whether the risk profile is increasing, decreasing or remaining constant. This provides our board and our shareholders with greater transparency and useful insight into our risks and what we are doing about them.

Changes, additions and remarks on our principal risks and uncertainties in 2018/19:

- As a result of our root cause analyses, we have broadened the scope of our former principal risk, 'failure of significant sites', specifically to recognise the vital nature of our day to day manufacturing activity, associated risks, and extensive associated controls. We have created a new 'failure to maintain operations' principal risk in which 'failure of critical sites' has been included.
- Metal liquidity and supply – acknowledging the critical nature of metal raw materials to our manufacturing operations, we decided to assess whether 'metal liquidity and supply' should be a principal risk in its own right. While it was agreed that it should not, additional controls have been agreed to provide further assurance and will be managed under our 'sourcing of strategic materials' principal risk.
- Brexit – although JM relies extensively on an agile, flexible supply chain, we have paid significant attention to the potential impact a 'no-deal' Brexit may bring. Our well established Brexit working group, which is composed of a number of functional and sector experts, has assessed the implications of a 'no-deal'. A number of mitigating activities were put in place ahead of 29th March 2019 in preparation for this eventuality, for example through building inventory.

  As part of the preparations, the project team conducted scenario analysis to assess the impact of individual risks and combinations of risks, and as the probability of a hard Brexit (without a transition agreement recognising the existing trading rules) increased, the working group approved the acceleration of the project team's contingency plans, with the primary objective of ensuring the continuity of the European business across the whole business model. To that end, we remain comfortable that our current contingency planning will be effective should the UK exit the EU without a deal. We remain vigilant and alert to changes in the UK and EU's stance on Brexit and the potential implications these may have on our operations.
- Battery Materials – recognising the significant strategic potential of our Battery Materials business, we are creating a leading practice risk and governance capability to focus on managing programme and business risks. Our priority is to ensure that business and programme risks receive appropriate management attention and are addressed quickly and effectively in this complex environment.
- Emerging risks – understanding future risks and our ability to respond is supported by all our principal risks, but with specific analysis of our three forward-looking risks; 'future growth', 'existing market outlook' and 'maintaining competitive advantage'. As well as providing us with assurance that our strategy is effective and achievable, these risks have played a central role and source of insight for our viability modelling. The viability statement is shown on page 97.

The following table sets out the principal risks and uncertainties facing the group, the mitigating actions we have in place. It also details any profile changes for each principal risk during the course of the year.

Our risks are not listed from greatest to lowest risk. We list our strategic risks first followed by operational risks. To help understand the potential impact of our risks on our strategy, each risk has a GMC owner who is responsible for the risk and to ensure controls are adequate and prioritised effectively. Additionally, each risk is linked to one or more of our strategy pillars – Science, Customers, Operations, People, which are annotated below.

Key

S Science
C Customers
O Operations
P People

1 Existing market outlook

S C P

Risk and impact

The impact of change in the key business assumptions is either unplanned or unforeseen and we are not agile enough to respond.

This risk would include legislative changes caused by Brexit, other market movements outside of our predictions, and other trends such as the imposition of tariffs, US protectionism or Chinese and global slowdown.

GMC owner
Anna Manz

Mitigation

- Understanding the key drivers and 'severe yet plausible' scenarios.
- Integrate strategic risk within the strategic planning process to enable improved consideration of different market outcomes.
- Define triggers and having formed plans in response to them.
- Monitoring changes to those drivers and adjusting business plans accordingly.
- Technology road mapping to understand our response to evolution in our markets and associated scientific and technological requirements.

Changes since 2018 annual report

Market conditions have become more uncertain since last year with the possibility of a global slowdown. We monitor global economic factors closely so that we can understand the potential effects of slower global or regional economies on our businesses and implement plans to respond. Although a global slowdown appears more likely by consensus, JM's portfolio infers a degree of protection, given the variety of our investments.

Risks and uncertainties continued

Key

S Science
C Customers
O Operations
P People

2 Future growth

S C O P

Risk and impact

Failure to deliver planned growth and value creation as outlined at Capital Markets Day in September 2017 through ineffective execution.

GMC owner
Robert MacLeod

Mitigation

- A clear strategy, which is continuously reviewed in the light of new information, and a business review process to track execution of that strategy.
- Appropriate investment in R&D, capital projects and talent identified to support realisation of the strategy.
- Project management office (PMO) to ensure appropriate governance is in place and plans are delivering to expected timelines.

Changes since 2018 annual report

In executing our organic growth strategy, we are making major capital investments and so we are significantly enhancing our capital project delivery programme to manage this risk.

3 Maintaining our competitive advantage

S C O

Risk and impact

Failure to maintain our competitive advantage in existing markets, and as a result, not meeting customers' evolving needs as efficiently or effectively as our competitors.

GMC owner
Jane Toogood

Mitigation

- Investment in our customer understanding capability.
- Continual engagement and feedback with our customers at multiple levels within our business and theirs.
- Research and development and capital investment processes to ensure resource is prioritised against the areas of greatest opportunity.
- Benchmark efficiency of business processes.

Changes since 2018 annual report

We are delivering major capability building programmes including Commercial, Procurement and Manufacturing Excellence. This enables more effective capital allocation decisions. These programmes and processes are now largely established and our focus is on ensuring these are embedded and their benefits realised.

4 Environment, health and safety (EHS)

O P

Risk and impact

Our business operations are subject to a wide range of challenging health, safety and environmental laws, standards and regulations from government and non-governmental bodies around the world.

If we fail to operate safely we could injure our people and breach applicable laws which could adversely impact our employees, result in lost production time and potentially attract negative interest from the media and regulators.

GMC owner
Robert MacLeod

Mitigation

- Carry out robust process safety audits on high risk sites to enhance and assure the work we do to make our manufacturing processes as safe as possible.
- Implement safety culture programme and behavioural standards.
- Implement process safety programme.
- Determine the cause of incidents and accidents and develop remediation plans.
- Ensure, through ongoing investment, that equipment continues to be appropriate.
- Continued training and awareness activities.

Changes since 2018 annual report

Health and safety continue to be our absolute priority across the business. Execution and embedding of all EHS plans continue to be tracked and monitored on a regular basis.

As part of our commitment to make the world cleaner and healthier, we are extending our understanding of the impact of our operations with further focus through our environmental and sustainability programmes.

5 Sourcing of strategic materials

S C O

Risk and impact

Due to the nature of our operations, JM has limited suppliers from which to source certain strategic raw materials including precious metals. Any significant breakdown in the supply of these materials would lead to an inability to manufacture and satisfy customer demand.

GMC owner
John Walker

Mitigation

- Model alternative supply strategies with expected demand.
- Continually investigate alternative materials as part of research and development.
- Review critical suppliers annually, and apply appropriate mitigating actions.
- Include long term demand for precious metal in JM's ten year strategic plan.
- Invest in pgm refining business.
- Further strengthen supplier relationship management and review regularly to discuss supplier capacity constraints.

Changes since 2018 annual report

This risk now includes additional mitigations to enhance assurance over metal liquidity and supply. This includes additional modelling and stress testing of the market and our metal demands of our current and future operations.

Key

S Science	O Operations
C Customers	P People

6 People P

Risk and impact

To successfully execute our strategy and deliver growth, we need to ensure that we have the breadth and depth of leadership and the appropriate skills and capabilities to drive a healthy, motivated and engaged workforce.

GMC owner
Annette Kelleher

Mitigation

- Leadership development programmes.
- Embed JM values and behaviours in all internal processes including hiring and performance reviews.
- Develop high level capability plans to support strategic plans.
- Conduct global employee opinion survey every two years followed by development and delivery of targeted action plans.
- Wellbeing programme.

Changes since 2018 annual report

We are continuing to invest in our leadership through development programmes to ensure we have the skills and capabilities to deliver our strategy and are growing talent through robust succession planning to build our future leaders.

We carried out a global employee survey, identified improvement areas and developed action plans which are now in progress. These plans include a programme focused on supporting our people's health and wellbeing.

7 Security of metal and highly regulated substances O

Risk and impact

On any given day, the group has significant quantities of high value precious metals or highly regulated substances on site and in transit. Loss or theft due to a failure of the security management systems associated with the protection of metal or highly regulated substances may result in performance impact, reduced customer confidence and potential legal action.

GMC owner
Jane Toogood

Mitigation

- Continue execution of the security improvement roadmap.
- Implement group security policies across all sites.
- Carry out inventory stock takes.
- Ongoing security awareness campaigns and training.
- Security audits.

Changes since 2018 annual report

Level of risk remains consistent as we continue to execute our security improvement roadmap.

8 Intellectual capital management S O

Risk and impact

Failure to adequately manage our own, and third party, intellectual capital, knowledge and information could lead to a loss in business advantage, loss of freedom to operate and reputational damage associated with litigation.

GMC owner
Simon Farrant

Mitigation

- Implement business intellectual capital management strategy.
- Use intellectual capital lawyers to provide specialist guidance.
- Portfolio management of intellectual capital through new technology solution.
- Invest in cyber security (see risk 13).

Changes since 2018 annual report

We have continued to develop market leading products using our world class science capabilities. We protect our inventions and knowhow, although our markets remain challenging, crowded and litigious.

9 Failure to maintain operations C O

Risk and impact

We may experience interruptions and / or delays in the manufacturing and supply of our products resulting in lost sales affecting our reputation and revenue growth.

GMC owner
John Walker

Mitigation

- Ensure regular maintenance of critical machinery.
- Continue to invest in infrastructure.
- Adhere to high technical standards.
- Implement Procurement Excellence programme.
- Insurance coverage in place.
- Implement Group Business Continuity Policy and manual across all sites.
- Continue to develop comprehensive response plans and test annually.

Changes since 2018 annual report

We have broadened the scope of our original risk, 'failure of significant sites', to recognise the vital nature of our day to day manufacturing activities, associated risks and extensive associated controls. We are investing in our pgm refineries and our preventative maintenance planning work.

Risks and uncertainties continued

Key

S Science
C Customers
O Operations
P People

10 Ethics and compliance

C O P

Risk and impact

Failure to comply with ethical and regulatory compliance standards leading to reputational damage, possible criminal / legal exposure for the company or for individuals.

GMC owner

Simon Farrant

Mitigation

- Implement refreshed code of ethics supported by training, and tone from the top set by senior leadership.
- Suite of legal compliance policies and procedures in place.
- Use internal and external subject matter experts to identify risks, set standards and provide advice and training.
- Implement ethical working practices certification.

Changes since 2018 annual report

This risk is continually assessed given the evolving regulatory and business background.

11 Business transition

O P

Risk and impact

To position the group for future growth and maximise available efficiencies, we continue to evolve the way in which we run our business. This includes group wide standardisation of some activities, directed by strong functional leaders, to ensure best practice is used and maintained across the group.

The risk is that we fail to deliver transformational change, fail to achieve efficiencies and have a disengaged workforce.

GMC owner

Robert MacLeod

Mitigation

- Strategic PMO to drive appropriate governance across all workstreams.
- Implement project management framework across all key initiatives.
- Expert third party assurance on key change programmes, including ERP (SAP) go-live at key sites, assured by expert third parties.
- Communicate with and engage employees to drive functional engagement.

Changes since 2018 annual report

This risk has been updated as we continue to evolve the way in which we run our business. We are managing this risk through our upgraded PMO which ensures we have targeted action plans, employee communications and wellbeing programmes to support our workforce.

12 Product quality

S C O

Risk and impact

Our products are used in a wide range of applications, processes and systems. The safety and quality of these products are crucial to ensuring they operate as intended.

Should a product fail to perform as expected, we could be responsible for harming consumers or exposed to liability claims. This could lead to loss of future business, reputational damage and loss of licence to operate.

GMC owner

Jason Apter

Mitigation

- Monitor and report quality performance, taking corrective action where required.
- Implement quality management system.
- Continue to develop robust manufacturing systems supported by standardised processes.
- Robust supplier contract terms and conditions.

Changes since 2018 annual report

Risk remains consistent as the regulatory environment continues to tighten and our customers are experiencing greater scrutiny. JM has continued to make significant progress in embedding a global quality management system supported with training and regular communications.

13 Applications, systems and cyber

O P

Risk and impact

Risks that our applications and systems security is inadequate or fails to adapt to changing business requirements and / or external threats. The impact of these may adversely affect our financial position and could harm our reputation.

GMC owner

Anna Manz

Mitigation

- Deliver of our cyber security and infrastructure improvement investment to increase resilience.
- Implement key policies and standards across JM.
- Continue to invest in information systems, monitoring and assurance to support our data security strategy.
- Input and assurance from third party specialists.

Changes since 2018 annual report

We are continuing to invest heavily in our IT infrastructure to provide better visibility and controls to support a more efficient business.

Viability

In accordance with provision C.2.2 of the 2016 Corporate Governance Code, the directors have assessed the viability of the company over a longer period than the 15 months covered by the 'Going Concern' statement.

During the year, the board has carried out a robust assessment of the principal risks affecting the company, particularly those which could threaten the business model. These risks and the actions taken to mitigate them are described in the section on 'Risks and Uncertainties'. To reach the viability statement conclusion we have undertaken the following process:

- The Audit Committee annually reviews the risk management process to ensure its continuing effectiveness;
- The board and GMC perform a robust assessment of the principal risks facing the business twice a year. The GMC also focuses on selected risks at each of its meetings;
- In October and April, a presentation is made to the board from the Group Assurance and Risk Director, explaining the process followed by management to identify, assess and manage risks throughout the business. At this time, all of our principal risks are considered along with the linkages between them;
- Throughout the year, a number of deep dives into specific risk areas are conducted by the Corporate Assurance and Risk team, the results of which were presented to and discussed by the GMC. This includes assessment of root cause, controls effectiveness, and assurance.

The group's prospects are assessed through the annual strategic and business planning processes. This process includes a review of assumptions made and the ongoing assessment of annual and longer term plans, including appraisal of the group strategy and significant capital investment decisions. Reviews are led by the Chief Executive and Chief Financial Officer in full in conjunction with Sector Chief Executives. In addition, the board participates fully in the annual process by reviewing sector strategies throughout the year. During these reviews, the group's current position and its prospects over the forthcoming years are reviewed which allows reaffirmation of the group strategy.

The directors have determined that a three year period to 31st March 2022 is an appropriate period over which to assess the group's viability. As part of our long term strategy planning, the group also prepares forecasts for longer periods than three years, but there is inevitably more uncertainty associated with longer time horizons. We have therefore chosen a three year horizon as we are confident with the accuracy of the forecast over this period.

In making the assessment, we have considered a number of severe but plausible stress scenarios linked to the group's principal risks, specifically risks 1, 2 and 3. We have analysed the impact of the following three hypothetical stress scenarios plus all of them occurring at the same time.

Scenario 1: The impact of change in key business assumptions is either unplanned or unforeseen and JM is not agile enough to respond. Under this scenario we evaluated the impact of a downgrade in the global economic outlook and potential for recession in key markets and from adverse events and movements in commodity markets. As well as the possible impact from a faster than expected uptake of electric vehicles.

Scenario 2: Failure to grow through new opportunities as a result of ineffective execution. This scenario assesses failing to deliver new growth in new markets and technologies.

Scenario 3: Failure to maintain competitive advantage in existing markets and, as a result, not meeting customers' evolving needs as effectively as competitors. This scenario assesses the impact from a hard Brexit, cyber and intellectual property related risks including poor management of capital projects, significant production losses due to downtime at a major site and the inability to improve certain businesses or sites.

All of our stress tests were derived through discussions with senior management and the board after considering our principal risks and uncertainties.

Our evaluation took account of the group's current financing arrangements and assumes that existing debt and borrowing facilities can be refinanced as they mature, but we have also considered the potential capacity for additional funding should this be required. Our stress testing showed that certain combinations of these hypothetical scenarios would increase JM's funding requirements substantially and risk breaching a key financial covenant, requiring additional funding and potentially mitigating actions in order to maintain sufficient headroom against the covenant limit. We are, however, satisfied that the mitigating actions and our capacity for additional financing will allow JM to effectively respond to the negative impact from a combination of these stress scenarios, and that the combination of factors required to impose this stress is both extremely significant, and very unlikely.

We have also undertaken a reverse stress test in order to identify what additional or alternative scenarios and circumstances would threaten our current financing arrangements.

Based on the results of our assessment, the directors have a reasonable expectation that the company will be able to continue in operation and meet its liabilities as they fall due over a period of at least three years.

Governance

The Governance section, introduced by our Chairman, contains the Corporate Governance Report and details about the activities of the board and its committees during the year.

It also contains the Directors' Report and the statement on responsibilities of directors.

Contents

100 Board of Directors
104 Letter from the Chairman
106 Corporate Governance Report
119 Nomination Committee Report
123 Audit Committee Report
132 Remuneration Report
151 Directors' Report
155 Responsibilities of Directors

Board of Directors

One team

An experienced team delivering our strategic vision.

N R

Patrick Thomas – Chairman

Appointed to board: June 2018

Experience and contribution

Between 2015 and May 2018 Patrick was Chief Executive Officer and Chairman of the Board of Management of Covestro AG. Between 2007 and 2015 he was also Chief Executive Officer of its predecessor, Bayer MaterialScience, prior to its demerger from Bayer AG. He is a fellow of the Royal Academy of Engineering.

Patrick has deep experience of leading international specialty chemical businesses. He also brings a track record of driving growth through science and innovation across global markets.

Other current appointments

Non-Executive Director at Akzo Nobel N.V and Aliaxis S.A. and a member of the advisory board of Deutsche-Africa Linien Hamburg, and a Council Member of Gerson Lehrman Group Network.

International experience

Belgium, Germany, UK

Sector experience

Automotive, Chemicals, Manufacturing, Oil and Gas, Pharmaceuticals, Technology

Robert MacLeod – Chief Executive

Appointed to board: June 2009

Experience and contribution

Robert was appointed as Chief Executive in June 2014. He joined Johnson Matthey as Group Finance Director in 2009. Previously he was Group Finance Director of WS Atkins plc and a Non-Executive Director at Aggreko plc. He is a Chartered Accountant with a degree in Chemical Engineering.

Having been with JM for 10 years and as Chief Executive for 5 years, Robert has a proven track record of delivering success and driving change for the organisation. He has strong experience across JM, its culture and its markets and as Chief Executive, has led our Health and New Markets teams.

Other current appointments

Non-Executive Director at RELX PLC.

International experience

UK, US

Sector experience

Chemicals, Oil and Gas, Professional Services

Anna Manz – Chief Financial Officer

Appointed to board: October 2016

Experience and contribution

Anna joined Johnson Matthey as Chief Financial Officer in October 2016. Previously she was Group Strategy Director and a member of the Executive Committee at Diageo plc. During 17 years at Diageo, Anna held a series of senior roles, including Finance Director Spirits North America, Group Treasurer and Finance Director Asia Pacific. Anna is a qualified management accountant with a degree in Chemistry.

Anna has strong credentials in financial leadership and brings international experience and deep commercial awareness to the board. She also leads the group's activities in respect of our risks and controls and has been at the centre of the work to drive efficiency and effectiveness across our business.

Other current appointments

Non-Executive Director at ITV plc.

International experience

China, India, Ireland, Kenya, Korea, Nigeria, Singapore, UK, US

Sector experience

Chemicals, Consumer, Media

Alan Ferguson – Senior Independent Director

Appointed to board: January 2011

Experience and contribution
Alan was appointed a Non-Executive Director in January 2011 and as Senior Independent Director in July 2014. Previously he was Chief Financial Officer and a Director of Lonmin Plc. Prior to this he was Group Finance Director of The BOC Group plc. Before joining BOC, he worked for Inchcape plc for 22 years and was Group Finance Director from 1999 until 2005. From 2011 to 2018 he was a Non-Executive Director and Chairman of the Audit Committee at The Weir Group PLC. He is a Chartered Accountant and sits on the Business Policy Panel of the Institute of Chartered Accountants of Scotland.

Alan brings recent and relevant financial experience to the board, making him ideally suited to chairing the Audit Committee and acting as its financial expert. He also brings experience of the precious metals and automotive sectors.

Other current appointments
Non-Executive Director of AngloGold Ashanti Limited. Non-Executive Director, Chairman of the Audit Committee and Senior Independent Director at Croda International Plc and Marshall Motor Holdings plc.

International experience
South Africa, UK

Sector experience
Automotive, Chemicals, Manufacturing, Metals and Mining

N A R

Key

- Chairman of the Committee
- N Member of the Nomination Committee
- A Member of the Audit Committee
- R Member of the Remuneration Committee

John Walker – Sector Chief Executive, Clean Air

Appointed to board: October 2013

Experience and contribution
John joined Johnson Matthey in 1984 and was appointed Division Director, Emission Control Technologies in 2009 after holding a series of positions within the division in the US, Asia and Europe. He was appointed Executive Director, Emission Control Technologies in October 2013 (subsequently renamed Clean Air Sector in April 2017).

John therefore has a wealth of experience and knowledge of the automotive market as well as the wider JM group. He also brings broad international experience to the board, from a variety of geographies.

International experience
Australia, China, France, Germany, India, Japan, Malaysia, UK, US

Sector experience
Automotive, Chemicals, Manufacturing

N A R

Odile Desforges – Non-Executive Director

Appointed to board: July 2013

Experience and contribution
Odile's automotive industry experience began with the French Government's Transport Research Institute and developed with Renault SA and AB Volvo. She was previously Chairman and Chief Executive Officer of the Renault-Nissan Purchasing Organization (RNPO) and most recently, until 2012, as Executive Vice President, Engineering and Quality at Renault. She was appointed a Knight of the French Legion of Honour in 2009.

Odile has a long and distinguished career in the automotive industry. She brings executive experience in purchasing, product planning, development and engineering to the board.

Other current appointments
Non-Executive Director of Safran SA, Dassault Systèmes, Imerys and Faurecia.

International experience
France, Japan, Sweden, UK

Sector experience
Aerospace, Automotive, Battery Technologies, Defence, Manufacturing, Technology

Xiaozhi Liu – Non-Executive Director

Appointed to board: April 2019

Experience and contribution
Xiaozhi is the founder and Chief Executive of ASL Automobile Science & Technology, a position she has held since 2009. She is also a Non-Executive Director of Autoliv Inc, an automotive safety supplier, and Fuyao Glass Industry Group Co., Ltd, a glass manufacturing company in China.

Xiaozhi has deep knowledge and perspective on technology driven businesses in China and globally, and brings strong experience of the automotive sector, particularly in China, as well as in Europe and the US.

Other current appointments
Chief Executive of ASL Automobile Science & Technology, Non-Executive Director of Autoliv Inc, Fuyao Glass Industry Group Co., Ltd and InBev SA/NV.

International experience
China, Sweden, US

Sector experience
Automotive, Battery Technologies

N A R

As at the date of approval of this annual report, the Board of Directors of Johnson Matthey is as detailed on pages 100 to 102. Tim Stevenson retired as Chairman on 26th July 2018.

Board of Directors continued

Key

Chairman of the Committee

N Member of the Nomination Committee

A Member of the Audit Committee

R Member of the Remuneration Committee

N A R

John O'Higgins – Non-Executive Director

Appointed to board: November 2017

Experience and contribution
John was previously Chief Executive of Spectris plc, a position he held from January 2006 to September 2018. Prior to this he worked for Honeywell in a number of management roles, including as president of automation and control solutions, Asia Pacific. He began his career as a design engineer at Daimler-Benz in Stuttgart. Between 2010 and 2015, John was a Non-Executive Director of Exite Technologies Inc.

John brings extensive business and industrial experience to the board, including experience of battery technologies. He has a track record of portfolio analysis and realignment, driving growth both organically and through mergers and acquisitions, as well as improving operational efficiencies.

Other current appointments
Havelock Acquisitions Limited, Trustee of the Wincott Foundation.

International experience
Belgium, China, Germany, UK, US

Sector experience
Automotive, Chemicals, Energy, Manufacturing, Oil and Gas, Technology

N A R

Jane Griffiths – Non-Executive Director

Appointed to board: January 2017

Experience and contribution
Jane is currently Global Head of Actelion, a Janssen pharmaceutical company of Johnson & Johnson (J&J). Since joining J&J in 1982 Jane's roles have included international and affiliate strategic marketing, sales management, product management, general management and clinical research. Jane is Director and Chair of the J&J Corporate Citizenship Trust in EMEA, and a sponsor of the J&J Women's Leadership Initiative.

Jane brings significant experience and understanding of the management of global strategy to the board, particularly across the pharmaceutical sector, together with a strong interest in diversity.

Other current appointments
Director of Johnson & Johnson Innovation Limited.

International experience
Africa, Europe, Middle East, UK

Sector experience
Pharmaceuticals

N A R

Chris Mottershead – Non-Executive Director

Appointed to board: January 2015

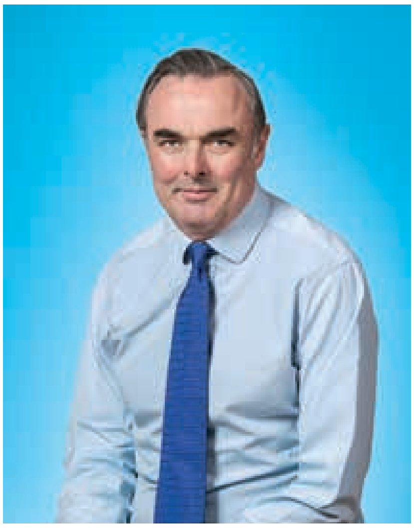
Experience and contribution
Chris is Senior Vice President of Quality, Strategy and Innovation at King's College London and Director of King's College London Business Limited. Prior to joining King's College in 2009, Chris had a 30 year career at BP, most recently as Global Advisor on Energy Security and Climate Change. Before this, he was Technology Vice President for BP's Global Gas, Power and Renewables businesses. He is a Chartered Engineer and Fellow of the Royal Society of Arts.

Chris brings a wealth of relevant industrial and academic knowledge to the board, as well as experience in energy technology and related global sustainability issues. As Chair of the Remuneration Committee, Chris is a sounding board for JM's Human Resources function.

Other current appointments
Non-Executive Director of The Carbon Trust and TEDI London.

International experience
UK, US

Sector experience
Energy, Oil and Gas, Technology



Simon Farrant – General Counsel and Company Secretary

Joined Johnson Matthey: 1994

Experience
Appointed Company Secretary in 1999 and Group Legal Director in 2007. He is a Solicitor and Attorney and Counselor-at-Law (State of New York).

The board at a glance

Attendance

	Role	Date of appointment to board	Number of meetings eligible to attend	Number of meetings attended	% attended
Patrick Thomas	Chairman	1st June 2018[1]	9	9	100%
Tim Stevenson	Chairman	29th March 2011[2]	4[3]	4	100%
Robert MacLeod	Chief Executive	22nd June 2009[4]	11	11	100%
Odile Desforges	Non-Executive Director	1st July 2013	11	10[5]	91%
Alan Ferguson	Non-Executive Director	13th January 2011	11	11	100%
Jane Griffiths	Non-Executive Director	1st January 2017	11	11	100%
Anna Manz	Chief Financial Officer	17th October 2016	11	11	100%
Chris Mottershead	Non-Executive Director	27th January 2015	11	10[5]	91%
John O'Higgins	Non-Executive Director	16th November 2017	11	11	100%
John Walker	Executive Director	9th October 2013	11	10[6]	91%

1. Patrick Thomas was appointed Chairman of the board on 26th July 2018.
2. Tim Stevenson was appointed Chairman of the board on 19th July 2011.
3. Tim Stevenson retired from the board on 26th July 2018.
4. Robert MacLeod was appointed Chief Executive on 5th June 2014.
5. Odile Desforges and Chris Mottershead were unable to attend one ad hoc meeting of the board, which was arranged at short notice to consider the appointment of Xiaozhi Liu as a Non-Executive Director of the company. Both were provided with papers in advance and had the opportunity to pass on any comments to the Chairman ahead of the meeting.
6. John Walker was unable to attend one board meeting held by telephone due to personal commitments.

Since the end of the year, the board has met twice and all board members attended both meetings, including Xiaozhi Liu following her appointment in April 2019.

The attendance of members at committee meetings in the year is set out in the Nomination Committee Report, the Audit Committee Report and the Remuneration Report (in respect of the Remuneration Committee) on pages 120, 124 and 142 respectively.

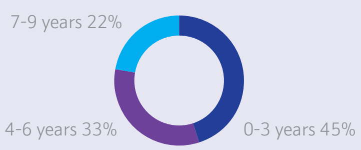
Diversity as at 31st March 2019

Gender diversity

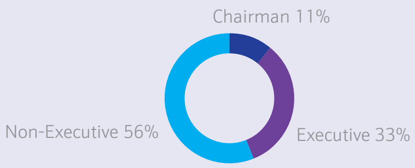
Male **67%**

Female **33%**

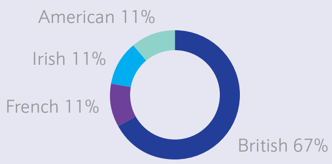
Tenure



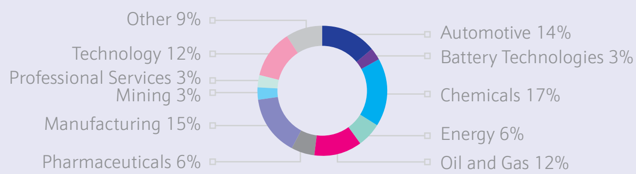
Role



Nationality



Industry experience



Non-Executive Director skills

Leadership	Finance	Health and safety	People
6	6	4	5
Strategy	**Risk**	**Commercial**	**Technology**
6	5	6	4

The above table shows some of the skills held by our Non-Executive Directors following a self-assessment, whereby each Non-Executive Director was asked to identify their areas of strength.

+ Further information is set out in each director's biography on pages 100 to 102

+ You can read more about our board's skills matrix in the Nomination Committee report on page 121

Letter from the Chairman

Evolve

and grow the company effectively with a world class board.

Patrick Thomas
Chairman

On behalf of the board, I am pleased to present my first Corporate Governance Report as Chairman of Johnson Matthey. The board is accountable to shareholders for good governance and this section of the annual report provides you with an insight into how the board operates, our corporate governance structures and processes and their effectiveness throughout the year ended 31st March 2019.

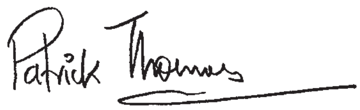
A board with strong leadership and a framework of effective controls and risk management is key to the success of a company. We have taken steps to refresh the board's leadership during the year, resulting in the appointment of Xiaozhi Liu and we will welcome Doug Webb to the board in September 2019. I am committed to maintaining high standards of corporate governance and I welcome the Financial Reporting Council's recent changes to the UK Corporate Governance Code. As a board, we have reviewed the requirements of the UK Corporate Governance Code 2018 and plans are in place to ensure compliance for 2019/20.

The board has an important role in defining the culture of the group and understanding the current culture provides a deeper insight into the organisation. I have found the culture at Johnson Matthey to be open, engaged and innovative. My board colleagues and I share a common purpose in leading by example and acting with integrity, in order to demonstrate the values and behaviours that make JM a company to be proud of.

My role is to ensure that Johnson Matthey has a board which works effectively under my leadership and I am pleased to say that one year into my term, I believe we have an effective board. I have encouraged open and constructive debate at our meetings, to enable the board to develop JM's strategy and support its operations, customers and people. You can read more about our board's effectiveness on pages 114 to 115. I have now met with approximately 30% of our shareholding and I am committed to engaging with our shareholders and all our stakeholders. I look forward to meeting more of you in the year ahead.

The UK Corporate Governance Code

In this annual report we are reporting against the Financial Reporting Council's UK Corporate Governance Code 2016 requirements. We report on how we have applied it's main principles and complied with its relevant provisions. Except in one respect (which is explained on page 118), Johnson Matthey has complied with all relevant provisions throughout the year ended 31st March 2019 and from that date up to the date of approval of this annual report. Next year, we will report against the requirements of the UK Corporate Governance Code 2018.



Patrick Thomas
Chairman

UK Corporate Governance Code

The UK Corporate Governance Code 2016 (the code) sets standards of good practice in relation to leadership, effectiveness, remuneration, accountability and relations with shareholders. This Corporate Governance Report is structured to report against these principles of the code. Together with the Nomination Committee Report, the Audit Committee Report and the Remuneration Report, it describes how we have complied with the relevant provisions of the code and applied its main principles during the year.

Leadership

108 Company purpose
108 Governance framework
110 Principal board activities
112 Culture

Effectiveness

112 Our board's composition
112 Independence of the Non-Executive Directors
112 Succession planning
112 Directors' induction and development
113 Terms of appointment of the Non-Executive Directors
113 Diversity
113 Time commitment of the Chairman and the Non-Executive Directors
113 Directors' conflicts of interest
114 Evaluation of the board, board committees and directors
115 Review of the Chairman's performance
115 Review of the Executive Directors' performance
115 Annual re-election of directors

Remuneration

Accountability

115 Fair, balanced and understandable reporting
116 Risk management and internal control
116 Review of effectiveness of the group's risk management and internal control systems
116 The Audit Committee
116 Viability statement
117 Stakeholders

Relations with shareholders

118 Dialogue with our shareholders
118 Reporting of results and Capital Markets Day
118 Annual General Meetings
118 Asset reunification
118 Share capital
118 2019 AGM
118 Compliance with the UK Corporate Governance Code 2016

Governance highlights

In our Corporate Governance Report you will see key steps we have taken on:

- Board succession planning.
- Internal evaluation of the board and its committees.
- Welcoming a new auditor.

The board's focus this year

- Refining strategy and investing in its execution.
- Environment, health and safety (EHS) matters.
- Supporting the new Chairman.

The board's focus areas for 2019 / 20

- Culture.
- Continued focus on EHS.
- Execution of strategic priorities.
- Sustainability.
- Continued monitoring of financial performance.
- Reviews of principal risks.

Corporate Governance Report

Introduction

Our board is responsible to our shareholders for setting a strategy that delivers the company's purpose, underpinned by values and behaviours that shape the culture and the way JM conducts its business. An appropriate and well managed governance framework is integral to this. The key elements of our governance framework and associated processes are set out in this report.

Getting to know the business

In order for our directors, particularly our Non-Executive Directors, to effectively discharge their responsibilities, it is critical that they understand our businesses.

The activities outlined below enable our Non-Executive Directors to continue to develop and refresh their knowledge and understanding of our businesses, the markets in which we operate and our key stakeholders. They also provide an opportunity to meet with and hear the views of employees. Through these activities, the board develops a sound and balanced insight into the group, which supports it in its role to provide entrepreneurial leadership and set strategy.

Strategic review

Throughout the year we review the delivery against strategy of our sectors. These sessions are attended by the relevant Sector Chief Executive and, where appropriate, other sector senior management. They give the board an opportunity to discuss and challenge the strategic direction of our business.

The board also reviews our key group functions. These reviews are attended by the relevant functional head and enable the board to assess the strength of these functions and their ability to support the delivery of the group's strategic objectives.

Teach-ins

Periodically, we hold business 'teach-ins' for our board. These are separate from board meetings and are attended by a range of managers from the relevant business. They are designed to give the board a more in depth insight into our businesses and their customers than is possible during board meetings. This deeper understanding enhances our Non-Executive Directors' ability to challenge, debate and contribute to strategy at board meetings.

During the year the board received a teach-in on the management of our company's and our customers' precious metal.

Our financial calendar

2019

April	May	June	July	August	September
	30th May Announcement of results for year ended 31st March 2019	**6th June** Ex dividend date **7th June** Final dividend record date	**17th July** 128th Annual General Meeting (AGM)	**6th August** Payment of final dividend subject to declaration at the AGM	**19th September** Capital Markets Day

Site visits

The board holds two board meetings each year at operational sites. As part of this, the board tours the site and receives presentations from management on the business, including its successes and challenges. Enabling the board to see our operations on the ground and to meet the teams allows our directors to hear first hand about customers, business issues, risks and strategy as well as environment, health and safety and sustainability.

Our Non-Executive Directors also undertake visits to our sites independent of the Executive Directors, either individually or collectively, to further enhance their knowledge and understanding, meeting with management and other employees.

Chilton (April 2018)

The board visited our site in Chilton, UK and toured the new Battery Materials pilot plant.

Scotland (October 2018)

The board met with local management at our Health sites in both Edinburgh and Annan. The tours of two sites with differing technology enabled the board to gain further insight into our manufacturing processes.

China (April 2019)

The board received presentations on our Clean Air and Efficient Natural Resources strategies in China and toured plants in Songjiang (Shanghai) and Zhangjiagang.

Meeting with the workforce

As part of the board site visits, the board meets with employees over lunch and dinner, providing an opportunity for open discussion. This gives the board insight into our culture.

Leadership conference (April 2019)

The Chairman attended for part of our 2019 leadership conference, which gave him an opportunity to get a feel for the group's culture, hear more about JM's priorities in action and meet employees from across all our sectors and functions.

2020 (provisional)

October	November	December	January	February	March
	21st November Announcement of results for the six months ending 30th September 2019 **28th November** Ex dividend date **29th November** Interim dividend record date			**4th February** Payment of interim dividend	

Corporate Governance Report continued

Leadership

Our governance framework at 31st March 2019

Board

Membership

Nine directors (Chairman, three Executive Directors and five independent Non-Executive Directors).

Role

- Provides entrepreneurial leadership of the company and direction for management.
- Has collective responsibility and accountability to shareholders for the long term success of the group.
- Reviews the performance of management and the operating and financial performance of the group.
- Sets strategy.
- Determines risk appetite.
- Ensures that appropriate risk management and internal control systems are in place.
- Sets the company's culture, values and behaviours.
- Ensures good governance.

Chairman

Patrick Thomas

Key responsibilities

- Leads the board.
- Ensures an effective board, including contribution and challenge from the directors.
- Ensures that Johnson Matthey maintains effective communications with its shareholders.

Independent Non-Executive Directors

Odile Desforges, Jane Griffiths, Chris Mottershead, Alan Ferguson, John O'Higgins

Key responsibilities

- Constructively challenge the Executive Directors in all areas.
- Scrutinise management's performance.
- Help develop proposals on strategy.
- Satisfy themselves on the integrity of financial information and on the effectiveness of financial controls and risk management systems.
- Determine appropriate level of remuneration for Executive Directors.

Senior Independent Director

Alan Ferguson

Key responsibilities

- Provides a sounding board for the Chairman.
- Acts, if necessary, as a focal point and intermediary for the other directors.
- Ensures that any key issues not addressed by the Chairman or the executive management are taken up.
- Is available to shareholders should they have concerns.
- Leads the annual appraisal of the Chairman's performance.

Chief Executive

Robert MacLeod

Key responsibilities

- Has day to day responsibility for running the group's operations.
- Recommends to the board and implements group strategy.
- Applies group policies.
- Promotes the company's culture and standards.

Executive Directors

Robert MacLeod, Anna Manz, John Walker

Key responsibilities

- Have specific executive responsibilities.
- Discharge duties in respect of the group as a whole.

Company Secretary

Simon Farrant

Key responsibilities

- Acts as secretary to the board and its committees.
- Together with the Chairman, keeps the efficacy of the company's and the board's governance processes under review.
- Has responsibility for compliance with board procedures.
- Provides advice on corporate governance issues.

Company purpose

Johnson Matthey's vision is for a world that is cleaner and healthier; today and for future generations. JM uses its position as a global leader in sustainable technologies to create solutions for our customers that make a real difference to the world around us. To deliver this, the board has set its strategy through four sectors which, enabled by our science, create long term value for our shareholders. This is underpinned by the values and behaviours that shape the culture and the way we conduct business.

Governance framework

JM's corporate governance framework and processes support the execution of strategy by clarifying roles and responsibilities, providing a mechanism for decision making ensuring that risk is appropriately managed and is supported by an internal control framework.

The group's principal decision making body is the board. It is accountable to shareholders for the group's financial and operational performance and has responsibility for setting the group's strategic direction and for ensuring that the group manages risk effectively. The board is supported by three principal committees: the Nomination Committee, the Audit Committee and the Remuneration Committee.

Responsibility for implementing operational decisions and the day to day management of the business is delegated to the Chief Executive who is supported by the Group Management Committee (GMC) as outlined on page 13. There is a clear division of responsibilities between the running of the board and the executive responsibility for running the business. The board has identified certain matters which only it can approve. These are set out in a schedule of matters reserved for the board. The Chairman's and Chief Executive's roles are separate, and this division of responsibilities is clearly established in a written statement within our corporate governance framework, which is available on our website.

The GMC is responsible for managing business performance, delivery of strategy and mitigating risks. It meets six times a year and most weeks for informal discussions on day to day matters. The GMC is supported by five sub-committees – the Environment, Health and Safety Leadership Committee, the OneJM Policy Committee, the Finance and Administration Committee, the Legal Risk Committee and the Metal Steering Committee. For further details on these committees, please refer to our corporate governance framework.

matthey.com/corporate-governance

Audit Committee

Membership

Five independent Non-Executive Directors.

Chaired by Alan Ferguson.

Role

- Assists the board in carrying out its oversight responsibilities in relation to financial reporting, internal controls and risk management.
- Maintains an appropriate relationship with our external auditor, including recommending reappointment or a requirement to tender.

+ See page 123 for more information

Disclosure Committee

Membership

The Chief Executive, Chief Financial Officer and the Company Secretary.

Chaired by Robert MacLeod.

Role

- Identifies and controls inside information or information which could become inside information.
- Determines how or when that information is disclosed in accordance with applicable legal and regulatory requirements.

Nomination Committee

Membership

Five independent Non-Executive Directors and the group Chairman.

Chaired by Patrick Thomas.

Role

- Considers structure, size, composition, diversity and succession needs of the board.
- Oversees succession planning for senior executives.

+ See page 119 for more information

Ethics Panel

Membership

The Company Secretary and three executive heads of functions.

Chaired by Simon Farrant.

Role

- Oversee the concerns raised pursuant to the Speak Up Policy, including the effective review and investigation of these concerns.

Remuneration Committee

Membership

Five independent Non-Executive Directors and the group Chairman.

Chaired by Chris Mottershead.

Role

- Sets remuneration policy for Executive Directors, Senior Management and the Chairman and determines the application of that policy.
- Reviews and monitors the level and structure of remuneration for senior executives.

+ See page 132 for more information

Group Management Committee

Membership

Chief Executive, Chief Financial Officer, Sector Chief Executives, Chief HR Officer, Chief Technology Officer, Chief EHS and Operations Officer and General Counsel and Company Secretary.

Chaired by Robert MacLeod.

Role

- Responsible for the executive management of the group's businesses.
- Recommends strategic and operating plans to the board.

Environment, Health and Safety (EHS) Leadership Committee

Chaired by Chief EHS and Operations Officer.

Role

Assists the company in discharging its EHS responsibilities and in creating a positive EHS culture across the group.

OneJM Policy Committee

Chaired by General Counsel and Company Secretary.

Role

Sets a policy framework for the group and oversees and approves Johnson Matthey group policies.

Finance and Administration Committee

Chaired by Chief Financial Officer.

Role

Responsible for certain of the group's finance and corporate restructuring matters.

Legal Risk Committee

Chaired by General Counsel and Company Secretary.

Role

Reviews contract and litigation risk for the group.

Metal Steering Committee

Chaired by Chief Financial Officer.

Role

Manages the risk and mitigating actions in relation to the company's precious metal.

Corporate Governance Report continued

Principal board activities

Each year the company undertakes a bottom to top strategic planning exercise in order to review the components of each sector's strategy that contribute to the group's long term strategy. This process allows the board to discuss the business model, review market trends, consider how the group is equipped to manage and respond to risks and opportunities and ensure that resources are appropriately allocated in order to create value for our shareholders. The board sets its annual agenda plan by reference to its strategy, ensuring there is sufficient time to discuss and develop strategic proposals and monitor performance.

Our board met 11 times during the year, seven times in person and four times by telephone. Since the end of the financial year, the board has met twice. The attendance of members at board meetings during the year is set out on page 103. Individuals' attendance at board and board committee meetings is considered, as necessary, as part of the formal annual review of their performance.

During the year and up to the date of approval of this annual report, the board focused on a number of specific areas which are outlined in the table to the right. Links to the group's principal risks as set out on pages 93 to 96 are also highlighted in the table.

+ Pages 14 to 17: Our strategy

+ Pages 91 to 96: Risks and uncertainties

+ Pages 28 to 29: Our stakeholders

Areas of focus for 2019/20 are expected to include:

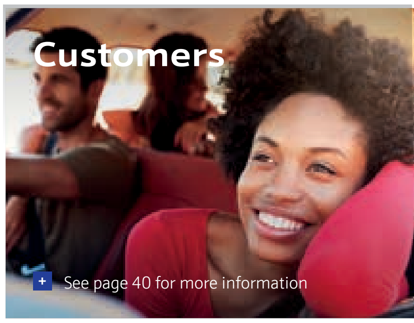
- Our culture.
- Continued focus on EHS.
- Execution of our strategic priorities.
- Sustainability.
- Continued monitoring of financial performance.
- Reviews of our principal risks.

Role of the board

To set the company's strategic aims and to take responsibility for the long term success of the company.

To approve major capital projects.

To ensure the long term success of the company.



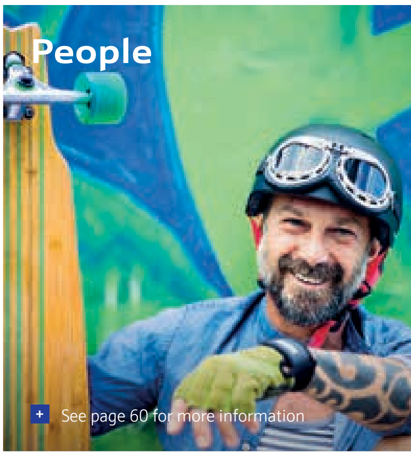
To ensure that the needs of our customers are integral to our strategy.

To ensure the long term success of the company.
To maintain oversight of the group's financial performance.
To establish transparent arrangements to apply corporate reporting, risk management and internal controls.

To ensure that the needs of our customers are integral to our strategy.

To determine the nature and extent of the principal risks and the group's risk appetite.

To facilitate effective, entrepreneurial and prudent management of the business.



To establish the culture, values and ethics of the company.

To ensure the board is effective, with an appropriate balance of skills, experience and independence .
To undertake a rigorous annual performance evaluation.
To ensure remuneration promotes the long term success of the company.

Outcome	**Principal risks**
Strategy • Reviewed the company's strategy and the timeline for key company decisions. • Reviewed and approved the Clean Air strategy, including investment in India. • Reviewed and approved the Efficient Natural Resources strategy including investment in our refineries. • Reviewed and approved the Health strategy, including investment in manufacturing and development facilities in Annan, UK. • Reviewed and approved the strategy for Battery Materials, including investment in a commercial scale eLNO manufacturing plant in Poland and three customer application centres. • Reviewed and approved the Fuel Cells strategy, including investment in the UK and China. R&D • Reviewed innovation and endorsed the approach taken to grow and develop the research and development portfolio.	**1** **2** **3** 4 **5** 6 7 **8** 9 10 11 **12** 13
Efficiency • Reviewed and approved proposals on our Commercial Excellence programme to capture a fair share of the value we create for customers. Financial • Reviewed and approved group budget and three year plan. • Approved full year results, half-yearly results and the annual report. • Approved the group's going concern and viability statements.	**1** **2** **3** 4 **5** 6 7 8 **9** **10** 11 **12** 13
Operational • Reviewed and approved proposals on our Procurement Excellence programme. • Reviewed arrangements and actions around the impact of a potential hard Brexit for JM, including how this could affect our customers. • Reviewed progress on the development and implementation of a groupwide enterprise resource planing (ERP) system. • Reviewed cyber security and improvement to our infrastructure, including investment in IT systems. • Received updates on strategic metal. Risk • Reviewed the board's responsibilities in relation to assessing and monitoring risk management and internal control systems. • Reviewed our principal risks and risk appetite, and agreed mitigating actions and assurance activities. Governance • Reviewed the key features of the UK Corporate Governance Code 2018 and plans to ensure compliance for 2019/20. • Reviewed the company's compliance with the UK Corporate Governance Code 2016. • Reviewed and approved a revised group corporate governance framework, including committee terms of reference. • Recommended to shareholders the adoption of new Articles of Association. • Reviewed directors' conflicts of interest and Non-Executive Directors' independence.	1 **2** **3** **4** **5** 6 **7** **8** **9** **10** **11** **12** **13**
Culture • Reviewed and approved a refreshed global code of ethics – 'Doing the Right Thing'. • Reviewed EHS performance at each meeting and considered significant incidents, including management responses and actions and the outcome of safety audits. • Reviewed the responses and action plan following the global employee survey. • Reviewed the HR function strategy and received an update on the Finance function within JM. • Received an update on legal, ethics and compliance matters. Leadership • Considered board succession and approved the appointments of Xiaozhi Liu and Doug Webb as a Non-Executive Directors. • Reviewed the key findings and action plans following the board and committee effectiveness review for 2017/18. • Undertook an internal review of board and committee effectiveness for 2018/19.	**1** **2** 3 **4** 5 **6** 7 8 9 **10** **11** 12 **13**

In undertaking these activities, the board considers its duties as set out in law and the interests of its key stakeholders, including what will promote the success of the company for the benefits of its members.

Corporate Governance Report continued

Culture

Through the mix of topics discussed by the board, and the activities referred to on pages 106 to 107, the directors gain an insight into JM's culture, issues and operating environment for the sectors and functions.

During the year, the Chief HR Officer presented JM's people ambition to the board, to be one of the best performing, most trusted and admired speciality chemicals companies in the world. To deliver this ambition, we need a highly engaged, diverse and inclusive workforce, with the best talents across the organisation. The board and senior management are committed to building employee engagement based on our culture and values, where all forms of diversity are valued, to provide challenging work and development opportunities and a proactive infrastructure of support.

Throughout the year, we have heard and seen how our values and desired behaviours as described on page 61 have started to be shared and embedded across the organisation, through presentations to the board, the refreshed code of ethics, visiting sites and meeting with employees. We were also updated on the results of JM's second global employee survey during the year. A culture of high engagement is important to the board and we were pleased to see a high participation rate of 82%.

The 2016 employee survey told us that our people wanted more communication and clarity on our strategy and it was positive to see that the scores on understanding strategy had improved. We were disappointed to see that the overall engagement score had reduced slightly since our 2016 survey and we will maintain oversight of the actions and plans to improve this. During 2018/19 work has already begun to define our culture in further detail, building on our values and to determine the most effective way to regularly monitor culture across the group, including through engagement with the workforce. We will report on this in further detail in our 2020 Annual Report and Accounts.

Effectiveness

Our board's composition

As at the date of this annual report, our board comprised the Chairman, three Executive Directors and six independent Non-Executive Directors.

Our board continues to comprise a majority of independent Non-Executive Directors and believes that both it and its committees have the appropriate range and balance of skills, experience, knowledge and independence to enable them to carry out their duties and responsibilities effectively and create long term shareholder value. The size and composition of the board is regularly reviewed by the Nomination Committee.

The board, through the Nomination Committee, follows a formal, rigorous and transparent procedure to select and appoint new board directors.

Independence of the Non-Executive Directors

The board reviews Non-Executive Director independence annually, most recently at its meeting in May 2019. The board considers all relevant relationships and circumstances, including those defined in the code that could affect, or appear to affect, their independent judgement.

Each of our Non-Executive Directors is determined by the board to be independent in character and judgement and the Chairman was determined to be independent on appointment to the board.

Information on the company's procedures for authorising potential conflicts of interest is set out under 'Directors' conflicts of interest' on the following page.

Succession planning

Effective succession planning is fundamental to board effectiveness and the delivery of our strategic plans. The board, through the Nomination Committee, is actively engaged in succession planning to ensure plans are in place for the orderly and progressive refreshing of its membership and to develop a strong pipeline of talent.

The board recognises the need to recruit Non-Executive Directors with the right technical skills and sectoral knowledge in order to develop the company's strategy in accordance with its purpose. All Non-Executive Directors must be independent, be prepared to question, challenge and critique in all areas and have the potential to chair our committees. During the year the board, through the Nomination Committee, recruited Xiaozhi Liu, who was appointed as a Non-Executive Director in April 2019, and Doug Webb, who was appointed as a Non-Executive Director and Audit Committee Chair Designate from 2nd September 2019.

Succession plans are prepared for all of our sector and group functions, with support from HR. The GMC reviewed these in detail during the year, including development plans for their teams. These plans were then discussed with the Nomination Committee.

+ Further details on succession planning can be found in the Nomination Committee Report on page 121

Directors' induction and development

Johnson Matthey provides full tailored induction programmes for all its new board directors. These are intended to give a broad introduction to the group's businesses and its areas of significant risk. Key elements include meeting the Executive Directors and senior management and visiting the group's major sites in order to gain an understanding of group strategy, individual businesses, key customers and stakeholders.

+ For details on the Chairman's induction, see page 122

Information on Xiaozhi Liu's and Doug Webb's induction will be reported in our 2020 Annual Report and Accounts.

Terms of appointment of the Non-Executive Directors

Our Non-Executive Directors are appointed for specified terms, subject to annual election by our shareholders and to the provisions of the Companies Act 2006 (the 2006 Act) relating to the removal of a director. Following review and recommendation from the Nomination Committee, the board approved the extension of Odile Desforges' term of appointment from June 2019 until the end of the company's AGM in July 2019.

The board also approved the extension of Alan Ferguson's term of appointment, which is due to end in January 2020, until the end of the company's AGM in July 2020.

The terms of appointment of the Chairman and Non-Executive Directors at the date of this report are set out in the table below.

Diversity

Our board believes that diversity is important for board effectiveness and that the board should reflect the diversity of its workforce, shareholders and communities. The board continues to take an interest in diversity at all levels of the group, to create an inclusive culture where diversity is valued. As set out in our Diversity Policy, all appointments to the board are made on merit while taking into account suitability for the role, board balance and composition, the required mix of skills, background and experience. This includes consideration of diversity. The board only engages executive search consultants who have signed up to the Voluntary Code of Conduct for Executive Search Firms to address gender diversity on corporate boards.

To embed diversity and inclusion across the group, management is committed to developing policies and processes that prevent bias in relation to recruitment and promotion, including actively discussing diversity in succession planning and talent management, promoting industrial and scientific careers to women and developing flexible employment policies for everyone.

Diversity is also considered as part of the board effectiveness review, referred to on page 114. For further details on our Diversity Policy, please refer to the Nomination Committee report.

matthey.com/diversity-policy

Time commitment of the Chairman and the Non-Executive Directors

The board recognises that it is vital that all directors should be able to dedicate sufficient time to Johnson Matthey to effectively discharge their responsibilities. The time commitment required by Johnson Matthey is considered by the board and by individual directors on appointment. The letters of appointment of the Chairman and of each Non-Executive Director set out the expected minimum time commitment for their roles. The minimum time commitment considered by the board to be necessary for a Non-Executive Director, who does not chair a committee, is two days per calendar month following induction.

The other significant commitments of the Chairman and of each Non-Executive Director are disclosed to the board before appointment, with an indication of the time involved and are periodically reviewed. The board has put in place procedures to ensure that directors seek prior approval from the board before accepting any additional external appointment or significant commitment. During the year, the board approved an additional external appointment for John O'Higgins, having considered the expected time commitments of the role and his other directorships. After review, the board was comfortable that John could continue to dedicate sufficient time to Johnson Matthey.

+ Details of the directors' other significant commitments can be found on pages 100 to 102

Directors' conflicts of interest

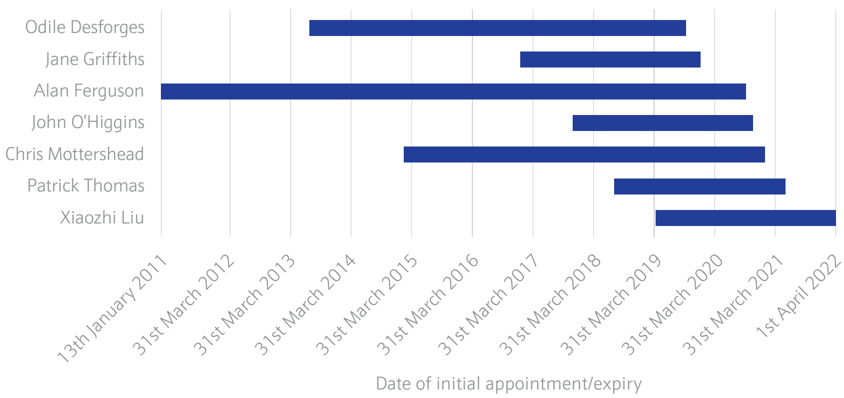
We have established procedures in accordance with our Articles of Association to ensure we comply with the directors' conflicts of interest duties under the 2006 Act and for dealing with situations in which a director may have a direct or indirect interest that conflicts with, or may conflict with, the interests of the company.

In April 2019, the board undertook an annual review of potential conflict matters including in respect of directors' external appointments. In each case, the review was undertaken by directors who were independent of the matter. Prior to her appointment, Xiaozhi told us that she is also a Non-Executive Director at Fuyao Glass Industry Group Co., Ltd, (Fuyao) a global automotive glass manufacturing company in China. Fuyao is a customer of our Advanced Glass Technologies business. The board has considered and authorised this potential conflict of interest in accordance with its Articles of Association and ensured that adequate controls are in place.

All conflicts and potential conflicts will continue to be reviewed by the board on an annual basis.

The board confirms that Johnson Matthey complies with its procedures to authorise conflict situations and is satisfied that its powers to authorise conflict situations are being exercised properly and effectively, and in accordance with its Articles of Association.

Chairman and Non-Executive Directors - Terms of appointment as at the date of this report



Corporate Governance Report continued

Evaluation of the board, board committees and directors

This year, the Chairman, supported by the Company Secretary, led an internal review of the board and its committees, following an external review by independent consultants, Manchester Square Partners LLP, in 2017/18. An annual review provides opportunities to reflect on the range and effectiveness of our discussions, to consider each director's own contribution and performance, and to identify areas for further improvement.

The review comprised a questionnaire devised by Independent Audit, a specialist corporate governance consultancy, covering certain key topics. The Chairman then held individual discussions with each member of the board, the Company Secretary and the Chief HR Officer regarding the board and its effectiveness. These conversations were open, honest and confidential. The Chairman, with the support of the Company Secretary, compiled the results which were presented to the board for discussion, on an unattributed basis.

Overall, the board is considered to be an effective team, with strong engagement, high participation and a strong basis of openness and trust. Board members feel well supported and the quality of papers to support discussions has improved from previous years. Board committees were considered to be effectively chaired, and to work well, with a clear understanding of relevant issues.

Below, we provide an update on the actions undertaken from the 2017/18 external review and further insight from the 2018/19 review.

	2017/18 Action	2018/19 Insight and update
Strategy	As part of the 2017/18 review, it was agreed that whilst not losing focus on strategic direction, the board's role should evolve towards refining and monitoring execution of agreed strategies. Sufficient time should be allowed for iterative discussions, including investment decisions, whilst maintaining time for discussing customers, suppliers, talent development, culture and compliance.	The board's agenda plan ensures there is sufficient time for updates from all sectors and functions, to enable an understanding of how strategy is implemented and to monitor capital projects. When areas of the business seek investment, the Chairman, with the support of the Company Secretary, ensures that this is clearly presented in the broader strategic context. This ensures that the board has an opportunity to challenge and seek clarification at an early stage, before approving investment decisions. The 2018/19 review showed that the board values time to consider and debate different scenarios and assumptions in order to refine strategy.
Risk management	This would need to be continuously monitored as the business evolves to ensure early identification and mitigation of emerging risks.	The board has reviewed and challenged each of its principal risks throughout the year and considered emerging risks. The 2018/19 review showed that further work is needed to embed a risk management culture and ensure adequate time is allocated on the board's agenda to consider the 'what ifs' that could impact our business.
Board composition	The 2017/18 review identified the need for further international experience on the board. In considering succession planning, the board would also have regard to other elements of diversity.	During 2018/19, the board developed a skills matrix to provide further insight of the skills and experiences needed to support the board in discharging its responsibilities. This reinforced the need for further international experience on the board, culminating in the appointment of Xiaozhi Liu. The 2018/19 review recognised the board's work on leadership and succession planning during the year. The board will continue to have regard to diversity in all appointments to the board and intends to review its board Diversity Policy during 2019/20.
Board dynamics	As we deliver our strategy, the Non-Executive Directors must continue to further their challenge, support and contribution to the Executives. In this context the board agreed to consider whether more time together and with management would be beneficial.	The board determined that in order to deliver, monitor and challenge strategy, the number of board meetings would be increased, with an additional meeting being held in December. The length of meetings has also been extended to ensure there is sufficient time for full discussion. Board telephone calls were previously held to update the Non-Executive Directors on relevant matters between meetings. These have since been formalised into telephone board meetings with agendas and papers and are used to provide early introductions to strategic topics. The continued use of 'teach-ins' on major business areas, explicitly separated from consideration of strategy, will also support this.
People	Site visits are an important part of employee engagement and potential further opportunities for these should be found.	All Non-Executive Directors are encouraged to visit our sites when travelling during the year. The 2018/19 review recognised that further work is needed to ensure the culture amongst the workforce is in line with our values and the board is considering ways in which it can enhance engagement with the workforce, through site visits and other means. Further details on this will be reported in the 2020 Annual Report and Accounts.

Following the board's discussion of the 2018/19 review, an action plan will be agreed. These actions are likely to be in the areas of:

- Stakeholder engagement, particularly with the workforce.
- Developing our culture and rewarding the right behaviours.
- Risk management, including crisis management.

We will report on the actions and progress made next year.

The board's intention is to undertake a similar review in 2019/20 in order to monitor progress and to undertake an externally facilitated evaluation process in 2020/21 and at least every three years, in accordance with the requirements of the code.

Review of the Chairman's performance

The Non-Executive Directors recognise that the Chairman's effectiveness is vital to that of the board. Led by Alan Ferguson, the Senior Independent Director, the Non-Executive Directors are responsible for performance evaluation of the Chairman and for providing a fair and balanced assessment to shareholders.

In April 2019, the Non-Executive Directors, led by Alan Ferguson, met without Patrick Thomas being present to discuss his performance during his first year as Chairman. Key considerations were his overall leadership of the board, the setting of tone and the effectiveness of structuring and facilitating discussions. The views of Executive Directors and the Company Secretary were also taken into account. The outcome was subsequently reported to the board that Patrick's leadership of the board was effective and encouraged open and constructive challenge.

Review of the Executive Directors' performance

The Chairman met with the Non-Executive Directors without the Executive Directors being present in November 2018 in order to review the Executive Directors' performance and regular discussions were held with the Remuneration Committee throughout the year. Each of the directors was considered to be effective in discharging their responsibilities.

Annual re-election of Directors

In accordance with the code, all directors retire at each AGM and offer themselves for election or re-election by shareholders.

Xiaozhi Liu joined the board as a Non-Executive Director on 2nd April 2019 and, as required by our Articles of Association, will retire at the 2019 AGM and offer herself for election. Odile Desforges will step down from the board at the end of the 2019 AGM and therefore not offer herself for re-election. All other directors will be offering themselves for re-election.

As at the date of approval of this annual report, our six Non-Executive Directors are each determined by the board to be independent directors in accordance with the criteria set out in the code. The board considers that their skills, experience, independence and knowledge of the company enable them to discharge their respective duties and responsibilities effectively. Biographies of each of the directors standing for election or re-election, including details of their contributions to the board, can be found on pages100 to 102.

Our 2019 AGM circular outlines why the board believes each director should be elected or re-elected. In the circular, the Chairman confirms to shareholders that, following formal performance evaluation, the performance of each Non-Executive Director continues to be effective and that they demonstrate commitment to the role (including commitment of time for board and board committee meetings).

Remuneration

The board has established a Remuneration Committee. The composition and role of the Remuneration Committee is set out in the Annual Report on Remuneration.

+ Pages 142 to 150

Accountability

Fair, balanced and understandable reporting

In its reporting to shareholders, the board recognises its responsibility to present a fair, balanced and understandable assessment of the group's position and prospects. This responsibility covers the Annual Report and Accounts and extends to half year and other price sensitive public reports and reports to regulators, as well as to information required by statutory requirements.

The process to determine whether the 2018/19 annual report is fair, balanced and understandable was reviewed by the Audit Committee and was considered to be effective. The board considered the results of an assessment by management and was satisfied that all key events and issues reported to the board during the year had been adequately disclosed or reflected within the annual report. The directors concluded that the 2018/19 annual report taken as a whole is fair, balanced and understandable, and provides the information necessary for shareholders to assess the group's position and performance, business model and strategy.

Corporate Governance Report continued

Risk management and internal control

The board is responsible for determining the nature and extent of the principal risks it is willing to take in achieving its strategic objectives, that is, the risks that could threaten JM's strategy, performance, solvency or liquidity. Details of these risks and the mitigating actions are set out on pages 93 to 96.

The board is also responsible for maintaining sound risk management and internal control systems (including financial controls, controls in respect of the financial reporting process and controls of an operational and compliance nature). Our risk management and internal control systems are groupwide and comprise policies, procedures and practices covering a range of areas, including the appropriate authorisation and approval of transactions, the application of financial reporting standards and the review of financial performance and significant judgements. These are designed to meet the group's needs and to manage the risks to which it is exposed, including the risks of failure to achieve business objectives and of material misstatement or loss. However, such risks cannot be eliminated. Our systems can only provide reasonable, but not absolute, assurance. They can never completely protect against such factors as unforeseeable events, human fallibility or fraud.

The board confirms that there is an ongoing process in place (established in accordance with the Guidance on Risk Management, Internal Control and Related Financial and Business Reporting issued by the Financial Reporting Council in September 2014 (FRC Guidance) and the requirements of the code) for identifying, evaluating and managing the principal risks faced by the group as well as emerging risks and trends. This process is regularly reviewed by the GMC, the board and the Audit Committee, as appropriate, and has been in place during the year and up to the date of approval of this annual report.

The directors confirm that they have carried out a robust assessment of the principal risks facing the company, including those that would threaten its business model, future performance, solvency or liquidity. The board's view of Johnson Matthey's key strategic and operating risks, and how the company seeks to manage those risks is set out in this report.

Review of effectiveness of the group's risk management and internal control systems

The board delegates responsibility to the Audit Committee to keep under review the adequacy and effectiveness of internal controls and risk management systems and it ensures they are properly scrutinised. The role and work of the Audit Committee in this regard and the role of the group's Corporate Assurance and Risk function are described in the Audit Committee Report on pages 128 to 129.

To ensure the board effectively manages risk, the board agenda plan, together with that of the Audit Committee, ensure that all significant areas of risk, risk appetite and the related risk management and internal control systems are reviewed and considered during the course of the year. The board also considers emerging risks.

The board, in part through the Audit Committee, is satisfied that it has reviewed the effectiveness of the company's risk management and internal control systems, covering all material controls, including financial, operational and compliance controls, and financial reporting processes, for the year. The review process accords with the FRC Guidance.

The Audit Committee

The composition of the Audit Committee is set out in the Audit Committee Report (pages 123 to 131), which describes the work of the Audit Committee in discharging its responsibilities.

The board is satisfied that at least one member of the Audit Committee, Alan Ferguson, has recent and relevant financial experience, including competence in accounting and that the Audit Committee as a whole has competence relevant to the sectors in which the company operates.

Viability statement

The directors have assessed the prospects of the company over a three year period following a robust assessment of the principal risks affecting the company, the business model and strategic plans. The directors have a reasonable expectation that the company will be able to continue in operation and meet its liabilities as they fall due over the three year period under review.

Risk governance

Board
- Assesses the principal risks and determines risk appetite.
- Is responsible for the approach to risk management and internal control.

Audit Committee
- Reviews the adequacy and effectiveness of internal controls and risk management systems.

Group Management Committee
- Reviews each principal risk, the risk appetite and mitigations in place.
- Champions risk management.

Risk management function
- Provides independent advice and challenge on our risks.

Stakeholders

Our approach to our stakeholders is central to our decision making. We keep in close contact with our shareholders, workforce, customers and suppliers to ensure we are aware of what matters to them and so their views can be appropriately considered in decision making.

+ Page 27: Our sustainability framework – materiality map
+ Pages 28 and 29: Our stakeholders

Shareholders	Information on how we manage relations with our shareholders is set out on the following page.
Workforce	The board is committed to engaging with the workforce in order to understand the culture, issues and challenges across our businesses. Meeting with local management, both formally and informally, allows a deeper insight of views and provides opportunities to receive informal feedback. In receiving presentations on strategy, we ensure that the Sector Chief Executive or key functional head, and where relevant, members of their teams, attend the board meeting so their views can be heard and considered. During 2018 we undertook our second global employee engagement survey and the Chief HR Officer presented the results of this to us. It was pleasing to see that 82% of employees participated in the survey (an increase from 75% in November 2016). A culture of transparency is important to the board and senior management, particularly during periods of change. The result of the employee survey confirmed areas where there is more to do, and this is taken into account as the board develops, and reviews strategy. The board continues to enhance ways in which it engages with the workforce, to ensure their views are taken into account in decision making. Plans are in place to develop engagement mechanisms further during 2019. We have processes in place for the workforce to be able to raise concerns in a confidential manner. Further details on our speak up arrangements are set out on pages 68 and 69. The board receives regular reports on speak up matters which provide further insight into the culture across the group. + For details on how we continue to invest in and reward our workforce, see pages 60 to 75: People
Customers	Understanding our customers' needs helps us to deliver the best solutions for them. The board considers this as part of its strategy and in reviewing capital investment proposals. + Pages 40 to 47: Customers
Suppliers	Working well with our suppliers is essential to our business. It ensures a responsible approach to our supply chain and mitigates risks. During the year the board approved Johnson Matthey's Modern Slavery and Human Trafficking Statement which sets out the steps taken to prevent modern slavery in our business and supply chains. + Pages 50: Responsible sourcing matthey.com/modern-slavery
Communities	Local communities and the environment are considered when relevant, in reviewing capital investment proposals. + Pages 28 to 29: Our stakeholders

Corporate Governance Report continued

Relations with shareholders

Dialogue with our shareholders

Our board welcomes the opportunity to openly engage with shareholders and help them to understand our business. Recognising the importance of effective dialogue on an ongoing basis, whether with major institutional investors, private shareholders or employee shareholders, the board takes responsibility for ensuring that such dialogue takes place.

Our Chairman takes overall responsibility for ensuring that the views of our shareholders are communicated to the board and that our directors are made aware of major shareholders' issues and concerns so these can be fully considered. Since his appointment, the Chairman has met with approximately 30% of our shareholding, comprising a range of institutional investors, to discuss matters on strategy, performance and governance. He is committed to engaging with our shareholders on a regular basis.

Contact with major shareholders is principally maintained by the Chief Executive and the Chief Financial Officer, who have a regular dialogue with institutional shareholders on performance, plans and objectives through a programme of one to one and group meetings. Our Investor Relations department acts as a focal point for contact with investors throughout the year. During the year, the Investor Relations department, together with members of the board and senior management, held over 250 meetings with institutions and potential investors. The Chairman, Senior Independent Director and the other Non-Executive Directors continue to be available to discuss matters if requested.

The board believes that appropriate steps have been taken during the year to ensure that the members of the board, and in particular the Non-Executive Directors, develop an understanding of the views of major shareholders. All board members are provided with a range of analysts' and brokers' briefings on a regular basis and six monthly brokers' reports.

The board considers that the arrangements for communicating with shareholders remain practical and efficient. They allow all our directors to keep in touch with shareholders' opinions and views in order to reach a balanced understanding of major shareholders' objectives, issues and concerns.

While the board recognises that the company is primarily accountable to its shareholders, it also recognises the contribution made by other providers of capital and confirms its interest in listening to their views, including where relevant, on the company's overall approach to governance.

Reporting of results and Capital Markets Day

We report formally to our shareholders when we publish our full year results in May and our half-yearly results in November. When we publish the results, our Executive Directors give presentations in meetings with institutional investors, analysts and the media in London. Live webcasts and transcripts of these presentations are available on our website.

In addition, we hold a Capital Markets Day for our institutional investors and analysts. The last of these was held in September 2017. Our next Capital Markets Day will be held on 19th September 2019.

matthey.com/cmd-17

Annual General Meetings

The AGM is an important part of effective communication with shareholders. Our AGM takes place in London with the Notice sent to shareholders and published on our website at least 20 working days beforehand. The Notice sets out a balanced and clear explanation of each proposed resolution.

At the AGM, we propose separate resolutions on each substantially separate issue. For each resolution, shareholders may direct their proxy to vote either for or against or to withhold their vote. A 'vote withheld' is not legally a vote and not counted in the calculation of the proportion of the votes cast. All resolutions at the AGM are decided on a poll carried out by electronic means. The results are announced as soon as possible and posted on our website. This shows votes for and against as well as votes withheld.

Asset reunification

The board is committed to proactively seeking to unite shareholders promptly with their shares and dividend payments.

Share capital

Details of the company's share capital, including the rights and obligations attached to the shares are set out in the Directors' Report on pages 151 and 152.

2019 AGM

Our 2019 AGM will be held on 17th July 2019. The Notice, together with an explanation of the resolutions to be considered, is set out in a circular to shareholders. Our board welcomes the opportunity for face to face communication with our shareholders. Shareholders are encouraged to participate and all directors are available to answer questions, formally through the Chairman during the meeting and informally afterwards.

matthey.com/shareholder-information

Compliance with the UK Corporate Governance Code 2016

Code provision E.1.1 states that the Senior Independent Director should attend sufficient meetings with a range of major shareholders to listen to their views in order to help develop a balanced understanding of the issues and concerns of major shareholders. During the year the Senior Independent Director did meet with some major shareholders, however, the board does not consider this to be sufficient to have fully complied with this provision throughout the year. The board has concluded, however, that there are appropriate mechanisms in place to listen to the views of shareholders and communicate them to the board without it being necessary for the Senior Independent Director to attend meetings with major shareholders. However, he is available to attend any such meetings if requested by shareholders. The board believes that this approach is consistent with the relevant main principle of the code on dialogue with shareholders and is consistent with good governance and the promotion of delivery of the company's objectives.

Nomination Committee Report

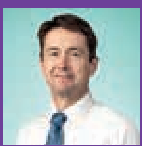
Chairman of the Nomination Committee
Patrick Thomas

Members


Alan Ferguson


Odile Desforges


Jane Griffiths


John O'Higgins


Chris Mottershead


Xiaozhi Liu
(Appointed 2nd April 2019)

Key objective:

To lead the process for board appointments and ensure the development of a diverse pipeline for succession.

Responsibilities:

- To review the structure, size and composition of the board.
- To ensure adequate succession planning for board and GMC members.

2019/20 priority:

- Ensuring the continued effectiveness of the board as a whole as we work with new board members in new roles.

Strengthening our leadership

We have focused on succession planning to ensure the board and senior management has the right capabilities to develop and execute our strategy.

This was my first year as Chairman of the board and the Nomination Committee, having joined Johnson Matthey's board in June 2018. The committee has spent considerable time focusing on board succession planning and evaluating the directors' skills and expertise in order to identify the criteria for future appointments and, in April 2019, we welcomed Xiaozhi Liu to the board as a Non-Executive Director. Odile Desforges will step down from the board in July 2019, having been a member for six years and on behalf of the board I would like to thank Odile for her commitment and contributions to the board during this time.

In September 2019, Doug Webb will join the board as a Non-Executive Director and following our Annual General Meeting (AGM) will take over Alan Ferguson's responsibilities for chairing the Audit Committee. In July 2020, Alan Ferguson reaches the end of his third term of appointment in January 2020 and you can read more about why we decided to extend his term of appointment for a further six months in this report. He is also appointed as Senior Independent Director and from July 2020, John O'Higgins will hold this position on the board.

During the year, we also reviewed succession planning and talent management for the Group Management Committee (GMC) and their direct reports, recognising the importance these roles play in delivering the group's strategy and embedding the desired culture across JM.

Role

The principal role of our Nomination Committee is to keep under review the structure, size and composition of the board and to make appropriate recommendations to the board with respect to any necessary changes. We also consider the adequacy and effectiveness of senior management development and succession planning processes for board members and senior executives, including the group's processes for identifying and developing the future senior management pipeline.

Further details on our role and responsibilities can be found in our terms of reference, which were updated in April 2019.

matthey.com/corporate-governance

Composition

As at the date of this annual report our committee has seven members, myself as Chairman and all the independent Non-Executive Directors. Only members of the committee have the right to attend meetings. The Chief Executive and the Chief HR Officer, as well as external advisers and others, attend for all or part of our meetings by invitation when appropriate. The Company Secretary acts as secretary to the committee.

Nomination Committee Report continued

Committee meetings during the year

Our committee meets immediately prior to or following board meetings and on other occasions as needed. We met seven times during the year. The attendance of members at meetings during the year is set out below.

	Date of appointment to committee	Number of meetings eligible to attend	Number of meetings attended	% attended
Patrick Thomas	1st June 2018[1]	5	5	100%
Tim Stevenson	29th March 2011[2]	3[3]	3	100%
Odile Desforges	1st July 2013	7	6[4]	86%
Alan Ferguson	13th January 2011	7	7	100%
Jane Griffiths	1st January 2017	7	7	100%
Chris Mottershead	27th January 2015	7	6[4]	86%
John O'Higgins	16th November 2017	7	7	100%

1 Patrick Thomas was appointed Chairman of the board and the committee on 26th July 2018.

2 Tim Stevenson was appointed Chairman of the board and the committee on 19th July 2011.

3 Tim Stevenson retired from the board and the committee on 26th July 2018.

4 Odile Desforges and Chris Mottershead were unable to attend one ad hoc meeting of the committee, which was arranged at short notice to consider the appointment of Xiaozhi Liu as a Non-Executive Director of the company. Both were provided with papers in advance of the meeting and had the opportunity to pass on any comments to the Chairman of the committee, ahead of the meeting.

Since the end of the year, the committee has met twice and all members attended, including Xiaozhi Liu following her appointment in April 2019.

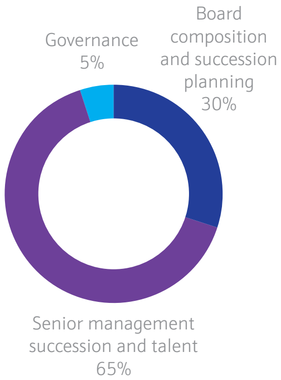
Committee activities

Our principal activities during the year, and up to the date of approval of this annual report, were as follows:

Chairman succession	My appointment to the board took effect in June 2018 and I became Chairman in July 2018, after Tim Stevenson stepped down from the board. I have since received a full induction into Johnson Matthey's business. Further details on my induction are included in this report on page 122.
Non-Executive Director succession	Recommended to the board that Odile Desforges' term of appointment be extended from 30th June 2019 until the end of the company's AGM on 17th July 2019. Considered succession planning for Alan Ferguson, who will have served on the board for nine years in January 2020. Having conducted a search process for two new Non-Executive Directors with assistance from EgonZehnder, recommended to the board the appointments of Xiaozhi Liu as a Non-Executive Director and of Doug Webb as a Non-Executive Director and Audit Committee Chairman Designate. Recommended to the board that John O'Higgins be appointed as Senior Independent Director from the end of the company's 2020 AGM.
Board skills matrix	Reviewed the directors' skills and experience by way of a self-assessment to ensure that the board as a whole remains balanced and to identify any areas for development or gaps within succession planning.
Talent management framework	Reviewed the group's progress and priorities for talent management, development, culture and values, which form an integral part of the group's people strategy.
Succession planning and senior management changes	Reviewed the 2019 succession and development plans in respect of the GMC including the Chief Executive and other senior executives in each sector and group function. Discussed GMC membership and responsibility changes.
Review of performance and effectiveness during 2018/19	Undertook an internal review of the committee's performance and effectiveness.
Nomination Committee Report	Reviewed and approved the 2019 Nomination Committee Report.

Committee activities

The graph below shows an estimate of how the committee has spent its time during the year.



Board appointments

In considering board composition, we assess the range and balance of skills, experience, diversity, knowledge and independence on the board to identify any gaps and consider the need to refresh the board. If we feel that it is necessary to appoint a new director, the capabilities and characteristics required for the appointment are determined and objective selection criteria are set accordingly. We consider any proposed recruitment in the context of the company's strategic priorities, plans and objectives, as well as the prevailing business environment. We also take into account relevant succession plans already in place.

Board skills matrix

This year, I led a detailed review of the skills and capabilities held by the current board members. This comprised a self-assessment from each board member of the skills, areas of functional expertise and sectoral experience they have. The results were compiled by the Company Secretary and used to consider any gaps, areas for future development and skills needed in future appointments to the board, in order to support, challenge and develop the group's strategy. The skills held by our Non-Executive Directors are summarised on page 103.

Boardroom diversity

The benefits of diversity, in its broadest sense, on the board are carefully considered when making any new board appointment. All appointments to the board are made on merit, against agreed objective selection criteria. We also consider board balance and composition, the required mix of skills, background and experience as well as the need to maintain board cohesiveness, diversity and a positive culture.

In adopting its Diversity Policy, the board has not set express gender or other related diversity quotas or measurable objectives, however, the board and the committee seek to encourage applications from a diverse range of candidates, subject to the selection criteria being met. The board's Diversity Policy is available on our website.

matthey.com/corporate-governance

The policy requires the board to satisfy itself that plans are in place for orderly succession for appointments to the board so as to maintain balance and ensure progressive refreshing of the board. On behalf of the board, the Nomination Committee annually reviews and approves the management development and succession plans for the directors and senior executives, and makes recommendations to the board on its structure, size and composition.

Since the launch of the board Diversity Policy in 2013, the board has made progress in broadening the diversity of the board and senior management. As at the date of approval of this annual report we had four women on our board, which represents 40% of our total board membership. During the year the board has continued to promote diversity at all levels of the organisation and in the boardroom, to promote an inclusive culture across JM.

The gender balance of the board as at 31st March 2019 is shown on page 103 and of those in senior management positions and their direct reports, on page 65. For further details on diversity and inclusion across JM, including our Equal Opportunities Policy, see page 65.

Succession planning

A key role of the committee is to ensure that plans are in place for the orderly and progressive refreshing of the board and to identify and develop individuals with potential for board and GMC positions.

The committee has continued to focus on active talent management, mobility across the group and diversity. We have discussed succession planning and development for key senior management roles and identified areas for external recruitment. We were pleased to see that performance management and development has been enhanced, with a globally consistent framework of career paths, a common, globally applied job grading system, progressive mobility policies, and a new suite of leadership development programmes.

The committee recognises the importance of setting the tone and culture of the organisation from the top and the role of the GMC and senior leaders in demonstrating and embedding the expected behaviours. JM's refreshed values were launched in April 2018 and over 1,300 managers have since attended interactive workshops to learn more about these. The committee will continue to monitor the cultural factors that impact talent strategies and influence a positive and productive culture, creating a career destination of choice for current and future talent.

You can read more about our values on page 61

Non-Executive Director succession

The committee recommended to the board that Odile Desforges' term of appointment be extended from 30th June 2019 to the end of the company's AGM in July 2019, enabling her to attend the AGM and answer any questions our shareholders may have, before she stands down from the board after six years.

In light of Odile stepping down, the committee recommended that a further Non-Executive Director be appointed to the board. Having reviewed the skills and expertise of the current board members, the committee sought an individual with international experience and in particular, knowledge of the China commercial markets.

The committee felt that Xiaozhi Liu's executive experience and extensive knowledge of the automotive sector, including in China, as well as her technology perspective would be a positive enhancement of the board's knowledge, particularly as the group's automotive powertrain strategy evolves.

In considering Xiaozhi's appointment, the committee discussed her existing commitments to ensure she would be able to dedicate sufficient time to JM. As part of these discussions, it was noted that Xiaozhi will step down from her role as Non-Executive Director of Fuyao Glass Industry Group Co., Ltd in October 2019, when her appointment expires. Her current appointments are set out on page 101.

The committee also commenced succession planning for Alan Ferguson, including his role as Chairman of the Audit Committee and as Senior Independent Director, His term of appointment is due to come to an end in January 2020, after nine years on the board.

Nomination Committee Report continued

In searching for a new Non-Executive Director, the committee sought an individual with recent and relevant financial experience and a background in technology or innovation. The committee recommended that Doug Webb be appointed as a Non-Executive Director due to his long and extinguished career as a Chief Financial Officer. His experience of the engineering and IT sectors will also provide further expertise to support the board's discussions. We look forward to Doug joining the board in September 2019. Given his extensive corporate financial management experience, Doug will be appointed as Audit Committee Chairman from July 2020.

EgonZehnder was engaged to support the search process for both Non-Executive Director roles. EgonZehnder is a signatory to the Enhanced Code of Conduct for Executive Search Firms and has no connection with the company, other than in Non-Executive Director recruitment.

The committee recommended that John O'Higgins be appointed as Senior Independent Director from the end of the company's 2020 AGM, when Alan Ferguson steps down from the board. In considering Alan's successor for this role, the committee felt it was important to appoint an individual with previous experience of engaging with a range of shareholders, to ensure they are well placed to understand shareholders views. It was felt that John O'Higgins has strong experience of this, having previously held the role of Chief Executive at Spectris plc.

Having identified successors for Alan Ferguson's roles, the committee decided to extend his term of appointment until the end of the July 2020 AGM. This extends Alan Ferguson's appointment on the board beyond nine years and prior to taking this decision, the committee rigorously reviewed his independence. Notwithstanding his length of tenure, the committee feels that Alan continues to demonstrate challenge and he probes management to ensure they are held accountable. His knowledge, skills and experience remain important to the committee and he initiates and supports productive discussions. Extending Alan's appointment to July 2020 will ensure continuity in oversight of the 2019/20 external audits and allow Doug to spend time understanding JM's business and the work of the Audit Committee, before he takes on his additional responsibilities.

Chairman induction

To ensure that I had an effective introduction to Johnson Matthey, I received a detailed induction by the Chief Executive and Company Secretary. This included site visits and introductions to key staff including the GMC and their immediate teams. During 2019/20 I will continue to visit more sites, and meet more of our people and shareholders.

Timeline of induction events

Date	Action
June 2018	Met with the Sector Chief Executives and their respective executive committee members for an introduction to Clean Air, Efficient Natural Resources and New Markets and toured JM's site at Royston
June 2018	Met with the heads of each corporate function to understand their priorities
June 2018	Met with the General Counsel and Company Secretary who provided an overview of directors' duties and obligations and JM's governance procedures
June 2018	Toured our Technology Centre at Sonning, JM's largest R&D facility, to learn about our research and technical support for our sectors
June 2018	Met with Tim Stevenson, the former Chairman, to ensure a successful transition of duties
September 2018	Joined the Clean Air executive team on their leadership conference
April 2019	Attended part of JM's leadership conference and met with employees across all sectors and functions
Ongoing	Meeting with a range of institutional investors to discuss and understand their views on strategy, performance and governance

Committee effectiveness

In January 2019, I led an internal review on the effectiveness of our board and its committees. This was a lighter approach for the committee than in previous years, given that a detailed external review was carried out during 2017/18. The review covered the committee's role, responsibilities and operations. The review showed that the committee continues to operate effectively, in particular, in setting the tone and culture with management. The recent challenges in recruiting for certain executive roles was noted, reinforcing the importance of continuing to develop internal talent.

Further details on the outcomes of the board evaluation, including how the actions will influence board composition, are set out on page 114.

The Nomination Committee Report was approved by the Board of Directors on 30th May 2019 and signed on its behalf by:

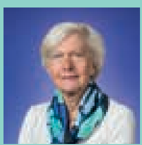
Patrick Thomas

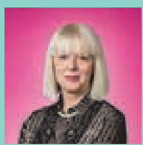
Patrick Thomas
Chairman of the Nomination Committee

Audit Committee Report

Chairman of the Audit Committee
Alan Ferguson

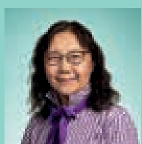
Members


Odile Desforges


Jane Griffiths


John O'Higgins


Chris Mottershead


Xiaozhi Liu
(Appointed 2nd April 2019)

Key objective:

To provide oversight of financial reporting and internal controls.

Responsibilities:

- To monitor the integrity of the company's financial reporting.
- To review the effectiveness of internal financial controls.
- To maintain the relationship with the external auditor.

2019/20 priorities:

- To monitor controls associated with the new ERP system and cyber risk.
- To monitor progress to increase the use of data analytics by our assurance providers.

The committee welcomed PwC as its new auditor during the year

This report shares some of the committee's discussions during the year and provides insight into its essential role in maintaining the integrity of financial reporting and reviewing the effectiveness of internal controls.

During the year as part of our programme of deeper dives, we looked in more detail at the effectiveness of the control environment of the Efficient Natural Resources and Battery Materials businesses. We also spent time understanding and challenging the controls around the implementation of our new enterprise resource planning (ERP) system and how the group manages and controls precious metal. These detailed reviews provide the committee with a deeper insight into the risk management systems and controls in place across the group.

Following a successful tender last year, we welcomed PricewaterhouseCoopers LLP (PwC) as our new auditor in July 2018, led by Mark Gill, the lead audit partner. The committee has spent time this year overseeing a smooth transition from KPMG LLP (KPMG), our former auditor.

As Chairman of the committee, I am pleased to say that the committee continues to operate well and that it remains informed of relevant changes and developments in the external audit market. Looking ahead to next year, we will continue to monitor the control processes associated with our new global ERP system, as its rollout across the group is accelerated, and will start to focus on how our assurance providers can make better use of data analytics, when undertaking their work on our control environment.

Role

Our principal role is to assist the board in carrying out its oversight responsibilities in relation to financial reporting, internal controls and risk management, and in maintaining an appropriate relationship with our external auditor. More details on our role and responsibilities can be found in our terms of reference which were updated in April 2019 and are available on our website.

matthey.com/corporate-governance

Composition

Our committee currently comprises six members; myself as Chairman and all of our independent Non-Executive Directors. We welcomed Xiaozhi Liu to the committee in April 2019. This is my eighth year as Chairman of the committee. I am a Chartered Accountant with many years' experience working in finance, having been, over a 12 year period, the Group Finance Director at Inchcape plc, The BOC Group plc and Lonmin Plc. I also chair the audit committees of two other companies. As a committee, we have a broad range of knowledge, skills and experience gained from a variety of backgrounds, as detailed on pages 100 to 102. This diversity is essential to the effective discharging of our duties.

The board has agreed that the committee has experience relevant to the sectors in which we operate and that I have recent and relevant financial experience, including competence in accounting, as required by the provisions of the UK Corporate Governance Code.

The secretary to the committee is Simon Farrant, Company Secretary.

Audit Committee Report continued

Committee meetings during the year

We met five times during the year. Attendance at these meetings was as follows:

	Date of appointment to committee	Number of meetings eligible to attend	Number of meetings attended	% attended
Alan Ferguson	13th January 2011[1]	5	5	100%
Odile Desforges	1st July 2013	5	5	100%
Jane Griffiths	1st January 2017	5	5	100%
Chris Mottershead	27th January 2015	5	5	100%
John O'Higgins	16th November 2017	5	5	100%

1. Alan Ferguson was appointed Chairman of the committee on 19th July 2011.

Since the end of the year, the committee has met twice and all members attended, including Xiaozhi Liu following her appointment in April 2019. The committee's meetings coincide with key events in the company's financial calendar. Following each meeting, I report on the main discussion points and findings to the board.

The Chief Executive, the Chief Financial Officer and the Group Assurance and Risk Director attend all of our meetings and other senior managers attend to support the committee's activities and provide technical or business information as necessary.

It is critical that we have the opportunity to openly discuss with management any matter which falls within our remit, and probe and challenge where necessary in order to ensure that the interests of shareholders are properly protected in relation to financial reporting and internal control.

Our meetings were also attended by the lead audit partner and other representatives from the external auditor. Their attendance is important as it gives us the opportunity to seek their independent and objective views on matters which they encounter during their audit.

At least once a year, the committee meets separately with the lead audit partner and with the Group Assurance and Risk Director, who manages the internal audit function, to discuss matters without executive management being present. On a more frequent basis, I meet with the Chief Financial Officer, the Group Assurance and Risk Director, other senior management and with the auditors. This means any issues or concerns can be raised at an early stage, allowing me to ensure that sufficient time is devoted to them at the subsequent committee meeting.

Communication between the committee, management and the internal and external auditors is open and constructive but has an appropriate degree of challenge.

Committee activities

In order to discharge our responsibilities, our principal activities during the year, and up to the date of approval of this annual report, were as follows:

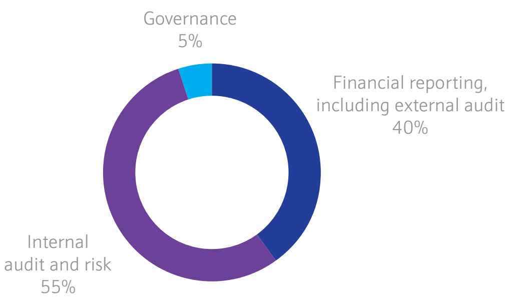
Responsibility	Activity
Published financial information	
To monitor the integrity of the reported financial information and to review significant financial issues and judgements	• Reviewed the group's full year results and half-yearly results and considered the significant accounting policies, principal estimates and accounting judgements used in their preparation. • Reviewed the matters, assumptions and sensitivities in support of preparing the accounts on a going concern basis and assessed the long term viability of the group. • Reviewed the financial reporting framework of the parent company financial statements and agreed the adoption of FRS 101. • Assessed the process which management put in place to support the board when giving its assurance that the 2019 Annual Report and Accounts, taken as a whole, is fair, balanced and understandable. • Received an update on new or forthcoming accounting standards that could materially impact the group, including IFRS 15 – 'Revenue from Contracts with Customers' and IFRS 16 – 'Leases'. • Reviewed reports from the General Counsel on litigation and on the speak up (whistleblowing) procedures. • Reviewed reports on credit controls and credit risks. • Approved the 2019 Audit Committee Report. • Reviewed and recommended the approval of elements of the 2019 Annual Report and Accounts to the board. • Reviewed and challenged the payment practices, policies and performance of the company and certain UK subsidiaries.

Responsibility	Activity
Risk management and internal control	
To review the group's internal financial controls and its risk management systems, and to monitor the effectiveness of the group's internal audit function	• Received reports from the Group Assurance and Risk Director on the corporate assurance and risk reviews and risk management processes. • Monitored progress against the 2018/19 corporate assurance and risk plan and agreed the 2019/20 plan. • Reviewed the assurance framework to determine whether risk management and internal controls effectively meet the group's needs and manage risk exposure. • Reviewed an assessment of the control environment based on the results of the key control questionnaire and management's plans to address areas requiring further improvement. Determined that the system of internal controls could be relied upon. • Monitored the effectiveness of the Corporate Assurance and Risk function, including the results of a self-assessment against the Institute of Internal Auditors' standards. • Reviewed precious metal governance and controls. • Received reports from the Efficient Natural Resources and Battery Materials Finance Directors. • Received reports in respect of security audits and the implementation of the new global ERP system.
External auditor	
To ensure an appropriate relationship with the external auditor, to monitor its independence and objectivity, negotiate and approve its fees, recommend its reappointment or not and to ensure it delivers, based on a sound plan, a high quality effective audit	• Approved, after due challenge and discussion, PwC's proposed terms of engagement, audit plan and fees for 2018/19. • Considered reports from the auditors, including their views on our accounting judgements, control observations and on the audit transition. • Approved the provision of permissible non-audit services from PwC in respect of immigration services. • Received updates on external audit market reviews and reviewed our response to the Competition and Markets Authority consultation on the audit market study. • Met with the external auditors without management present. • Met with the local audit partner as part of the board's visit to China. • Considered and reviewed indicators of audit quality and recommended the reappointment of PwC as auditor.

These activities are covered in more detail on the following pages.

Committee activities

The graph below shows an estimate of how the committee has spent its time during the year.



Audit Committee Report continued

Published financial information

Significant issues considered by the committee in relation to the group's and company's accounts

Acting independently from management to ensure that the interests of shareholders are properly protected in relation to financial reporting is fundamental to our role. In preparing the accounts, there are a number of areas which require management to exercise a particular judgement or a high degree of estimation. The committee assesses whether the judgements and estimates made by management are reasonable and appropriate.

Significant current year issue in relation to the accounts	Work undertaken	Outcome	Further information
Revenue from contracts with customers			
IFRS 15 supersedes all revenue standards and provides a principle based approach for revenue recognition and requires that revenue is recognised as the distinct performance obligations promised within a contract are satisfied either at a point in time or over time. IFRS 15 is applied for the first time in these accounts. Earlier in the year work was undertaken by management to assess the impact of IFRS 15 on the transactions carried out within the business. JM took professional advice as it worked through this process. It was concluded that the impact on equity would be less than £5 million. Following further work being undertaken it was agreed that IFRS 15 requires a number of transaction sets to be shown net rather than gross which had a significant impact on revenue and cost of sales and lead to a gross up of certain interest and balance sheet items. As a result it was decided to apply the standard on a fully retrospective basis. The conclusion on the impact on equity was unchanged. This work also highlighted that JM's treatment of certain transactions sets in the 2018 accounts under IAS 18 should have been similarly accounted for on a net basis and so these were restated.	As management worked through the impact of the introduction of IFRS 15 the Committee was kept up to date on the process and the conclusions arising from it. Papers were received from management, PwC our auditors and KPMG our former auditors. These were reviewed and discussions were had with all parties before the Committee could satisfy itself as to the conclusions recommended by management which were supported by PwC.	We agreed with management on the treatment of certain transaction sets under both IFRS 15 and, for the 2018 comparative, IAS 18. This resulted in a restatement and we reviewed the associated disclosures and were satisfied with them. Whilst there is no economic exposure from these adjustments, we will learn from the issues identified.	Note 39 on page 220.
Significant recurring issues in relation to the accounts	**Work undertaken**	**Outcome**	**Further information**
Refining process and stock takes			
When setting process loss provisions and agreeing commercial terms with customers, key estimates are made of the amount of precious metal that may be lost during the refining and fabrication processes. In addition, refining stock takes involve key estimates regarding the volumes of precious metal bearing material in the refining system and the subsequent sampling and assaying to assess the precious metal content.	In order to satisfy ourselves on the robustness of the stock take results and the adequacy of process loss provisions, we reviewed the results from the refinery stock takes together with explanatory commentary from management. This included whether these results were in line with expectations and historic trends. We also reviewed the results as a percentage of throughput. The refining process and stock takes were also an area of focus for PwC, who reported their findings to us.	We considered whether the accounting treatment for refining stock take gains and losses was in accordance with agreed methodology and concurred with management's opinion that it was.	Accounting policies section on page 171.

Significant recurring issue in relation to the accounts	Work undertaken	Outcome	Further information
Impairment of goodwill, other intangibles and other assets			
Key judgements are made in determining the appropriate level of cash generating unit (CGU) for the group's impairment analysis. Key estimates are made in relation to the assumptions used in calculating discounted cash flow projections to value the CGUs containing goodwill, to value other intangible assets not yet being amortised and to value other assets when there are indications that they may be impaired. The key assumptions are management's estimates of budgets and plans for how the relevant businesses will develop or how the relevant assets will be used in the future, as well as discount rates and long term average growth rates for each CGU.	As part of the annual impairment review of goodwill and other intangible assets not yet being amortised, we reviewed a report from management. This explained the methodology used and the rationale for the assumptions made including explanations for any significant changes from those used in prior years. The impairment reviews were also an area of focus for PwC, who reported their findings to us.	For these annual impairment tests, there was significant headroom over the carrying value of the net assets of all material CGUs. The key assumptions were discussed and assessed for their reasonableness. There were no material impairments of goodwill or other assets in the year. We concluded that management's key judgements, estimates and assumptions were reasonable and appropriate.	Accounting policies section on pages 166 and 177. Notes 16, 17 and 18 on pages 184 to 187.
Taxation			
Key estimates are made in determining the tax charge included in the accounts, where the precise impact of tax laws and regulations is unclear.	We reviewed explanatory papers from management which included the appropriateness of the tax provisions and relevant disclosures. These were challenged and discussed. This was also an area of focus for PwC, who, reported their findings to us and we reviewed these.	We concluded that the estimates and disclosures were reasonable and appropriate.	Accounting policies section on pages 169 and 171.
Post-employment benefits			
Key estimates are made in relation to the assumptions used when valuing post-employment benefit obligations.	We reviewed the report from management summarising actuarial valuations and key assumptions for the main post-employment benefit plans. We compared these assumptions with those made by other companies and those used last year. We also considered PwC's assessment of the reasonableness of these assumptions.	We concluded that the assumptions used are appropriate for the group's post-employment benefit plans.	Accounting policies section on page 170. Note 30 on pages 195 to 203.
Claims and uncertainties			
The business is exposed to potential claims and uncertainties, and how to deal with these often involves significant judgement.	We reviewed and challenged information provided by management in relation to legal claims and uncertainties in accordance with relevant accounting standards.	We concurred with management's conclusions around provisioning and the contingent liability disclosures.	Accounting policies section on page 170. Note 36 on page 215.

Audit Committee Report continued

Fair, balanced and understandable

We reviewed and assessed the process which management has put in place to support the board when giving its assurance that the 2019 Annual Report and Accounts, taken as a whole, is fair, balanced and understandable and provided the information necessary for shareholders to assess the company's position and performance, business model and strategy.

This process included detailed reviews by senior managers with responsibility for key sections and a separate independent review. Key sections are also reviewed by our external advisers. Following our review, we confirmed to the board that the process put in place by management was satisfactory. The board's assessment on whether the 2019 Annual Report and Accounts is fair, balanced and understandable is set out on page 115.

Going concern and viability statement

We reviewed the matters, assumptions and sensitivities in support of assessing both the going concern basis and the long term viability of the group. This included assessing the risks which would threaten our business model, the current funding position and different stress scenarios and mitigating actions. As part of this, we considered the risks associated with the UK's exit from the European Union (Brexit). Due to its importance, the board has received regular updates from the company's Brexit working group on the plans being implemented to manage our business. Further details on our going concern and viability, and the scenarios considered, are set out on page 97.

Following review, we concluded that the group would be able to continue in operation and meet its liabilities as they fall due over a period of at least three years. The committee therefore recommended to the board that the accounts be prepared on a going concern basis and that the viability statement be approved. Further information can be found on page 116.

Risk management and internal control

The committee assists the board in its overall responsibility for the group's internal controls by reviewing the adequacy and effectiveness of controls and risk management systems. The Group Assurance and Risk Director, who has a direct reporting line to me, is responsible for providing independent assurance that our risk management and internal control processes are operating effectively. She provides regular oversight of risk matters that affect our business, makes recommendations to address key issues and ensures that any mitigation actions are properly managed and completed.

Key control questionnaire

The company's key control questionnaire is an annual, bottom up process that requires management of our material businesses to certify the existence and effectiveness of key controls, which are set out in our policies. This year, the questionnaire was expanded to include certain non-financial controls, in order to provide further insight on the controls needed to keep our people safe, ensure our businesses are compliant with the standards and regulations expected of us and protect our assets (both physical and intellectual). The results are reviewed at sector, function and group levels against the principal risks and the risk of financial misstatement. This detailed review process, as shown in the diagram below, provides a comprehensive insight into the effectiveness of the group controls, the risk culture and its risk management systems.

The committee assessed the effectiveness of the process and considered the nature and quality of responses, the level of challenge to the responses, significant findings, areas for improvement and how management intended to address findings.

Sector and functional control reviews

The committee receives updates from individuals responsible for maintaining controls over financial risk areas across the group, so that we can gain confidence that these are managed effectively. During the year, we received an update from the new Global Head of Security and Business Continuity on his first impressions of JM and his plans to enhance controls in this area. As deployment of the group's new ERP system commenced, we considered the controls in place and will continue to maintain oversight of these during 2019/20. The committee also spent time reviewing the precious metal governance framework and controls associated with the balances of precious metal held in the businesses, including strategic metal holdings and the treatment of process losses.

It was important for the committee to understand and challenge the key financial risks and controls within our Battery Materials business, including the strength of its newly established finance team as they manage these. This year we also heard from the Sector Finance Director of Efficient Natural Resources about the main themes arising from the key control questionnaire and internal audits, helping us to better understand the control environment in that sector.

These sector and functional reviews allow us to meet with, challenge and probe management. This provides the committee with both a better understanding of the control framework in these areas, but also provides exposure to levels of management below the group team. This is important in assessing the depth and quality of management within the organisation.

Key control questionnaire process

Corporate assurance and risk

The Group Assurance and Risk Director is present at every Audit Committee meeting and we have the opportunity to ask detailed questions and challenge her. She provides regular reports on internal audit and security reviews undertaken during the period, including the key findings, the actions to address the findings and progress made by management in implementing them. We pay particular attention to the level of engagement of all our managers, whether at local, sector or executive level, in implementing corrective actions and in strengthening the control framework across our sites, irrespective of site location, size and activity.

Corporate assurance and risk annual plan

We spend a significant amount of time reviewing the corporate assurance and risk annual plan to ensure it is comprehensive, reflects the challenges and changes to our business, and provides the appropriate level of assurance. In reviewing the 2019/20 plan, we considered the group's risk profile, the maturity of existing internal controls, including where these had been enhanced and standardised across the group, and the work planned by sector management or the group function to review the controls in place, as required by policies. As part of the detailed planning process, information from a variety of sources was analysed to assess levels of risk. This included output from the key control questionnaire process, speak up concerns, previous internal audit findings, including environment, health and safety audits, as well as input from JM's strategy team. We were pleased to see the plan include group wide and multi-site audits, as well as site specific audits.

The plan was mapped against the principal risks and root causes, which allowed us to see how much coverage there would be on each risk. This year, the majority of our plan covers operational, legal, regulatory and commercial risk areas. The committee believes the 2019/20 plan addresses Johnson Matthey's key risks, where additional assurance is needed and that its coverage is appropriate for the size and nature of the group. On the basis of our review, we approved the plan.

Corporate assurance and risk effectiveness

The committee reviews the effectiveness of the Corporate Assurance and Risk team throughout the year using a variety of inputs including audit reports, interaction with committee members and management, and monitoring progress of the internal audit plan. We pay attention to whether the function has adequate standing across the group, is free from management influence or other restrictions and is sufficiently resourced. We discuss the calibre, knowledge and experience of individual auditors. The performance of the function is reviewed annually. During the 2018/19 financial year, the committee considered the results of a self-assessment against the Institute of Internal Auditor's standards of integrity, objectivity, confidentiality and competence. Following our assessment, improvement actions were identified, the progress of which is monitored by the committee.

Risk management

Working with the board, the risk assurance processes (including the assurance framework and key control questionnaire) were reviewed and refined. We concentrate primarily on reviewing the mitigating controls and the levels of assurance over these, whereas the board is directly responsible for managing risks. The board may ask for additional assurance to be provided and this can be carried out by the Corporate Assurance and Risk function which reports back on this to the committee.

Speak up issues

The committee receives an update on the speak up (whistleblowing) process, where we review the procedures to ensure they are proportionate and independent. The committee was pleased to see that based on the number of speak ups, the organisation is comfortable raising matters through this channel.

External auditor

Tenure

In July 2018, following a successful tender and in line with EU legislation on audit firm rotation, we welcomed PwC as our new auditor.

Audit transition

During the year we have overseen a smooth transition from the former auditor KPMG, which included PwC shadowing KPMG through our full year results process for 2017/18 and attending one of our committee meetings prior to formal appointment. The Chief Financial Officer and I have met regularly with both lead partners from the firms to ensure that there was a smooth handover. We would like to thank KPMG for the service given to the group over many years.

Bringing in a new auditor has brought fresh energy to the role, new questions have been asked and areas have been reassessed. We are pleased with the way the change has been managed as well as the output, which we consider to be a robust audit.

External audit plan

PwC performed detailed audit planning activities and reviewed KPMG's audit files at material locations in order to develop an understanding of the group, the operating environment, and the financial reporting process.

In developing the external audit plan for 2018/19, PwC performed a risk assessment to identify the risks of material misstatement to the financial statements. This considered the nature, magnitude and likelihood of each risk identified and the relevant controls in place, in order to identify the audit risks. The key audit matters are referred to in the independent auditor's report on pages 225 to 227 and formed the basis of the plan.

In determining the scope of coverage, consideration was given to management reporting, the group's legal entity structure, the financial results as at 31st March 2018 and the forecast for 2018/19. Details of the coverage and the agreed scope are set out in the independent auditor's report on page 224. The committee was pleased that the plan included an increased alignment with sector reporting when compared with previous years. This had been a matter discussed during the audit tender process. The procedures to be performed at a global level and the planned site visits were also reviewed. Materiality was agreed at approximately 5% of underlying profit.

Following discussion and challenge, we concluded that the proposed plan was sufficiently comprehensive for the purpose of the audit of the group's accounts and approved the proposed fee.

Audit Committee Report continued

How we reviewed PwC's performance

The committee is committed to ensuring a high quality audit is performed and, as part of the tender process carried out last year, recommended that PwC be appointed due to its strong team with the skills, experience and independence to provide rigour and challenge in the audit. The committee reviews the ongoing effectiveness and quality of the external auditor and audit process throughout the year, based on its reports to the committee, the performance of Mark Gill and his team both in and outside committee meetings, how they interact with and challenge management and how they are building relationships with the internal audit teams. We have also met with key members of Mark's team, and the Chief Financial Officer and I met with the audit partner in China, one of our key geographical locations. It is intended that the Chief Financial Officer and I continue to meet with local audit partners when visiting group sites, as this allows us to reassure ourselves of their capability to deliver the audit quality we expect.

In addition to this, the committee feels it is important to understand management's opinion of audit quality and effectiveness and a feedback questionnaire on the external auditors is completed annually by the Executive Directors and senior management.

Provision of non-audit services

In light of legislation and the FRC's Revised Ethical Standard, the committee has adopted a policy on the provision of non-audit services which identifies certain types of engagement that the external auditor must not undertake, including tax services, the preparation of accounting records and risk management procedures. It also sets out the circumstances in which a former employee of PwC can be employed by Johnson Matthey and the procedure for obtaining approval for such employment. The policy includes key controls to ensure that the provision of non-prohibited services does not create a threat to PwC's auditor independence and objectivity.

The auditor can be invited to provide non-audit services which, in its position as auditor, it is best placed to undertake and which do not impact auditor objectivity or independence. The policy sets out how approval should be obtained prior to PwC being engaged. Services likely to cost £25,000 or less must be approved by the Chief Financial Officer, services likely to cost more than £25,000 but £100,000 or less must be approved by myself as committee Chairman. Services likely to cost over £100,000 must be approved by the committee. During the year, the committee approved the engagement of PwC to provide certain immigration advisory services. The engagement cost approximately £150,000. These services have been provided to the group since 2017, following a competitive selection process. Plans are in place for PwC to cease providing these services by December 2019.

Compliance against the policy and the provision of non-audit services and details of the non-audit services provided by PwC and associated fees were reviewed during the year. Non-audit fees in the year were £0.5 million compared with audit fees of £2.6 million. The non-audit fees predominantly comprised global immigration services. More information on fees incurred by PwC for non-audit services, as well as the split between PwC's audit and non-audit fees, can be found in note 10 on the accounts, page 180.

The committee will review the policy on the provision of non-audit services later this year.

Objectivity and independence

The committee is responsible for monitoring and reviewing the objectivity and independence of the external auditor to ensure this is safeguarded. The committee considered the information provided by the auditor, confirming its staff involved with the audit have no links or connections to JM and that the FRC's Revised Ethical Standard were complied with. The committee concluded that PwC was independent.

Proposed re-appointment of PwC

Given the work undertaken by the committee in assessing PwC's performance and independence, a resolution proposing PwC's re-appointment as the company's auditor and authorising the Audit Committee to determine its remuneration is included in the Notice of the 2019 Annual General Meeting.

Statement of compliance

The committee confirms that during the financial year ended 31st March 2019, the company complied with the applicable provisions of the Competition and Markets Authority's Statutory Audit Services for Large Companies Market Investigation (Mandatory Use of Competitive Tender Processes and Audit Committee Responsibilities) Order 2014. As detailed in our report last year, we undertook an audit tender in 2018 and PwC was appointed as external auditor in July 2018. 2018/19 is the first year we have been audited by PwC.

Committee effectiveness

The committee's performance was reviewed as part of the board's 2018/19 internal review. The committee was considered to be operating effectively, helping to ensure the integrity of financial reporting and that effective oversight of the external and internal auditors is maintained. Given the changing landscape in which JM is operating and as the new ERP system is rolled out, the development of the assurance functions will be reviewed to ensure they adjust their approaches to the advantages of a much simpler systems landscape. More details on how the review was carried out can be found on page 114.

Our priorities

In last year's annual report we set out our priorities, over and above our business as usual work, for 2018/19. Below, we report on the status of these and set out our priorities for 2019/20.

2018/19	Comments
• The committee will monitor and support the external audit transition.	• Page 129.
• Given the significant impact on working capital of precious metal (both customer and owned metal) held by the company, the committee will receive further presentations on how management will oversee this, including a 'teach-in' for the Non-Executive Directors.	• A 'teach-in' on the management of metal was delivered to the board in May 2018. The committee has also reviewed strategic metal holdings, metal liquidity ranges and process losses during the year. • Page 106.
• As the group's new global ERP system is deployed, the committee will pay particular attention to the associated control processes.	• We received a specific update on the global ERP system controls as well as updates through internal and external audit. In addition, the board received an update from a specialist team from KPMG, who have provided assurance on this.
• Given the substantial increase in planned capital expenditure, the committee will review the control framework around the significant areas of spend.	• Due to the significance of the group's capital projects, this was predominantly reviewed by the board during 2018/19. The board received an update from the Capital Projects Director during the year and considered the control framework for the project management office in approving new requests for capex.
2019/20	
• The committee will continue to monitor control processes associated with the new global ERP system, as the rollout accelerates. • The committee will review the progress being made in increasing controls over the management of cyber risk, given the significance of this risk. • The committee will monitor the company's progress to increase its use of data analytics by our assurance providers.	

The Audit Committee Report was approved by the Board of Directors on 30th May 2019 and signed on its behalf by:

Alan Ferguson
Chairman of the Audit Committee

Remuneration Report

Chairman
Chris Mottershead

Members

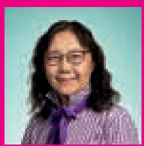
Patrick Thomas

Alan Ferguson

Odile Desforges

Jane Griffiths

John O'Higgins



Xiaozhi Liu
(Appointed 2nd April 2019)

Key Objective:

To ensure that our remuneration arrangements align with shareholders' interests, reward directors and senior executives for performance and are well managed in line with good governance.

Responsibilities:

- Sets remuneration policy for Executive Directors, Senior Management and the Chairman and determines the application of that policy.
- Oversight of workforce remuneration policies and their alignment with culture.

2019/20 Priorities:

- Triennial review of Directors' Remuneration Policy.

Balancing reward and performance

The purpose of this report is to explain the key matters considered by the committee during the last 12 months and to set out the matters we expect to consider over the coming year.

Introduction

We submitted our latest Remuneration Policy to shareholders at our 2017 Annual General Meeting (AGM) and appreciated the high level of support we received (92.3% in favour). We also value the continuing constructive dialogue we have had with a number of our shareholders and representatives of institutional investors.

This Annual Report on Remuneration is divided into two parts. The first part sets out the statement of remuneration policy, which summarises our policies and practices (the Remuneration Policy); and the second part sets out how the Remuneration Policy has been applied (the Implementation Report) in 2018/19 and how we intend to apply it in the forthcoming year.

Our approach to remuneration

The overall objective of Johnson Matthey is to deliver sustained superior shareholder value using our world class science and our competitive strengths, contributing to a cleaner, healthier world.

Our remuneration strategy focuses on: motivating our talent to achieve the company's strategic objectives; delivering on customer commitments; inspiring employees; and driving value for our shareholders through long term success and growth. This long term focus is supported by our Remuneration Policy, which includes an incentive structure that is purposefully weighted towards long term performance and includes shareholding guidelines for Executive Directors at, or above, 200% of salary.

We also give consideration to how performance is delivered when determining incentive plan outcomes with appropriate consideration given to any environmental, social and governance risks to ensure that the performance delivered is sustainable and fully aligned with our company values.

Our remuneration strategy is also designed to be competitive in the various markets in which we operate and compete for talent.

2019 Incentive plan outcomes

During the year Johnson Matthey delivered strong sales growth and continued to successfully implement the board's strategy through: sustained growth in our Clean Air sector; expanding the pipeline in our Health Sector; market leading growth in our Efficient Natural Resources Sector; and developing our Battery Materials business for future growth. We have also made a number of key capital investments in both our Clean Air Sector and Battery Materials business in line with our strategy.

During 2017/18 the committee concluded that given the company's current clearly identified strategic objectives it would be appropriate to recognise these through the introduction of a weighting of 20% to non-financial objectives within the annual incentive plan for 2018/19.

These non-financial objectives focused on deliverables to support our strategy relating to science, customers, operations and people. Delivery against the objectives was also underpinned by demonstrating expected leadership behaviours and achieving a satisfactory health and safety record over the year. As this is the first year of having non-financial objectives our approach to defining and reporting on these will evolve over the next few years. The remainder of the bonus is based on financial metrics relating to profit and working capital. Further details on the performance against the targets is set out within our Implementation Report.

Overall, we achieved growth in underlying profit before tax and reduced the average working capital days excluding precious metals during the year. The Committee's evaluation of each executive director's achievements against their individual strategic objectives is set out on page 145.

As a result of the financial achievements over the year, and the committee's evaluation of individual strategic objectives, the bonuses becoming payable are 44.8% of the maximum for Robert MacLeod, 47.8% of the maximum for Anna Manz and 46.7% of the maximum for John Walker.

In the context of a challenging market environment, and the progress made against our long term strategy, the committee considered the level of annual bonus payout appropriate.

The long term incentive awards granted on 1st August 2016 will be eligible to vest on the third anniversary of their grant subject to satisfying challenging three-year underlying earnings per share (EPS) growth performance targets. As a result of achieving annualised growth EPS of 7.7% over the three year period to 31st March 2019, which was above the threshold target of 4% compound annual growth, and achieving a satisfactory return on invested capital (ROIC) over the performance period particularly given the current level of capital investment, it is expected that vesting will take place at 66.8% of the maximum.

Applying Remuneration Policy in 2020

The 2020 Annual General Meeting (AGM) will mark the third anniversary of the introduction of our current Remuneration Policy. In line with the current regulatory framework, we will be required to seek shareholder approval for an updated remuneration policy at that AGM.

With regards to the operation of our current remuneration policy for the final time in 2019/20, this will operate on broadly the same basis as in 2018. The key points to note are set out below.

Salary review: the executive directors received salary increases at a rate of 2.5% of their basic salaries with effect from 1st April 2019. This rate of increase was consistent with the increase typically awarded across UK employees.

Annual bonus: the annual bonus structure will continue to operate using the same overall framework as in 2019 with bonuses earned based on performance against a challenging range of targets relating to (i) underlying profit before tax (ii) working capital days and (iii) individual strategic targets.

Long term incentive awards: the performance targets to operate will be the same as those used for the 2018 awards. Vesting will be based on the satisfaction of challenging three-year EPS growth targets and delivering a satisfactory ROIC.

However, reflecting wider market practice, a two year holding period will apply to the shares that vest in relation to the awards to be granted in 2019.

2018 UK Corporate Governance Code

The 2018 Code will apply to Johnson Matthey for the first time from the start of the 2019/20 financial year. As a result, the committee has considered the new remuneration-related provisions included in the code and intends to update its existing policy to take account of the changes with effect from the 2020 AGM.

For example, the committee intends to include a minimum two-year holding period on future vested long term incentive plan awards (with this approach being voluntarily adopted for the 2019 awards outside of the current policy), along with establishing an appropriate policy on share ownership post-cessation of employment. The new policy will be finalised following a consultation exercise with our shareholders as part of our triennial review of executive remuneration and will become effective, subject to shareholder approval, with effect from our AGM in July 2020.

The committee additionally recognises the requirements and expectations in relation to executive director pension provisions, with this aspect of remuneration also to form part of our review process.

Group employee considerations

During the year the company's UK pension plan was reviewed to mitigate increasing costs as well as ensure risk was appropriately and effectively managed.

In addition, we reviewed the pay levels of employees below the board, particularly in relation to the UK gender pay gap.

Our UK gender pay gap reduced from 9.2% to 8.5% but we realise that there is still more work to be done. It will take some time for the current gap to be narrowed and to tackle the root causes of our gender imbalance, however the company is fully committed to ensuring a truly inclusive culture that supports diversity and already has a number of programmes and actions in place to improve our gender balance.

2019 Annual General Meeting

I ask you to support our 2018/19 Annual Report on Remuneration at our forthcoming AGM on 17th July 2019. We believe that our policy is simple, transparent and effective, strongly supporting our business strategy.

We welcome an open dialogue with our shareholders and I will be available at the meeting to answer any questions about the work of the Remuneration Committee.

Chris Mottershead
Chairman of the Remuneration Committee

Remuneration Report continued

Remuneration overview

Remuneration Policy

The table below sets out the remuneration policy for the 2019/20 financial year. Further details are set out in the Directors' Remuneration Policy on page 135 and the Annual Report on Remuneration on page 142.

Remuneration element	Remuneration structure
Base salary	Current annual salaries are as follows: Robert MacLeod – £838,500 (2018/19 £818,000) Anna Manz – £528,000 (2018/19 £515,000) John Walker – £480,000 (2018/19 £468,250) The 2019/20 salaries shown above include a salary increase effective from 1st April 2019 of 2.5% for Robert MacLeod, Anna Manz and John Walker.
Benefits	Medical, life and income protection insurance, medical assessments, a car cash allowance, matching shares under the all employee share incentive plan and assistance with tax advice and tax compliance services where appropriate.
Pension contribution	25% of salary cash supplement in lieu of pension.
Annual bonus	180% of salary for the Chief Executive and 150% of salary for other Executive Directors. The bonus for 2019/20 will be substantially based on key financial measures (80% of maximum opportunity), including underlying profit before tax (PBT) and working capital performance. It will also include an element attributable to non-financial strategic objectives (20% of maximum opportunity) focusing on our strategy, customers, operations and people. 50% of any bonus earned is deferred in shares for three years.
Long term incentive	200% of salary for the Chief Executive and 175% of salary for other Executive Directors. Awards vest subject to achieving challenging EPS growth targets (with a ROIC underpin). Targets for unvested awards require 4% to 10% p.a. underlying EPS growth for 15% to 100% vesting. Performance is measured over three years with awards vesting in equal tranches over three, four and five years. However, reflecting wider market practice, a two year holding period will apply to the shares that vest in relation to the awards to be granted in 2019.
Shareholding guidelines	250% of salary for the Chief Executive and 200% of salary for other Executive Directors. 50% of the shares (net of tax) vesting under the incentive schemes must be retained until the guideline holding has been achieved.

2018/19 outcomes

The table below sets out the remuneration outcomes for the Executive Directors for 2018/19.

£'000	Salary	Benefits	Annual bonus[1]	Long term incentive	Pension	**Total**
Robert MacLeod	818	28	660	1,073	205	**2,784**
Anna Manz	515	22	369	592	129	**1,627**
John Walker	468	64	328	519	117	**1,496**

[1] In accordance with the rules of the plan, 50% of the bonus payable is awarded as shares and deferred for three years and are not subject to any further performance conditions.

Annual bonuses for Robert MacLeod and Anna Manz were based on the underlying profit before tax and working capital of the group plus strategic objectives and paid out at 44.8% of the maximum for Robert and 47.8% of maximum for Anna. The bonus for John Walker was based on the underlying profit before tax and working capital of the group plus underlying operating profit of the Clean Air sector and strategic objectives and paid out at 46.7% of the maximum. 50% of the bonus paid to the Executive Directors was paid in shares and deferred for three years.

The long term incentive plan awards were based on underlying EPS performance to 31st March 2019 and vested at 66.8% of the maximum following underlying EPS growth over the performance period of 7.7% per annum. In light of the challenging external market conditions in place during the three year performance period, the Committee was satisfied that the vesting result was appropriate. In reaching this conclusion, the Committee also took account of the fact that the company's ROIC over the period was good taking into account the level of current capital investment. The shares will be released in equal tranches in 2019, 2020, 2021.

Directors' Remuneration Policy

Below we publish the Remuneration Policy table, which includes the elements of directors' remuneration. For each element we describe its purpose and its link to strategy, how it works, the opportunity, boundaries and performance measures and any clawback or withholding conditions which may apply. This Remuneration Policy was subject to a shareholder vote at the 2017 AGM, where shareholders voted 92.3% in favour, and applies to all remuneration for the financial year commencing 1st April 2017 onwards.

Remuneration Policy table

Purpose and link to strategy	Key outcomes	Potential value of element and performance measures
Base salary		
Base salary is the basic pay for doing the job. Its purpose is to provide a fair and competitive level of base pay to attract and retain individuals of the calibre required to lead the business.	Base salaries will be reviewed annually and any changes normally take effect from 1st April each year. In determining salaries and salary increases, the Remuneration Committee will take account of the performance of the individual director against a broad set of parameters including financial, environmental, social and governance issues. The Remuneration Committee will further take into account the length of time in post and the level of salary increases awarded to the wider Johnson Matthey workforce. Salaries across the group are benchmarked against a comparator group of similarly sized companies within the FTSE, with a comparable international presence and geographic spread and operating in relevant industry sectors. New appointments or promotions will be paid at a level reflecting the Executive Director's level of experience in the particular role and experience at board level. New or promoted Executive Directors may receive higher pay increases than typical for the group over a period of time following their appointment as their pay trends toward an appropriate level for their role.	**Maximum opportunity** No salary increase will be awarded which results in a base salary which exceeds the competitive market range. Details of the current salaries for the Executive Directors are shown in the Annual Report on Remuneration on page 143.
Annual incentive		
The annual bonus provides a strong incentive aligned to strategy in the short term. The annual bonus allows the board to ensure that the company's plans are properly reflected in stretching but achievable annual budgets. The annual bonus plays a key part in the motivation and retention of Executive Directors, one of the key requirements for long term growth. Bonus deferral as well as malus and clawback provisions ensure that longer term considerations are properly taken into account in the pursuit of annual targets.	The Remuneration Committee sets annual bonus performance measures and targets for each new award cycle. At the end of the year, the Remuneration Committee determines the extent to which these have been achieved. The Remuneration Committee retains the discretion to reduce any bonus award if, in its opinion, the underlying financial performance of the company has not been satisfactory in the circumstances. **Deferral** Of any bonus paid, 50% is paid in cash and the remaining 50% is deferred into shares for a three year period as an award under the deferred bonus plan. No further performance conditions apply to awards under the deferred bonus plan. Dividends that accrue on the deferred shares during the vesting period will be paid in either cash and / or shares at the time of vesting. **Malus and clawback** The cash and deferred elements of the bonus are subject to malus and clawback provisions such that they can be forfeited or recouped in part or in full in the event of a misstatement of results, error in the calculation or misconduct by the individual. **Adjustments** The Remuneration Committee retains discretion to change the performance targets if there is a significant or material event which causes the committee to believe the original targets are no longer appropriate (e.g. to reflect material acquisitions or disposals). The Remuneration Committee also retains discretion to amend the level of annual bonuses determined by the performance condition to seek to ensure that the incentive structure for Executive Directors does not raise environmental, social and governance risks by inadvertently motivating irresponsible behaviour. For example, reducing or eliminating bonuses where the company has suffered reputational damage or where other aspects of performance have been unacceptable. The Remuneration Committee retains the ability to increase bonus awards from the formulaic outcome where there is identifiable and exceptional performance by the Executive Director. Bonus payments in such circumstances would remain within the maximum bonus opportunity and shareholders would be fully informed of the justification.	**Performance measures** Bonuses are based on the achievement of demanding financial and, where appropriate, non-financial targets. The Remuneration Committee may use different performances and weightings for each performance cycle as appropriate to take into account the strategic needs of the business. However, a substantial proportion will be based on key financial measures, including budgeted underlying profit before tax (PBT). The budget is set on a robust bottom up process to achieve full accountability. The target budgeted underlying PBT is retrospectively published in the immediately following Annual Report on Remuneration. Details of last year's bonus awards are on page 143. The performance period for annual bonus purposes matches the financial year (1st April to 31st March). **Maximum opportunity and vesting thresholds** Chief Executive – 180% of base salary. Other Executive Directors – 150% of base salary. Threshold vesting will result in a bonus of 15% of maximum opportunity. On target performance will result in 50% payment of the maximum opportunity.

Remuneration Report continued

Purpose and link to strategy	Key outcomes	Potential value of element and performance measures
Long term incentive		
The Performance Share Plan (PSP) is a long term incentive plan designed to ensure that executives take decisions in the interest of the longer term success of the group. Having a measure that looks at profitable growth over the longer term ensures that the interests of executives are aligned with shareholder wishes for long term value.	Shares may be awarded each year and are subject to performance conditions over a three year performance period. Subject to performance conditions being met, the shares will vest in equal instalments on the third, fourth and fifth anniversary of the date of award. The performance targets are set by the Remuneration Committee based on internal and external growth forecasts to ensure they remain appropriate and aligned with shareholder expectations. The awards are granted in accordance with the rules of the plan approved by shareholders. The maximum award level is 200% of base salary. Awards may be granted in the form of conditional shares, nil or nominal cost options or cash (where the awards cannot be settled in shares). Dividends that accrue between the third and fifth anniversary of the award date will be paid in either cash and / or shares at the time of vesting. **Malus and clawback** Long term incentive plan awards granted since 2014 are subject to malus and clawback provisions that can apply in the case of a misstatement of results, error in the calculation or misconduct by the individual. **Adjustments** The Remuneration Committee has power to adjust the vesting level of an award based on the underlying performance of the company. The Remuneration Committee may adjust the performance measure to reflect material changes (e.g. significant acquisitions or disposals, share consolidation, share buy-backs or special dividends). Any such change would be fully explained to shareholders.	**Performance measures** PSP vesting is currently based on the compound annual growth rate (CAGR) of underlying EPS over a three year performance period, subject to a discretionary ROIC underpin. However, the Remuneration Committee retains discretion to amend the targets and the performance measures for future awards as appropriate to reflect the business strategy. Wherever possible, the views of major shareholders will be sought when it is proposed to make any substantive changes to the performance measures. The prospective targets and measures for the year commencing 1st April 2018 are shown on page 146.
Benefits		
To provide a market aligned benefits package. The purpose of any benefit is to align with normal market practices and to remove certain day to day concerns from Executive Directors to allow them to concentrate on the task in hand.	Benefits include medical, life and income protection insurance, medical assessments, company sick pay, and a company car (or equivalent). Other appropriate benefits may also be provided from time to time at the discretion of the Remuneration Committee. Directors' and officers' liability insurance is maintained for all directors. Directors who are required to move for a business reason may, where appropriate, also be provided with benefits such as relocation benefits (e.g. the provision of accommodation, transport or medical insurance away from their country of residence) and schooling for dependents. The company may pay the tax on these benefits. Directors may be assisted with tax advice and tax compliance services. The company will reimburse all reasonable expenses (including any tax thereon) which the Executive Director is authorised to incur whilst carrying out executive duties.	Benefits are not generally expected to be a significant part of the remuneration package in financial terms and are there to support the director in his or her performance in the role. In general benefits will be restricted to the typical level in the relevant market for an Executive Director. Car benefits will not exceed a total of £25,000 per annum. The cost of medical insurance for an individual Executive Director and dependents will not exceed £15,000 per annum. Company sick pay is 52 weeks' full pay.
Pension		
Provides for post-retirement remuneration, ensures that the total package is competitive and aids retention.	All Executive Directors will be paid a cash supplement in lieu of membership in a pension scheme.	The maximum supplement is 25% of base salary. In relation to any future Executive Director appointments it is not anticipated that they would receive a pension supplement greater than the typical cost of providing pension benefits in their local country.

Purpose and link to strategy	Key outcomes	Potential value of element and performance measures
All employee share plan		
Encourages share ownership.	Executive Directors are entitled to participate in the company's all employee share incentive plan, under which regular monthly share purchases are made and matched with the award of company shares, subject to retention conditions. Executive Directors would also be entitled to participate in any other all employee arrangements that may be established by the company on the same terms as all other employees.	Executive Directors are entitled to participate up to the same limits in force from time to time for all employees.
Shareholding requirements		
To encourage Executive Directors to build a shareholding in the company and ensure the interests of management are aligned with those of shareholders.	Executive Directors are expected to build up a shareholding in the company over a reasonable period of time. Shares that count towards achieving these guidelines include: all shares beneficially owned by an Executive Director or a person connected to the executive as recognised by the Remuneration Committee; deferred bonus shares and long term incentive awards which are no longer subject to performance conditions but have not yet vested. Executive Directors are expected to retain at least 50% of the net (after tax) vested shares that are released under the long term PSP and deferred bonus plans until the required levels of shareholding are achieved. Executive Directors are not required to make personal share purchases should awards not meet the performance conditions and so a newly appointed director may take longer to reach the expected level, depending on the company's performance against targets over the period.	The minimum shareholding requirement is as follows: Chief Executive – 250% of base salary. Other Executive Directors – 200% of base salary. There is no requirement for Non-Executive Directors to hold shares but they are encouraged to acquire a holding over time.
Non-Executive Director fees		
Attracts, retains and motivates Non-Executive Directors with the required knowledge and experience.	Non-Executive Director fees are determined by the board. The Non-Executive Directors exclude themselves from such discussions. The fees for the Chairman are determined by the Remuneration Committee taking into account the views of the Chief Executive. The Chairman excludes himself from such discussions. Non-Executive Directors are paid a base fee each year with an additional fee for each committee chairmanship or additional role held. Non-Executive Director fees are reviewed every year. Any increase will take into account the market rate for the relevant positions within a comparator group of similarly sized companies with a comparable international presence and geographic spread and operating in relevant industry sectors, the experience of the individuals and the expected time commitment of the role. In exceptional circumstances, additional fees may be payable to reflect a substantial increase in time commitment. The company will also reimburse the Chairman and Non-Executive Directors for all reasonable expenses (including any tax thereon) incurred whilst carrying out duties for the company.	Details of the current fee levels for the Chairman and Non-Executive Directors are set out in the Annual Report on Remuneration on page 150. The fee levels are set subject to the maximum limits set out in the Articles of Association.

Remuneration Report continued

Selection of performance targets

Annual incentive

Financial performance targets under the annual bonus plan are set by the Remuneration Committee with reference to the prior year and to the budgets and business plans for the coming year, ensuring the levels to achieve threshold, target or maximum payout are appropriately challenging.

The performance targets for 2019/20 are substantially based on financial measures (80% of maximum opportunity) including budgeted underlying PBT and working capital to ensure that there is strong attention paid to delivery of current operational plans and operational efficiency. In addition, an element of the bonus is attributable to the achievement of strategic objectives (20% of maximum opportunity) focusing on our strategy and relating to our science, customers, operations and people.

Commercial sensitivity precludes the advance publication of the actual bonus targets but these targets will be retrospectively published in the Annual Report on Remuneration for 2019/20.

Long term incentive

EPS targets under the PSP are set to reflect the company's longer term growth objectives at a level where the maximum represents genuine outperformance. Underlying EPS is considered a simple and clear measure of absolute growth in line with the company's strategy. It is also a key objective of the company to achieve earnings growth only in the context of a satisfactory performance on ROIC. Accordingly, the Remuneration Committee makes an assessment of the group's ROIC over the performance period to ensure underlying EPS growth has been achieved with ROIC in line with the group's planned expectations.

Group employee considerations

The Remuneration Committee considers the directors' remuneration, along with the remuneration of the GMC with effect from 1st April 2019, in the context of the wider employee population and is kept regularly updated on pay and conditions across the group. The company has not consulted directly with employees with respect to directors' remuneration. Increases in base salary for directors will take into account the level of salary increases granted to all employees within the group.

The general principle for remuneration in Johnson Matthey is to pay a competitive package of pay and benefits in all markets and at all job levels in order to attract and retain high quality and diverse employees. The proportion of variable pay increases with progression through management levels with the highest proportion of variable pay at Executive Director level, as defined by the Remuneration Policy.

The key elements of variable pay cascade down through the next tiers of senior management with appropriate reductions in opportunity levels based on seniority. The group's senior executives plus senior and middle managers (approximately 1,350 employees) participate in the annual bonus plan (with performance conditions similar to those described in the Remuneration Policy). In addition, the group's senior executives and certain senior management participate in the long term PSP in line with the same EPS based performance conditions. Executive Directors are subject to vesting in three tranches on their long term incentive plan awards, and Executive Directors, members of the GMC and senior management are subject to deferral of annual bonus. Certain senior management also participate in a long term Restricted Share Plan (RSP) which has no performance conditions attached. No Executive Director is eligible to participate in this RSP.

There are also a number of country and business dependent arrangements under which bonuses may be paid to the entire business workforce where performance conditions associated with profitability are met.

Johnson Matthey operates a number of pension arrangements around the world, relevant to the local conditions and arrangements.

The key element of remuneration for those below senior management grades is base salary and Johnson Matthey's policy is to ensure that base salaries are fair and competitive in the local markets. General pay increases take into account local salary norms, local inflation and business conditions.

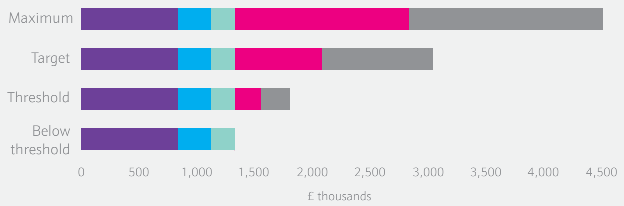
Remuneration scenarios

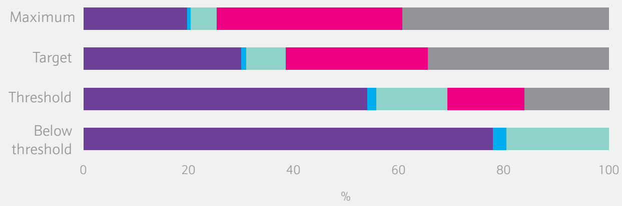
Below is an illustration of the potential future remuneration that could be received by each Executive Director for the year commencing 1st April 2019, both in absolute terms and as a proportion of the total package under different performance scenarios. The value of the PSP is based on the award that will be granted in August 2019.

Value of package

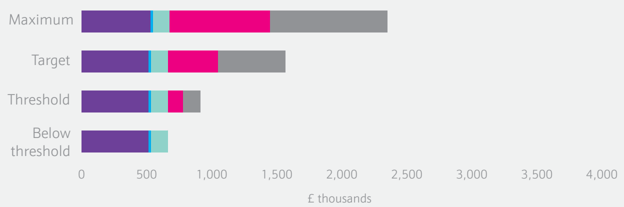
Composition of package

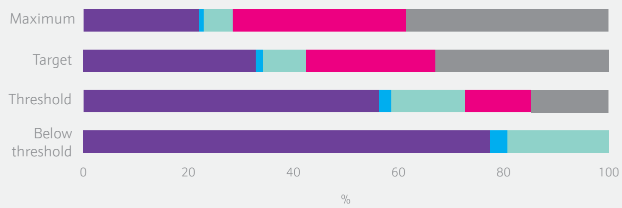
Robert MacLeod



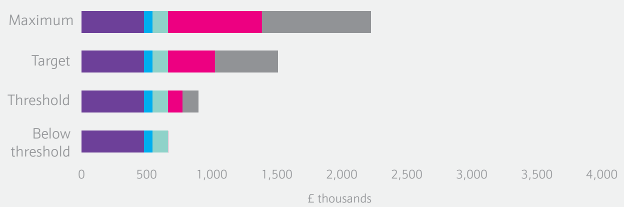


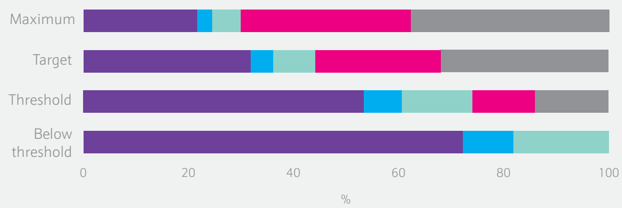
Anna Manz





John Walker





Base salary   Benefits   Pension   Bonus   PSP

Remuneration Report continued

Approach to recruitment remuneration

The recruitment policy provides an appropriate framework within which to attract individuals of the required calibre to lead a company of Johnson Matthey's size, scale and complexity. The Remuneration Committee determines the remuneration package for any appointment to an Executive Director position, either from within or outside Johnson Matthey.

The following table sets out the various components which would be considered for inclusion in the remuneration package for the appointment of an Executive Director and the approach to be adopted by the Remuneration Committee in respect of each component.

Area	Policy and operation
Overall	The policy of the board is to recruit the best candidate possible for any board position and to structure pay and benefits in line with the Remuneration Policy set out in this report. The ongoing structure of a new recruit's package would be the same as for existing directors, with the possible exception of an identifiable buy-out provision, as set out below.
Base salary or fees	Salary or fees will be determined by the Remuneration Committee in accordance with the principles set out in the policy table on page 135.
Benefits and pension	An Executive Director shall be eligible for benefits and pension arrangements in line with the company's policy for current Executive Directors, as set out in the policy table on pages 136 and 137. For new hires the cash supplement payable will be more aligned to that payable to other employees.
Annual incentive	The maximum level of opportunity is as set out in the policy table on page 135. The Remuneration Committee retains discretion to set different performance targets for a new externally appointed Executive Director, or adjust performance targets and measures in the case of an internal promotion, to be assessed over the remainder of the financial year. In this case any bonus payment would be made at the same time as for existing directors, and any such award would be pro-rated for the time served in the performance period.
Long term incentive	The maximum level of opportunity is as set out in the policy table on page 136. In order to achieve rapid alignment with the company's and shareholder interests, the Remuneration Committee retains discretion to grant a PSP award to a new externally appointed Executive Director on or soon after appointment if they join outside of the normal grant period.
Replacement awards	The Remuneration Committee retains discretion to grant replacement buy-out awards (in cash or shares) to a new externally appointed Executive Director to reflect the loss of awards granted by a previous employer. Where this is the case, the Remuneration Committee will seek to structure the replacement award such that overall it is on an equivalent basis to broadly replicate that foregone, using appropriate performance terms. If granted, any replacement buy-out award would not exceed the maximum set out in the rules of the 2017 Performance Share Plan Rules (350% of base salary). If the Executive Director's prior employer pays any portion of the remuneration that was anticipated to be forfeited, the replacement awards shall be reduced by an equivalent amount.
Other	The Remuneration Committee may agree that the company will meet certain mobility costs, relocation costs, including temporary living and transportation expenses, in line with the company's prevailing mobility policy for senior executives as described in the policy table on page 136.

In the case of an internal promotion to the board, the company will honour any contractual commitments made prior to the promotion.

Service contracts and policy on payment for loss of office

The following table summarises relevant key provisions of Executive Directors' service contracts and the treatment of payments on termination of employment. The full contracts of service of the Executive Directors (as well as the terms and conditions of appointment of the Non-Executive Directors) are available for inspection at the registered office of the company during normal business hours as well as prior to and during the forthcoming AGM.

In exceptional circumstances, the Remuneration Committee may authorise, where it considers it to be in the best interests of the company and shareholders, entering into contractual arrangements with a departing Executive Director, for example a settlement, confidentiality, restrictive covenant or other arrangement, pursuant to which sums not set out in the following table may become payable. Full disclosure of the payments will be made in accordance with the remuneration reporting requirements.

The table on the following page describes the contractual conditions pertaining to the contracts for Robert MacLeod, Anna Manz and John Walker and for any future Executive Director.

Summary of key provisions of Executive Directors' service contracts and treatment of payments on termination

	Robert MacLeod	Anna Manz	John Walker[1]
Date of service agreement	31st January 2014	25th July 2016	31st January 2014
Date of appointment as director	22nd June 2009	17th October 2016	9th October 2013
Employing company	Johnson Matthey Plc		
Contract duration	No fixed term		
Notice period	No more than 12 months' notice, with equal notice from the company and director except for directors who joined before 1st January 2017 where the director's notice period is six months and the notice period from the company is 12 months.		
Post-termination restrictions	The contracts of employment contain the following restrictions on the director for the following periods from the date of termination of employment: – non-compete – six months; – non-dealing and non-solicitation of client / customers – 12 months; – non-solicitation of suppliers and non-interference with supply chain – 12 months; and – non-solicitation of employees – 12 months.		
Summary termination – payment in lieu of notice (PILON)	The company may, in its absolute discretion, terminate the employment of the director with immediate effect by giving written notice together with payment of a sum equivalent to the director's base salary and the value of their contractual benefits as at the date such notice is given, in respect of the director's notice period, less any period of notice actually worked. The company may elect to pay the PILON in equal monthly instalments. The director is under a duty to seek alternative employment and to keep the company informed about whether they have been successful. If the director commences alternative employment, the monthly instalments shall be reduced. (if appropriate to nil) by the amount of the director's gross earnings from the alternative employment. A PILON paid to a director who is a US taxpayer (John Walker) would be in equal monthly instalments.		
Termination payment – change of control	If, within one year after a change of control, the director's service agreement is terminated by the company (other than in accordance with the summary termination provisions), the company shall pay, as liquidated damages, one year's base salary, together with a sum equivalent to the value of the director's contractual benefits, as at the date of termination, less the period of any notice given by the company to the director.		
Termination – treatment of annual incentive awards	Annual bonus awards are made at the discretion of the Remuneration Committee. Employees, including Executive Directors, leaving the company's employment will receive a bonus, pro-rata to service, unless the reason for leaving is resignation or misconduct. Any bonus awarded would continue to be subject to deferral as set out in the Remuneration Policy. In relation to deferred bonus awards which have already been made, shares will be released on the normal vesting date unless one of the following circumstances applies, and subject to the discretion of the Remuneration Committee: • the participant leaves as a result of misconduct; or • the participant, prior to vesting, breaches one of the post-termination restrictions or covenants provided for their employment contract, termination agreement or similar agreement. In which case the deferred awards will lapse on cessation of employment. The Remuneration Committee has the discretion to accelerate vesting of a deferred award if appropriate to do so to reflect the circumstances of the departure. It is intended that this would only be used in the event of a departure due to ill health (or death).		
Termination – treatment of long term incentive awards	Employees, including Executive Directors, leaving the company's employment will normally lose their long term incentive awards unless they leave for a specified 'good leaver' reason, in which case their shares will be released on the normal release dates, subject to the performance condition. The Remuneration Committee has discretion to accelerate vesting, in which case the performance condition would be assessed based on available information at the time. In either case, unless the Remuneration Committee determines otherwise, the level of vesting shall be pro-rated to reflect the proportion of the performance period which has elapsed to the date of leaving. In the post-vesting deferral period, only those who leave due to misconduct will lose their shares.		
Redundancy scheme	The director is not entitled to any benefit under any redundancy payments scheme operated by the company.		
Holiday	Upon termination for any reason, directors will be entitled to payment in lieu of accrued but untaken holiday entitlement.		

[1] John Walker is eligible for continuing post-retirement medical benefits provided he satisfies the conditions of this plan and retires directly from Johnson Matthey.

Remuneration Report continued

Chairman and Non-Executive Directors

The Chairman and each of the Non-Executive Directors have letters of appointment. The letters of appointment do not contain any contractual entitlement to a termination payment and the Non-Executive Directors can be removed in accordance with the company's Articles of Association. Directors are required to retire at each AGM and seek re-election by shareholders.

The details, including notice periods, contained in the letters of appointment in relation to the Non-Executive Directors who served during the year are set out in the table below. Neither the Chairman or the Non-Executive Directors has provisions in his or her letter of appointment that relate to a change of control of the company.

Non-Executive Director	Committee appointments	Date of appointment	Expiry of current term	Notice period by the individual	Notice period by the company
Patrick Thomas[1] (Chairman)	R, N	1st June 2018	31st May 2021	6 months	6 months
Odile Desforges[3]	A, R, N	1st July 2013	17th July 2019	1 month	1 month
Alan Ferguson[3]	A, R, N	13th January 2011	23rd July 2020	1 month	1 month
Jane Griffiths	A, R, N	1st January 2017	31st December 2019	1 month	1 month
Chris Mottershead	A, R, N	27th January 2015	26th January 2021	1 month	1 month
John O'Higgins	A, R, N	16th November 2017	15th November 2020	1 month	1 month
Xiaozhi Liu[2]	A, R, N	2nd April 2019	1st April 2022	1 month	1 month

A: Audit Committee R: Remuneration Committee N: Nomination Committee

1 Patrick Thomas was appointed as Chairman of the board on 26th July 2018, after Tim Stevenson stepped down from the role on the same date.

2 Xiaozhi Liu was appointed to the board as a Non-Executive Director on 2nd April 2019.

3 The expiry of the current term was extended during 2018/19.

External appointments

It is the board's policy to allow Executive Directors to accept non-executive appointments provided there is no conflict of interest and that the time spent would not impinge on their work for Johnson Matthey. Details of external directorships held by Executive Directors, together with fees retained during the year are as follows:

Executive Director	Company	Role held	Fees retained £'000
Robert MacLeod	RELX PLC	Non-Executive Director	108
Anna Manz	ITV plc	Non-Executive Director	76

Annual Report on Remuneration

This section provides details of how the 2017 Directors' Remuneration Policy was implemented during 2018/19 and how we intend to apply the Policy in 2019/20.

About the Remuneration Committee

The Remuneration Committee is a committee of the board and comprises all the independent Non-Executive Directors of the company as set out above including the group Chairman Patrick Thomas. Details of attendance at committee meetings during the year ended 31st March 2019 is shown below.

	Date of appointment to committee	Number of meetings eligible to attend	Number of meetings attended	% attended
Chris Mottershead[1]	27th January 2015	5	5	100%
Odile Desforges	1st July 2013	5	5	100%
Alan Ferguson	13th January 2011	5	5	100%
Jane Griffiths	1st January 2017	5	5	100%
John O'Higgins	16th November 2017	5	5	100%
Tim Stevenson[2]	29th March 2011	3	3	100%
Patrick Thomas[2]	1st June 2018	2	2	100%

1 Chris Mottershead was appointed as Chairman of the committee on 16 November 2017.

2 Patrick Thomas was appointed as Chairman of the Board on 26th July 2018, after Tim Stevenson stepped down from the role on the same date.

Since the end of the year, the committee has met twice. All committee members attended both meetings, including Xiaozhi Liu who was appointed on 2nd April 2019.

The Remuneration Committee's terms of reference, which were updated during the year, can be found in the Investor Relations / Corporate Governance section of our website and include determination on behalf of the board of fair remuneration for the Chief Executive, the other Executive Directors and the group Chairman (in which case the group Chairman does not participate). In addition, the committee receives recommendations from the Chief Executive on the remuneration of those reporting to him as well as advice from the Chief HR Officer, who acts as secretary to the committee.

Advisers to the committee

In determining the remuneration structure, the committee appoints and receives advice from independent remuneration consultants on the latest developments in corporate governance and the pay and incentive arrangements prevailing in comparably sized industrial companies. Korn Ferry are now our sole advisor in relation to the advice to the Remuneration Committee and were appointed by the Remuneration Committee based on a review of leading advisors in the market. The total fees paid to Korn Ferry in respect of its services to the committee during the year were £40,457 plus VAT. The fees paid to Korn Ferry are based on the standard market rates Korn Ferry have for Remuneration Committee advisory services.

Korn Ferry also provides consultancy services to the company in relation to certain employee benefits to those below the board. Korn Ferry is a signatory to the Remuneration Consultants Group Code of Conduct.

Herbert Smith Freehills is the committee's legal advisor., There was no requirement during 2018/19 for Herbert Smith Freehills to provide advice to the committee. The committee is aware that Herbert Smith Freehills is one of a number of legal firms that provide legal advice and services to the company on a range of matters.

A statement regarding the use of remuneration consultants for the year ended 31st March 2019 is available on our website.

matthey.com/corporate-governance

Remuneration for the year ended 31st March 2019

Single figure table of remuneration*
(this table is auditable along with any subsequent information marked with a *)

The table below sets out the total remuneration and breakdown of the elements each director received in relation to the year ended 31st March 2019, together with a prior year comparative. An explanation of how the figures are calculated follows the table.

	Base salary / fees £'000		Benefits £'000		Annual incentive £'000		Long term incentive £'000		Pension[3] £'000		Total £'000	
	2019	2018	**2019**	2018	**2019**	2018	**2019**	2018	**2019**	2018	**2019**	2018
Executive Directors												
Robert MacLeod	**818**	798	**28**	21	**660**	994	**1,073**	–	**205**	200	**2,784**	2,013
Anna Manz	**515**	490	**22**	16	**369**	509	**592**	–	**129**	123	**1,627**	1,138
John Walker	**468**	457	**64**	22	**328**	470	**519**	–	**117**	114	**1,496**	1,063
Non-Executive Directors[1]												
Patrick Thomas[2]	**256**	–	**–**	–	**–**	–	**–**	–	**–**	–	**256**	–
Tim Stevenson[2]	**116**	351	**–**	–	**–**	–	**–**	–	**–**	–	**116**	351
Odile Desforges	**65**	64	**–**	–	**–**	–	**–**	–	**–**	–	**65**	64
Alan Ferguson	**93**	83	**–**	–	**–**	–	**–**	–	**–**	–	**93**	83
Jane Griffiths	**65**	64	**–**	–	**–**	–	**–**	–	**–**	–	**65**	64
Chris Mottershead	**89**	71	**–**	–	**–**	–	**–**	–	**–**	–	**89**	64
John O'Higgins	**65**	24	**–**	–	**–**	–	**–**	–	**–**	–	**65**	24

1 Xiaozhi Liu joined the board as Non-Executive Director on 2nd April 2019.

2 Patrick Thomas was appointed as Chairman of the Board on 26th July 2018, after Tim Stevenson stepped down from the role on the same date.

3 Represents a cash allowance in lieu of a pension.

Payments to former directors*

There were no payments made to, or in respect of, any former director in 2018/19 that haven't been previously disclosed.

Payments for loss of office*

There were no payments for loss of office made to, or in respect of, any director in 2018/19.

Remuneration Report continued

Explanation of Figures

Base salary / fees	Salary paid during the year to Executive Directors and fees paid during the year to Non-Executive Directors.
Benefits	All taxable benefits such as medical and life insurance, service and car allowances, matching shares under the all employee share incentive plan and assistance with tax advice and tax compliance services where appropriate.
Annual incentives	Annual bonus awarded for the year ended 31st March 2019. The figure includes any amounts deferred and awarded as shares.
Long term incentives	The 2018 figure represents the value of shares that satisfied performance conditions on 31st March 2018 and will be released on 1st August 2018, 1st August 2019 and 1st August 2020. This value is calculated using the average share price from 1st January 2018 to 31st March 2018 which was 3,184 pence. The 2019 figure represents the value of the shares that satisfied performance conditions on 31st March 2019 and will be released on 1st August 2019, 1st August 2020 and 1st August 2021. This value is calculated using the average share price from 1st January 2019 to 31st March 2019 which was 3,058 pence.
Pension	The amounts shown represent the value of the increase over the year of any defined benefit pension the Executive Director may have in the Johnson Matthey Employees Pension Scheme (JMEPS) plus any cash supplements paid in lieu of pension membership.

Variable pay – additional disclosures, including bases of calculation and outcomes*

1 Annual bonus for the year ended 31st March 2019

The Executive Directors were eligible for a maximum annual bonus opportunity of 180% of base salary for the Chief Executive and 150% of base salary for the other Executive Directors. The on target bonus opportunity was set at 50% of the maximum opportunity and the threshold bonus opportunity was 15% of salary.

The performance measures and weightings for the annual bonus were as follows:

	Percentage of bonus available			
	Group underlying PBT	Clean Air underlying operating profit	Group working capital days	Strategic objectives[1]
Chief Executive	60%	–	20%	20%
Chief Financial Officer	60%	–	20%	20%
Sector Chief Executive, Clean Air	40%	20%	20%	20%

1 Individual strategic objectives were introduced as part of the Executive Directors' bonus structure for 2018/19.

Performance targets under the annual bonus plan are set with reference to the prior year and to the budgets and business plans for the coming year, ensuring the levels to achieve threshold, target or maximum payout are appropriately challenging. Financial budgets are built from the bottom up and are subject to a rigorous process of challenge before final proposals are considered by the board. Further information is used in the determination, including a consensus of industry analysts' forecasts, provided by Vara Research.

In relation to the range of profit targets set for the Group as a whole and for the Clean Air sector (i.e. threshold at 95% of the targeted profit number and maximum at 105%), the range was set following consideration of the challenging nature of the bonus target number (which was circa 7.5% above the targets set for 2017/18), the increasing size and complexity of the Group and our 2017/18 strategy which included targeting an increased investment in our Health and Battery Materials businesses. In light of these factors, and the continuing challenging external environment, the Remuneration Committee was comfortable that the ranges of financial targets set were similarly challenging to those operated in prior years.

The strategic objectives are set based on well defined key deliverables that support our strategy relating to science, customers, operations and people.

Achievement against the performance targets for the year ended 31st March 2019 are set out in the tables below.

Financial targets[1]

Performance measure		Threshold	Target	Maximum	Actual	Actual % of target
Group underlying PBT[2]	£ million	499 (95% of Target)	525	551 (105% of Target)	520	99.1
Clean Air underlying operating profit[2]	£ million	368 (95% of Target)	387	406 (105% of Target)	388	100.3
Group total working capital days[3]	days	34 (105% of Target)	33	31 (95% of Target)	36	110.2
Group working capital days (excluding metal[3])	days	62 (105% of Target)	59	56 (95% of Target)	59	100.5

1 All figures in the table have been rounded to the nearest whole number except the actual % of target.
2 Group underlying PBT and Clean Air underlying operating profit is measured using budget foreign exchange rates.
3 Working capital days is measured 50% against total working capital days and 50% against working capital days excluding precious metal. This is to ensure that appropriate focus is put on metal management.

Strategic objectives[1]

	Robert MacLeod	Anna Manz	John Walker
Objective	Implement the Battery Materials strategy, including the further commercialisation of the eLNO technology, delivery of the 2018/19 milestones and progress toward the three-year milestone objectives.	Implement the Procurement Excellence strategy and deliver the 2018/19 milestones plus define and progress toward the three-year milestone objectives.	Achieve the Procurement Excellence deliverables for Clean Air for 2018/19 and progress toward the 2019/20 objectives in line with Procurement Excellence Strategy.
Summary Outcome	Key 2018/19 milestone achieved with good progress on the Battery Materials strategy for the first commercial plant and scale-up options, as well as enhancing our technology leadership in the market.	Procurement Excellence programme overdelivering versus plan with significant cost savings achieved. Strong progress made in identifying further potential savings for 2019/20.	Procurement Excellence programme overdelivering versus plan with significant cost savings achieved in Clean Air. Strong progress made in identifying further potential savings for 2019/20.
Objective	Successful delivery of the 2018/19 major capital projects.	Deliver agreed IT security plans.	Ensure that the sector's key capital projects are delivered in line with their business plans.
Summary Outcome	The Group's capital projects capability has been significantly enhanced, while major capital projects are progressing, in particular the two new plants in Clean Air China and Poland.	A strategic programme of work (Cyber Security Infrastructure Improvement Plan) has been fully mobilised to ensure continued resilience of the IT estate, and the plans are on track and agreed milestones for 2018/19 achieved.	The key capital projects in Clean Air are the investments in China and Poland and both of these are progressing.
Objective	Deliver the executive leadership people strategy which includes: • strengthening leadership capabilities across JM; • implementing robust individual development plans, upgrade talent as required; and • identify any talent gaps / deficiencies in the leadership structures and take action to address.	Successfully roll out global ERP system in line with plan.	Successfully roll out global ERP system in line with plan.
Summary Outcome	Considerable work to upgrade talent across JM with key external recruits, including a new CEO for the Battery Materials business. Talent gaps have been clearly articulated and strategies agreed to address over time. Individual development plans are in place and new leadership programmes were introduced to enhance capability and prepare future internal succession.	The initial roll out of our single global ERP system was executed in accordance with our plan, deployed in one of our largest and most complex plants. It was initially challenging as expected, but issues were addressed, and production output is now higher than before this first go live.	The initial roll out of our single global ERP system was executed in accordance with our plan with deployment in one of our largest and most complex plants in Clean Air. It was initially challenging as expected, but issues were addressed, and production output is now higher than before this first go live.
Objective	Implement the Commercial Excellence strategy and deliver the 2018/19 milestones plus define and progress toward the three-year milestone objectives.	Implement a plan to further mitigate metal working capital risk in China.	Implement a plan to further mitigate metal working capital risk in China.
Summary Outcome	Commercial Excellence roadmap is delivering to plan. This plan included the successful introduction of a Sales Academy and a pilot Customer Satisfaction survey in Efficient Natural Resources.	Developed and led the implementation of a rigorous plan to address metal working challenges in China with good early progress made to date.	Good progress has been made executing the plan to mitigate China working capital risks.
Objective			Deliver key new business wins in line with 2018/19 strategic plan.
Summary Outcome			Where business bids were determined, good progress has been made on key business wins which are in line our strategic plan.
Overall Outcome	Robert has set high standards regarding his expectations of his executives in terms of how they lead, how they develop commercial business and how they develop talent. **70% achievement[2]**	Anna, through her commitment and energy has made a significant impact in driving change across JM. **85% achievement[2]**	John embraced and led the execution of some significant operational challenges across Clean Air and set the standard for further ERP deployments. **70% achievement[2]**

1 Each strategic objective has an equal weighting. For Robert MacLeod and Anna Manz each objective had a 25% weighting and for John Walker each objective had a 20% weighting.

2 The achievement figures are out of the maximum bonus %, which for strategic objectives has a 20% weighting overall.

Remuneration Report continued

Based on performance against the above targets, bonuses for the year ended 31st March 2019 were:

	£'000	% salary
Robert MacLeod, Chief Executive	660	80.7
Anna Manz, Chief Financial Officer	369	71.7
John Walker, Sector Chief Executive, Clean Air	328	70.1

In accordance with the rules of the plan, 50% of the bonus payable is awarded as shares and deferred for three years. There are no further performance conditions attached to the deferred element.

2 Long term incentive vesting for the three year performance period ended 31st March 2019*

The table below sets out the performance targets for the long term incentive awards made in August 2016 with a three year performance period which ended on 31st March 2019. After the performance period, shares are no longer subject to performance conditions and where the performance conditions are met the shares will vest in equal instalment on the third, fourth and fifth anniversary of the award.

Required underlying EPS performance	Proportion of award which may vest
Threshold 4% CAGR	15%
Maximum 10% CAGR	100%

The awards vest on a straight line basis between threshold and maximum. In addition to the EPS performance condition, the Remuneration Committee considers the performance of ROIC over the performance period to ensure that earnings growth is achieved in a sustainable and efficient manner.

The performance over the period was a compound annual growth in underlying EPS of 7.7% per annum as a result a vesting of 66.8% of maximum was achieved.

The table below shows the vesting outcomes based on this performance.

	% of base salary awarded	Shares awarded	% of award to vest	Shares to vest	Estimated value on vesting £
Executive Directors					
Robert MacLeod	200	52,529	66.8%	35,089	1,072,921
Anna Manz	175	28,997	66.8%	19,370	592,272
John Walker	175	25,387	66.8%	16,959	518,537

3 Variable pay awarded during the year ended 31st March 2019* (Long term incentive awards subject to future performance)

In 2018/19 long term incentive awards were made to the Executive Directors in respect of the three year performance period to 31st March 2021. The table below sets out the opportunity and performance targets for these awards.

Required underlying EPS performance	Proportion of award which may vest	Chief Executive[1]	Other Executive Director[1]
Threshold 4% CAGR	15%	30%	26.25%
Maximum 10% CAGR	100%	200%	175%

[1] Represent a % of base salary

The table below sets out the details of the actual conditional long term incentive awards made as a percentage of base salary.

	Date of grant	Award size (% of base salary)	Number of shares awarded	Face value[1] £
Robert MacLeod	1st August 2018	200	43,883	£1,635,980
Anna Manz	1st August 2018	175	24,174	£901,219
John Walker	1st August 2018	175	21,980	£819,425

[1] Face value is calculated using the award share price of 3,728.05 pence, which is the average closing share price over the four week period commencing on 31st May 2018.

4 Prior year long term incentive awards and outcomes

The table below shows the history of long term incentive awards granted since 2009.

Year of award	Year of vesting[1]	% salary awarded to Chief Executive	% salary awarded to other Executive Directors	Threshold EPS growth target	Stretch EPS growth target	Compound annual growth in underlying EPS in the period	% of award vested
2009	2012	120	100	3%	10%	19.7%	100
2010	2013	150	120	7%	16%	20.2%	100
2011	2014	175	140	7%	16%	13.3%	75
2012	2015	175	140	7%	16%	6.07%	–
2013	2016	175	140	6%	15%	7.85%	33
2014	2017	200	175	6%	15%	7.39%	28
2015	2018	200	175	6%	12%	5.14%	–
2016	2019	200	175	4%	10%	7.66%	67
2017	2020	200	175	4%	10%	n/a	n/a
2018	2021	200	175	4%	10%	n/a	n/a

1 Awards from 2014 are subject to tranche vesting and so the year shown is the vesting of the first tranche

Pension entitlements*

No director is currently accruing any pension benefit in the group's pension schemes. Instead they receive an annual cash payment in lieu of pension membership equal to 25% of base salary. However, Robert MacLeod and John Walker have each accrued a pension entitlement in respect of a prior period of pensionable service in one or more of the group's pension arrangements.

Robert MacLeod ceased pensionable service in JMEPS on 31st March 2011.

John Walker joined JMEPS on 1st September 2012 and ceased pensionable service in this scheme on 9th October 2013. Prior to joining JMEPS he was a member of the US Johnson Matthey Inc. Salaried Employees Pension Plan.

Details of the accrued pension benefits of the Executive Directors as at 31st March 2019 in the UK and US pension schemes are given below:

	Total accrued annual pension entitlement at 31st March 2019 £'000[3]
Robert MacLeod[1]	10
Anna Manz	–
John Walker[2]	89

1 Pension payable from age 65 based on pensionable service in the UK pension scheme up to 31st March 2011.

2 Pension payable in respect of pensionable service in the UK and US pension schemes payable from age 65 and 62 respectively. The pension payable from the US pension scheme will be paid in local currency.

3 No Director would gain any additional benefit by retiring early in line with the scheme rules.

Statement of directors' shareholding*

The table below shows the directors' interests in the shares of the company, together with their unvested scheme interests, as at 31st March 2019.

	Ordinary shares[1]	Subject to ongoing performance conditions[2]	Not subject to further performance conditions[3]
Executive Directors			
Robert MacLeod	48,790	149,367	30,787
Anna Manz	2,356	81,622	8,861
John Walker	17,088	73,888	16,870
Non-Executive Directors			
Patrick Thomas	4,257	–	–
Tim Stevenson[4]	4,958	–	–
Odile Desforges	1,416	–	–
Alan Ferguson	2,078	–	–
Jane Griffiths	2,671	–	–
Chris Mottershead	2,809	–	–
John O'Higgins	1,500	–	–

1 Includes shares held by the director and / or connected persons, including those in the all employee share matching plan and 401k plan. Shares in the all employee share matching plan may be subject to forfeiture in accordance with the rules of the plan.

2 Represents unvested long term incentive shares within three years of the date of award.

3 Represents unvested deferred bonus shares and unvested long term incentive shares between the third and fifth anniversary of award, where performance conditions have been assessed but vesting has not occurred.

4 Represents the ordinary shares at 26th July 2018, when Tim Stevenson stepped down as Chairman of the board.

Remuneration Report continued

Directors' interests as at 30th May 2019 were unchanged from those listed above, other than that the trustees of the all employee share matching plan have purchased a further 24 shares each for Robert MacLeod, Anna Manz and John Walker.

Executive Directors are expected to build up a shareholding in the company. The minimum shareholding requirement for the year ended 31st March 2019 was 200% of base salary for the Chief Executive and 150% of base salary for the other Executive Directors. The table below shows the extent to which the proposed minimum shareholding requirements have been satisfied:

	Shares held as at 31st March 2019 (% of base salary)[1,2]
Robert MacLeod	297%
Anna Manz[3]	67%
John Walker	222%

1 Value of shares as a percentage of base salary is calculated using a share value of 3,057.68 pence, which was the average share price prevailing between 1st January 2019 and 31st March 2019.

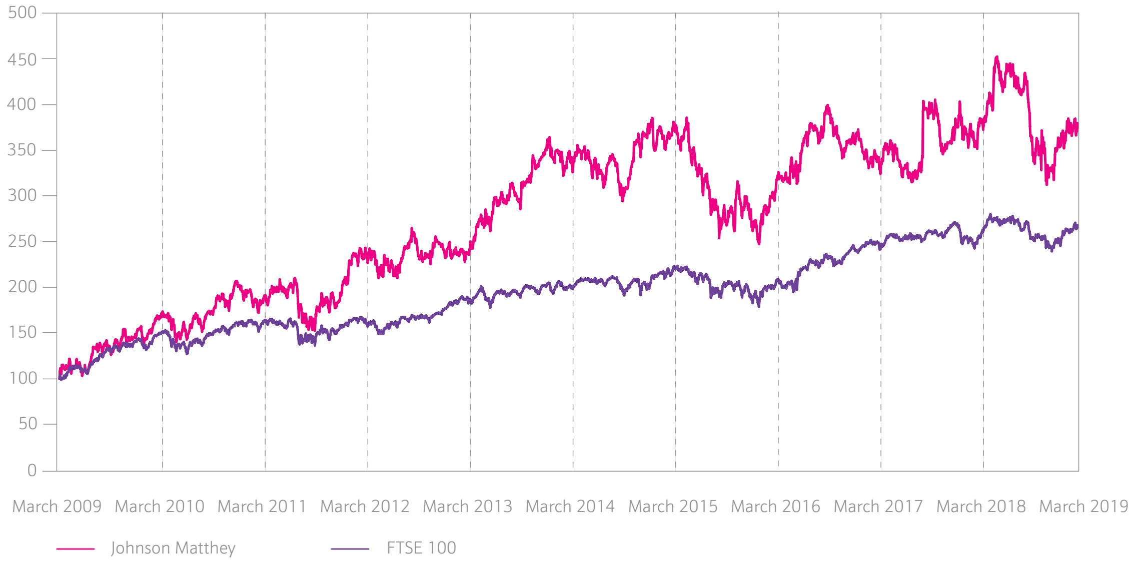
2 The director's total shareholding for the purposes of comparing it with the minimum shareholding requirement includes shares held beneficially by the director and any connected persons (as recognised by the Remuneration Committee) together with deferred shares awarded under the annual bonus rules for which there are no further performance conditions and any unvested long term incentive shares between the third and fifth anniversary of award, where performance conditions have been assessed but vesting has not occurred (this is not subject to continued employment, but the passage of time).

3 Anna Manz became an Executive Director on 17th October 2016. She will build her shareholding over time in line with the Remuneration Policy.

Performance graph and comparison to Chief Executive's Remuneration

Johnson Matthey and FTSE 100 Total Shareholder Return Rebased to 100

The following chart illustrates the total cumulative shareholder return of the company for the ten year period from 31st March 2009 to 31st March 2019 against the FTSE 100 as the most appropriate comparator group, rebased to 100 at 1st April 2009.



As at 31st March 2019, Johnson Matthey was ranked 73 by market capitalisation in the FTSE 100.

Historical data regarding Chief Executive's remuneration

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15[1]	2015/16[1]	2016/17	2017/18	2018/19
Single total figure of remuneration	1,596	2,095	1,870	3,025	3,855	1,594	1,429	1,971	2,013	2,784
Annual incentives (% of maximum)	100	100	75	–	71	54	15	40	69	45
Long term incentives (% of award vesting)[2]	–	52	100	100	75	–	33	28	–	67%

1 The figures for 2014/15 and 2015/16 are in respect of Robert MacLeod who was appointed as Chief Executive on 5th June 2014. Prior to this, the figures shown are for the previous Chief Executive, Neil Carson.

2 Vesting of long term incentive awards whose three year performance period ended in the financial year shown.

The above data is calculated according to the same methodology as applied in the single figure table on page 143.

Change in Chief Executive's remuneration

The table below shows how the remuneration of the Chief Executive has changed over the year ended 31st March 2019. This is then compared to a group of appropriate employees, being those based in the UK. This comparator group was used because the Remuneration Committee believes it gives a reasonable understanding of the underlying increases, based on similar annual bonus performance measures, while at the same time reducing the distortion from currency fluctuations and the distortions that would arise from including all of the many countries in which the group operates with their different economic conditions.

	Chief Executive	Comparator group[1]
Salary	An increase of 2.5%	An increase of 7.37%
Bonus	A decrease of 33.6%	A decrease of 12.4%
Benefits	No change in benefits policy. No change on overall costs between 2017/18 and 2018/19.	No change in benefits policy. No change on overall costs between 2017/18 and 2018/19.

1 This includes a long term incentive buy-out for certain management employees, some market adjustments and promotions.

Relative spend on pay

The table below shows the absolute and relative amounts of distributions to shareholders and the total remuneration for the group for the years ended 31st March 2018 and 31st March 2019.

	Year ended 31st March 2019 £ million	Year ended 31st March 2018 £ million	% change
Payments to shareholders – special dividends	**–**	–	–
Payments to shareholders – ordinary dividends	**156**	146	7%
Total remuneration (all employees)[1]	**730**	693	5%

1 Excludes termination benefits.

Remuneration Report continued

Implementation of the Directors' Remuneration Policy for 2019/20

The table below sets out how the Remuneration Committee intends to apply the Directors' Remuneration Policy for the year ended 31st March 2020.

Salary	Salaries for the Executive Directors for 2019/20 all increased by 2.5%, which is lower than the budgeted increase for all other UK employees.
Benefits	No change to policy applied in 2019/20.
Pension	The maximum limit on pensions has been retained at 25%, the level paid to the current Executive Directors. However, as set out in the recruitment section of the Directors' Remuneration Policy, it is the committee's intention that pension for future hires would be aligned with the level for other senior managers.
Annual incentives	The maximum bonus opportunity for 2019/20 remains unchanged at 180% of salary for the Chief Executive and 150% of salary for the other Executive Directors. 2019/20 bonus will be based on underlying profit before tax (60%), working capital (20%) and 20% weighting to non-financial objectives. Targets for the Chief Executive and Chief Financial Officer will be based on group performance. For the Sector Chief Executive, Clean Air, targets will be based on a mix of group and Clean Air Sector performance. The Remuneration Committee considers the forward looking targets to be commercially sensitive, but full details of the targets and performance against them will be disclosed in next year's Annual Report on Remuneration. As set out in the Policy Report, 50% of any bonus paid will be deferred in shares for three years and the payment of any bonus is subject to appropriate malus and clawback provisions.
Long term incentives	Award levels remain unchanged at 200% of salary for the Chief Executive and 175% of salary for the other Executive Directors. The long term Performance Share Plan awards will be based on EPS growth targets, subject to achieving a satisfactory level of return on capital employed. The EPS targets will be the same as those applying to the 2018 awards, namely 15% vesting for 4% p.a. underlying EPS growth, increasing on a straight line basis to 100% vesting for 10% p.a. underlying EPS growth or above. Awards vest in equal tranches over three, four and five years.
Chairman and Non-Executive Director fees	Fees for the Non-Executive Directors for 2019/20 have been increased in line with the Executive Director increases at 2.5%. This is lower than the increase for all other UK employees. The fees for each Non-Executive Director are shown below.

Patrick Thomas	£367,500	Chairman
Odile Desforges	£67,000	
Alan Ferguson	£98,000	Senior Independent Director and Chairman of Audit Committee
Jane Griffiths	£67,000	
Chris Mottershead	£84,000	Chairman of Remuneration Committee
John O'Higgins	£67,000	

Statement of shareholder voting

We monitor carefully shareholder voting on our Remuneration Policy and its implementation. We recognise the importance of ensuring that our shareholders continue to support our remuneration arrangements.

The tables below show the results of the polls taken of the resolution to approve the Remuneration Policy at the July 2017 AGM and Directors' Annual Report on Remuneration at the July 2018 AGM.

Resolution	Number of votes cast	For	Against	Votes withheld
Remuneration Policy	136,108,674	125,583,227 (92.3%)	10,525,447 (7.7%)	3,139,449
Remuneration Report	141,911,225	134,247,743 (94.60%)[1]	7,663,482 (5.40%)[1]	130,436

[1] Percentage of votes cast, excluding votes withheld.

The Remuneration Committee believes that the 92.3% vote in favour of the Directors' Remuneration Policy at the 2017 AGM and the 94.6% vote in favour of the Annual Report on Remuneration at the 2018 AGM showed strong shareholder support for the group's remuneration arrangements at that time.

This Remuneration Report was approved by the Board of Directors on 30th May 2019 and signed on its behalf by:

Chris Mottershead

Chris Mottershead
Chairman of the Remuneration Committee

Directors' Report

for the year ended 31st March 2019

Directors

The names of the directors who held office during the year are set out on page 103.

The biographies of all the directors serving at the date of this annual report are shown on pages 100 to 102.

Indemnification of directors

Under Deed Polls dated 31st January 2017, Johnson Matthey has granted indemnities in favour of each director of the company and of its subsidiaries in respect of any liability that he or she may incur to a third party in relation to the affairs of the company or any group member. These were in force during the year for the benefit of all persons who were directors of the company or of its subsidiaries at any time during the year. They remain in force as at the date of approval of this annual report. The company has appropriate directors' and officers' liability insurance cover in place in respect of legal action against, amongst others, its Executive and Non-Executive Directors. Neither the company nor any subsidiary has indemnified any director of the company or a subsidiary in respect of any liability that they may incur to a third party in relation to a relevant occupational pension scheme.

Appointment and replacement of directors

The rules about the appointment and replacement of directors are contained in our Articles of Association, which are available on our website. These include:

- directors may be appointed by a resolution of the members or a resolution of the directors; and
- if appointed by the directors, the newly appointed director must retire at the next Annual General Meeting (AGM) and is not taken into account in determining the directors who are to retire by rotation at the meeting. At least one third of the board must retire by rotation at each AGM.

The Articles of Association may only be amended by a special resolution at a general meeting of the company.

Notwithstanding the provisions of the Articles of Association, the board has agreed that all directors will seek election or re-election at each AGM in accordance with the UK Corporate Governance Code 2016.

www.matthey.com/investors/corporate-governance

Powers of the directors

The powers of the directors are determined by the Articles of Association, UK legislation including the Companies Act 2006 (the 2006 Act) and any directions given by the company in general meeting.

The directors have been authorised by the company's Articles of Association to issue and allot ordinary shares and to make market purchases of its own shares. These powers are referred to shareholders for renewal at each AGM. Further information is set out under 'Purchase by the company of its own shares' opposite.

Directors' interests in the company's shares

The interests of persons who were directors of the company (and of their connected persons) at 31st March 2019 in the issued shares of the company (or in related derivatives or other financial instruments), which have been notified to the company in accordance with the Market Abuse Regulation, are set out in the Remuneration Report on page 147. The Remuneration Report also sets out details of any changes in those interests between 31st March 2019 and 30th May 2019.

Directors' interests in contracts

Other than service contracts, no director had any interest in any material contract with any group company at any time during the year. There were no contracts of significance (as defined in the Financial Conduct Authority Listing Rules) during the year to which any group undertaking was a party and in which a director of the company is or was materially interested.

Dividends

The interim dividend of 23.25 pence per share (2018: 21.75 pence) was paid in February 2019. The directors recommend a final dividend of 62.25 pence per share in respect of the year (2018: 58.25 pence), making a total for the year of 85.50 pence per share (2018: 80.0 pence), payable on 6th August 2019 to shareholders on the register at the close of business on 7th June 2019.

Other than as referred to under 'Employee share schemes' on page 152, during the year there were no arrangements under which a shareholder has waived or agreed to waive any dividends nor any agreement by a shareholder to waive future dividends.

Dividend payments and DRIP

Dividends can be paid directly into shareholders' bank accounts. A Dividend Reinvestment Plan is also available. This allows shareholders to purchase additional shares in Johnson Matthey with their dividend payment. Further information and a mandate can be obtained from our registrar, Equiniti, whose details are set out on page 243 and on our website.

Share capital

Capital structure

As at 31st March 2019, the issued share capital of the company was 193,533,430 ordinary shares of 110 $^{49}/_{53}$ pence each (excluding treasury shares) and 5,407,176 treasury shares. There were no purchases, sales or transfers of treasury shares during the year.

Share allotments

There were no share allotments during the year.

Purchase by the company of its own shares

At the 2018 AGM, shareholders authorised the company to make market purchases of up to 19,353,343 ordinary shares of 110 $^{49}/_{53}$ pence each, representing 10% of the issued share capital of the company (excluding treasury shares). Any shares so purchased by the company may be cancelled or held as treasury shares. This authority will cease at the date of the 2019 AGM.

During the year and up until the date of approval of this annual report, the company did not make any purchases of its own shares or propose to, or enter into any options or contracts to, purchase its own shares (either through the market or by an offer made to all shareholders or otherwise), nor did the company acquire any of its own shares other than by purchase.

Rights and obligations attaching to shares

The rights and obligations attaching to the ordinary shares in Johnson Matthey are set out in the Articles of Association.

As at 31st March 2019 and as at the date of approval of this annual report, except as referred to below, there were no restrictions on the transfer of ordinary shares in the company, no limitations on the holding of securities and no requirements to obtain the approval of the company, or of other holders of securities in the company, for a transfer of securities.

Directors' Report continued

The directors may, in certain circumstances, refuse to register the transfer of a share in certificated form which is not fully paid up, where the instrument of transfer does not comply with the requirements of the company's Articles of Association, or if entitled under the Uncertificated Securities Regulations 2001. Also as at 31st March 2019 and as at the date of approval of this annual report:

- no person held securities in the company carrying any special rights with regard to control of the company;
- there were no restrictions on voting rights (including any limitations on voting rights of holders of a given percentage or number of votes or deadlines for exercising voting rights) except that a shareholder has no right to vote in respect of a share unless all sums due in respect of that share are fully paid;
- there were no arrangements by which, with the company's cooperation, financial rights carried by shares in the company are held by a person other than the holder of the shares; and
- there were no agreements known to the company between holders of securities that may result in restrictions on the transfer of securities or on voting rights.

Nominees, financial assistance and liens

During the year:

- no shares in the company were acquired by the company's nominee, or by a person with financial assistance from the company, in either case where the company has a beneficial interest in the shares (and no person acquired shares in the company in any previous financial year in its capacity as the company's nominee or with financial assistance from the company); and
- the company did not obtain or hold a lien or other charge over its own shares.

Allotment of securities for cash and placing of equity securities

During the year, the company has not allotted, nor has any major subsidiary undertaking of the company (broadly an undertaking that represents at least 25% of the group's aggregate gross assets or profit) allotted, equity securities for cash. During the year, the company has not participated in any placing of equity securities.

Listing of the company's shares

Johnson Matthey's shares have a Premium Listing on the London Stock Exchange and trade as part of the FTSE 100 index under the symbol JMAT.

American Depositary Receipt programme

Johnson Matthey has a sponsored Level 1 American Depositary Receipt (ADR) programme which BNY Mellon administers and for which it acts as Depositary. Each ADR represents two ordinary shares of the company. The ADRs trade on the US over-the-counter market under the symbol JMPLY. When dividends are paid to shareholders, the Depositary converts such dividends into US dollars, net of fees and expenses, and distributes the net amount to ADR holders. Contact details for BNY Mellon are set out on page 243.

Employee share schemes

At 31st March 2019, 4,499 current and former employees were shareholders in the company through the group's employee share schemes. Through these schemes, current and former employees held 2,544,207 ordinary shares (1.31% of issued share capital, excluding treasury shares as at 31st March 2019). Also as at 31st March 2019, 1,544,170 ordinary shares had been awarded but had not yet vested under the company's long term incentive plan to 1,126 current and former employees.

Shares acquired by employees through the company's employee share schemes rank equally with the other shares in issue and have no special rights. Voting rights in respect of shares held through the company's employee share schemes are not exercisable directly by employees. However, employees can direct the trustee of the schemes to exercise voting rights on their behalf. The trustee of the company's employee share ownership trust (ESOT) has waived its right to dividends on shares held by the ESOT which have not yet vested unconditionally to employees.

Interests in voting rights

The following information has been disclosed to the company under the Financial Conduct Authority (FCA) Disclosure and Transparency Rules (DTR 5) in respect of notifiable interests in the voting rights in the company's issued share capital:

	Nature of holding	Total voting rights[1]	% of total voting rights[2]
As at 31st March 2019:			
Ameriprise Financial Inc.	Direct	84,408	0.04%
	Indirect	9,727,409	5.03%
BlackRock, Inc.	Indirect	20,181,149	9.85%
	Financial Instrument (CFD)	209,763	0.10%
Standard Life Aberdeen plc affiliated investment management entities with delegated voting rights on behalf of multiple managed portfolios	Indirect	15,314,781	7.91%

1. Total voting rights attaching to the issued ordinary share capital of the company (excluding treasury shares) at the date of disclosure to the company.
2. % of total voting rights at the date of disclosure to the company.

Other than as stated above, as far as the company is aware, there is no person with a significant direct or indirect holding of securities in the company. The information provided above was correct at the date of notification. However, it should be noted that these holdings are likely to have changed since the company was notified. Notification of any change is not required until the next notifiable threshold is crossed.
No changes in interests in the voting rights of the company's issued share capital have been notified to the company in accordance with DTR 5 between 31st March 2019 and 30th May 2019.

Contracts with controlling shareholders

During the year there were no contracts of significance (as defined in the FCA Listing Rules) between any group undertaking and a controlling shareholder and no contracts for the provision of services to any group undertaking by a controlling shareholder.

Change of control

As at 31st March 2019 and as at the date of approval of this annual report, there were no significant agreements to which the company or any subsidiary was or is a party that take effect, alter or terminate on a change of control of the company, whether following a takeover bid or otherwise.

However, the company and its subsidiaries were, as at 31st March 2019 and as at the date of approval of this annual report, party to a number of commercial agreements that may allow the counterparties to alter or terminate the agreements on a change of control of the company following a takeover bid. Other than the matters referred to below, these are not deemed by the company to be significant in terms of their potential effect on the group as a whole.

The group has a number of loan notes and borrowing facilities which may require prepayment of principal and payment of accrued interest and breakage costs if there is change of control of the company. The group has also entered into a series of financial instruments to hedge its currency, interest rate and metal price exposures which provide for termination or alteration if a change of control of the company materially weakens the creditworthiness of the group.

The Executive Directors' service contracts each contain a provision to the effect that if the contract is terminated by the company within one year after a change of control of the company, the company will pay to the director as liquidated damages an amount equivalent to one year's gross base salary and other contractual benefits less the period of any notice given by the company to the director.

The rules of the company's employee share schemes set out the consequences of a change of control of the company on participants' rights under the schemes. Generally such rights will vest and become exercisable on a change of control subject to the satisfaction of relevant performance conditions. As at 31st March 2019 and as at the date of approval of this annual report, there were no other agreements between the company or any subsidiary and its or their directors or employees providing for compensation for loss of office or employment (whether through resignation, purported redundancy or otherwise) that occurs because of a takeover bid.

Branches

The company and its subsidiaries have established branches in a number of different countries in which they operate.

Political donations and expenditure

It is the group's policy not to make political donations or to incur political expenditure. During the year, there were no political donations made to any EU or non-EU political party, EU or non-EU political organisation or to any EU or non-EU independent election candidate. During the year, no EU or non-EU political expenditure was incurred.

Information set out in the Strategic Report

In accordance with section 414C(11) of the 2006 Act, the directors have chosen to set out in the Strategic Report the following information required to be included in the Directors' Report:

- **Employee involvement**
  A description of the action taken by the company during the year relating to employee involvement.
- **Employment of disabled persons**
  Information on the company's policy applied during the year relating to the recruitment, employment, training, career development and promotion of disabled employees.
- **Research and development activities**
  An indication of the activities of the group in the field of research and development.
- **Likely future developments**
  An indication on likely future developments in our business.
- **Greenhouse gas emissions**
  Disclosures relating to greenhouse gas emissions.
- **Use of financial instruments**
  Information on the group's financial risk management objectives and policies, its exposure to credit risk, liquidity risk, interest rate risk and foreign currency risk and its use of financial instruments.

Disclosures required by Listing Rule 9.8.4R

Disclosures required by the FCA Listing Rule 9.8.4R, can be found on the following pages:

Information required	Sub-section of Listing Rule 9.8.4R	Page reference
1. Capitalised interest	(1)	Page 185
2. Publication of unaudited financial information	(2)	Not applicable
3. Details of long term incentive schemes established to specifically recruit or retain a director	(4)	Not applicable
4. Waiver of emoluments by a director	(5) (6)	Not applicable
5. Allotments of equity securities for cash	(7) (8)	Page 152
6. Participation in a placing of equity securities	(9)	Not applicable
7. Contracts of significance	(10)	Not applicable
8. Contracts for the provisions of services by a controlling shareholder	(11)	Not applicable
9. Dividend waiver	(12) (13)	Page 151
10. Agreements with controlling shareholder	(14)	Not applicable

Important events since 31st March 2019

There have been no important events affecting the company or any subsidiary since 31st March 2019.

2019 Annual General Meeting

Our 2019 AGM will be held at 11.00 am on Wednesday 17th July 2019 at The Institute of Civil Engineering, One Great George Street, Westminster, London SW1P 3AA.

The Notice of the 2019 AGM, together with an explanation of the resolutions to be considered at the meeting, is set out in a separate circular to shareholders. This circular is published on our website.

Articles of Association

The Articles of Association may only be amended by a special resolution at a general meeting of the company. The company's current Articles of Association were adopted on 21 July 2010. A special resolution seeking to amend the Articles of Association is being put to the shareholders at the 2019 AGM. Further information on the changes proposed is set out in the Notice of the 2019 AGM and on our website.

Auditor and disclosure of information

The auditor of the company is PricewaterhouseCoopers LLP.

So far as each person serving as a director of the company is aware, at the date this Directors' Report was approved by the board there is no relevant audit information (that is, information needed by the auditor in connection with preparing its report) of which the company's auditor is unaware. Each such director confirms that he or she has taken all the steps that he or she ought to have taken as a director in order to make himself or herself aware of any relevant audit information and to establish that the company's auditor is aware of that information.

Management report

The Strategic Report and the Directors' Report together include the 'management report' for the purposes of the FCA's Disclosure and Transparency Rules (DTR 4.1.8R).

The Directors' Report was approved by the board on 30th May 2019 and is signed on its behalf by:

Simon Farrant
Company Secretary

Responsibilities of Directors

Statement of directors' responsibilities in respect of the Annual Report and Accounts

The directors are responsible for preparing the annual report and the group and parent company accounts in accordance with applicable law and regulations.

Company law requires the directors to prepare group and parent company accounts for each financial year. Under company law, they are required to prepare the group accounts in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union (EU) and other applicable law and have elected to prepare the parent company accounts on the same basis.

Under company law, the directors must not approve the accounts unless they are satisfied that they give a true and fair view of the state of affairs of the group and parent company and of their profit or loss for that period. In preparing each of the group and parent company accounts, the directors are required to:

- select suitable accounting policies and then apply them consistently;
- make judgements and estimates that are reasonable, relevant and reliable;
- state whether they have been prepared in accordance with IFRS as adopted by the EU;
- assess the group and parent company's ability to continue as a going concern, disclosing as applicable, matters related to going concern; and
- use the going concern basis of accounting unless they either intend to liquidate the group or the parent company or to cease operations, or have no realistic alternative but to do so.

The directors are responsible for keeping adequate accounting records that are sufficient to show and explain the parent company's transactions and disclose with reasonable accuracy at any time the financial position of the parent company and enable them to ensure that its accounts comply with the Companies Act 2006. They are 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, and have general responsibility for taking such steps as are reasonably open to them to safeguard the assets of the group and to detect fraud and other irregularities.

Under applicable law and regulations, the directors are also responsible for preparing a Strategic Report, Directors' Report, Remuneration Report and Corporate Governance statement that comply with that law and those regulations.

The directors are responsible for the maintenance and integrity of the corporate and financial information included on the company's website. Legislation in the UK governing the preparation and dissemination of accounts may differ from legislation in other jurisdictions.

The directors consider that the Annual Report and Accounts taken as a whole is fair, balanced and understandable and provides the information necessary for shareholders to asses the group's and the company's position and performance, business model and priorities.

Responsibility statement of the directors in respect of the Annual Report and Accounts

Each of the directors as at the date of the Annual Report and Accounts, whose names and functions are set out below:

- Patrick Thomas, Chairman
- Robert MacLeod, Chief Executive
- Anna Manz, Chief Financial Officer
- Odile Desforges, Non-Executive Director
- Alan Ferguson, Non-Executive Director
- Jane Griffiths, Non-Executive Director
- Xiaozhi Liu, Non-Executive Director
- Chris Mottershead, Non-Executive Director
- John O'Higgins, Non-Executive Director
- John Walker, Executive Director

states that to the best of his or her knowledge:

- the group and parent company accounts, prepared in accordance with the applicable set of accounting standards, give a true and fair view of the assets, liabilities, financial position and profit or loss of the company and the undertakings included in the consolidation taken as a whole; and
- the management report (which comprises the Strategic Report and the Directors' Report) includes a fair review of the development and performance of the business and the position of the company and the undertakings included in the consolidation taken as a whole, together with a description of the principal risks and uncertainties that they face.

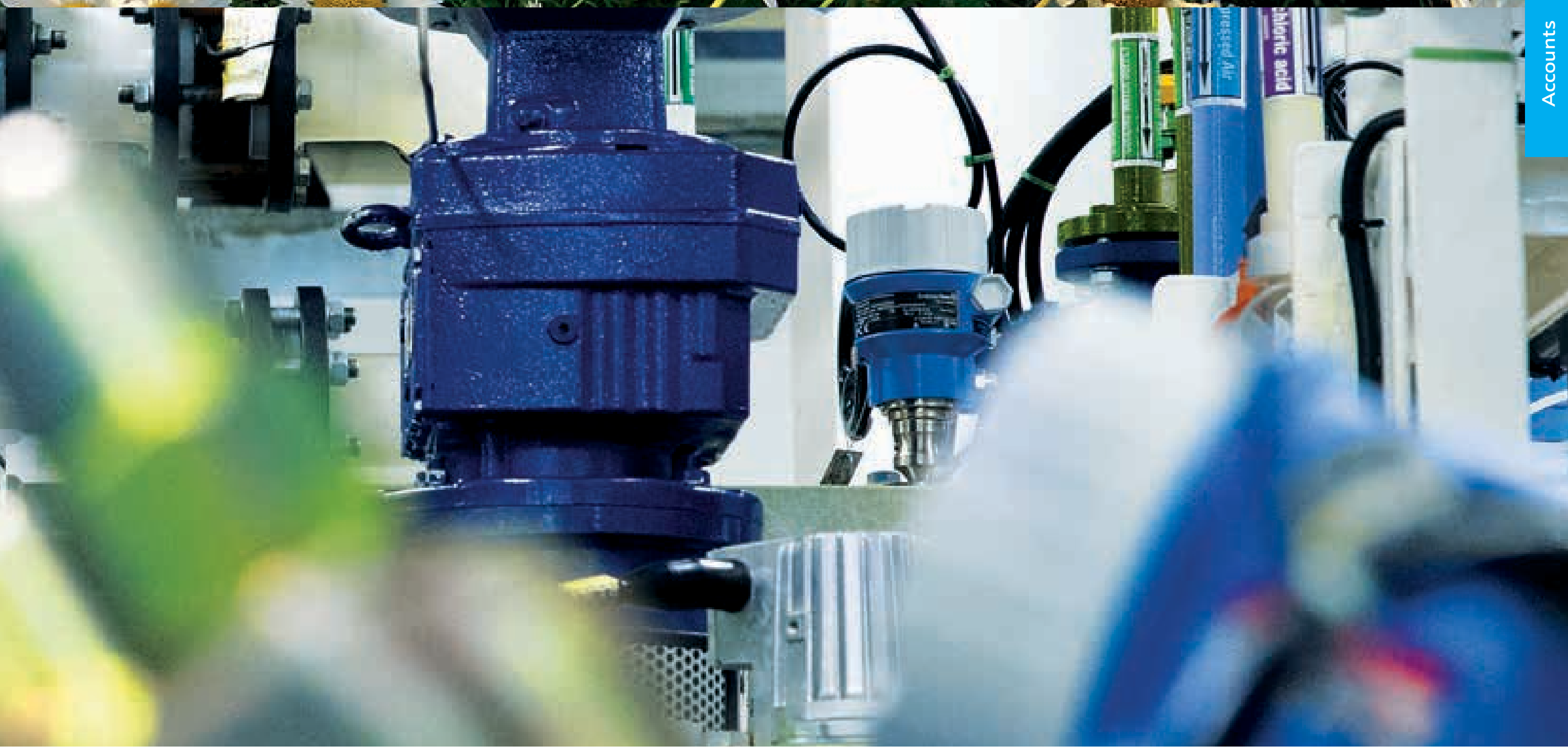
This responsibility statement was approved by the board on 30th May 2019 and is signed on its behalf by:

Patrick Thomas

Patrick Thomas
Chairman

Accounts

The Accounts include the consolidated and parent company accounts and related notes, prepared in accordance with International Financial Reporting Standards, as well as the independent auditor's report.



Contents

158 Consolidated Income Statement
158 Consolidated Statement of Total Comprehensive Income
159 Consolidated and Parent Company Balance Sheets
160 Consolidated Cash Flow Statement
161 Consolidated Statement of Changes in Equity
162 Parent Company Statement of Changes in Equity
163 Accounting policies
173 Notes on the accounts
223 Independent auditor's report

Consolidated Income Statement

for the year ended 31st March 2019

	Notes	2019 £ million	2018 Restated[1] £ million
Revenue	1,2	**10,745**	10,274
Cost of sales		**(9,729)**	(9,366)
Gross profit		**1,016**	908
Distribution costs		**(126)**	(123)
Administrative expenses		**(324)**	(260)
Loss on disposal of businesses	5	**(12)**	(7)
Loss on significant legal proceedings	6	**(17)**	(50)
Amortisation of acquired intangibles	7	**(14)**	(19)
Major impairment and restructuring charges	8	**8**	(90)
Operating profit	1,9	**531**	359
Finance costs	12	**(107)**	(63)
Finance income	12	**64**	25
Share of loss of joint venture and associate		**–**	(1)
Profit before tax		**488**	320
Tax expense	13	**(75)**	(22)
Profit for the year		**413**	298

	Notes	pence	pence
Earnings per ordinary share			
Basic	15	**215.2**	155.2
Diluted	15	**214.6**	155.0

Consolidated Statement of Total Comprehensive Income

for the year ended 31st March 2019

	Notes	2019 £ million	2018 £ million
Profit for the year		**413**	298
Other comprehensive income			
Items that will not be reclassified to the income statement			
Remeasurements of post-employment benefit assets and liabilities	30	**(69)**	103
Fair value losses on equity investments at fair value through other comprehensive income	21	**(3)**	–
Tax on items that will not be reclassified to the income statement	14	**13**	(31)
		(59)	72
Items that may be reclassified to the income statement			
Exchange differences on translation of foreign operations	31	**22**	(95)
Fair value losses on other investments at fair value through other comprehensive income	31	**(1)**	–
Amounts credited to hedging reserve	31	**4**	5
Fair value (losses) / gains on net investment hedges	31	**(1)**	6
		24	(84)
Other comprehensive income for the year		**(35)**	(12)
Total comprehensive income for the year		**378**	286

[1] See note 39.

The notes on pages 173 to 222 form an integral part of the accounts.

Consolidated and Parent Company Balance Sheets

as at 31st March 2019

	Notes	Group 2019 £ million	Group 2018 Restated[1] £ million	Parent company 2019 £ million	Parent company 2018 Restated[1] £ million
Assets					
Non-current assets					
Property, plant and equipment	16	**1,271**	1,155	**312**	278
Goodwill	17	**578**	574	**123**	123
Other intangible assets	18	**336**	295	**207**	166
Investments in subsidiaries	19	**–**	–	**1,912**	1,997
Investments in joint venture and associate	20	**20**	20	**–**	–
Investments at fair value through other comprehensive income	21	**52**	56	**7**	7
Other receivables	23	**39**	38	**1,010**	1,113
Interest rate swaps	24	**13**	6	**13**	6
Deferred income tax assets	29	**58**	48	**–**	–
Post-employment benefit net assets	30	**209**	236	**199**	226
Total non-current assets		**2,576**	2,428	**3,783**	3,916
Current assets					
Inventories	22	**1,316**	924	**430**	209
Current income tax assets		**37**	35	**–**	–
Trade and other receivables	23	**1,553**	1,304	**1,314**	1,333
Cash and cash equivalents – cash and deposits	24	**90**	203	**11**	82
Cash and cash equivalents – money market funds	24	**347**	171	**347**	171
Other financial assets	26	**22**	15	**23**	15
Assets held for sale		**7**	–	**–**	–
Total current assets		**3,372**	2,652	**2,125**	1,810
Total assets		**5,948**	5,080	**5,908**	5,726
Liabilities					
Current liabilities					
Trade and other payables	27	**(1,647)**	(1,228)	**(2,596)**	(2,693)
Current income tax liabilities		**(130)**	(149)	**(64)**	(56)
Cash and cash equivalents – bank overdrafts	24	**(59)**	(70)	**(33)**	(46)
Other borrowings and related swaps	24	**(184)**	(38)	**(107)**	(4)
Other financial liabilities	26	**(13)**	(12)	**(14)**	(14)
Provisions	28	**(20)**	(37)	**(23)**	(5)
Total current liabilities		**(2,053)**	(1,534)	**(2,837)**	(2,818)
Non-current liabilities					
Borrowings and related swaps	24	**(1,073)**	(951)	**(1,066)**	(951)
Deferred income tax liabilities	29	**(91)**	(94)	**(39)**	(43)
Employee benefit obligations	30	**(106)**	(103)	**(10)**	(9)
Provisions	28	**(9)**	(14)	**(1)**	(17)
Other payables	27	**(5)**	(5)	**(489)**	(492)
Total non-current liabilities		**(1,284)**	(1,167)	**(1,605)**	(1,512)
Total liabilities		**(3,337)**	(2,701)	**(4,442)**	(4,330)
Net assets		**2,611**	2,379	**1,466**	1,396
Equity					
Share capital	31	**221**	221	**221**	221
Share premium		**148**	148	**148**	148
Shares held in employee share ownership trust (ESOT)		**(45)**	(48)	**(45)**	(48)
Other reserves	31	**87**	63	**8**	–
Retained earnings[2]		**2,200**	1,995	**1,134**	1,075
Total equity		**2,611**	2,379	**1,466**	1,396

1 See note 39.
2 The parent company's profit for the year is £263 million (2018 £282 million).

The accounts were approved by the Board of Directors on 30th May 2019 and signed on its behalf by:

R J MacLeod
A O Manz Directors

The notes on pages 173 to 222 form an integral part of the accounts.

Accounts

Consolidated Cash Flow Statement

for the year ended 31st March 2019

	Notes	2019 £ million	2018 Restated[1] £ million
Cash flows from operating activities			
Profit before tax		**488**	320
Adjustments for:			
Share of loss of joint venture and associate		**–**	1
Loss on disposal of businesses		**12**	7
Depreciation, amortisation, impairment reversals / losses and profit / loss on sale of non-current assets		**166**	245
Share-based payments		**10**	10
Increase in inventories		**(394)**	(66)
Increase in receivables		**(246)**	(144)
Increase in payables		**416**	62
(Decrease) / increase in provisions		**(24)**	15
Contributions in excess of employee benefit obligations charge		**(40)**	(20)
Changes in fair value of financial instruments		**(2)**	(5)
Net finance costs		**43**	38
Income tax paid		**(95)**	(77)
Net cash inflow from operating activities		**334**	386
Cash flows from investing activities			
Dividends received from joint venture and associate		**–**	1
Interest received		**61**	23
Purchases of property, plant and equipment		**(215)**	(157)
Purchases of intangible assets		**(86)**	(59)
Proceeds from sale of non-current assets		**1**	7
Net proceeds from sale of businesses		**2**	5
Net cash outflow from investing activities		**(237)**	(180)
Cash flows from financing activities			
Proceeds from borrowings		**245**	30
Repayment of borrowings		**(2)**	(14)
Dividends paid to equity shareholders	31	**(156)**	(146)
Settlement of currency swaps		**(2)**	(1)
Interest paid		**(108)**	(65)
Net cash outflow from financing activities		**(23)**	(196)
Increase in cash and cash equivalents		**74**	10
Exchange differences on cash and cash equivalents		**–**	(4)
Cash and cash equivalents at beginning of year		**304**	298
Cash and cash equivalents at end of year	24	**378**	304
Free cash flow			
Net cash inflow from operating activities		**334**	386
Dividends received from joint venture and associate		**–**	1
Interest received		**61**	23
Interest paid		**(108)**	(65)
Purchases of property, plant and equipment		**(215)**	(157)
Purchases of intangible assets		**(86)**	(59)
Proceeds from sale of non-current assets		**1**	7
Free cash flow		**(13)**	136
Reconciliation to net debt			
Increase in cash and cash equivalents		**74**	10
Increase in borrowings		**(241)**	(16)
Change in net debt resulting from cash flows		**(167)**	(6)
Exchange differences on net debt[2]		**(26)**	54
Other non-cash movements[2]		**6**	(11)
Movement in net debt		**(187)**	37
Net debt at beginning of year		**(679)**	(716)
Net debt at end of year	24	**(866)**	(679)

[1] See note 39.

[2] 2018 re-presented to separately analyse fair value movements in net debt relating to hedging instruments.

The notes on pages 173 to 222 form an integral part of the accounts.

Consolidated Statement of Changes in Equity

for the year ended 31st March 2019

	Share capital £ million	Share premium account £ million	Shares held in ESOT £ million	Other reserves (note 31) £ million	Retained earnings £ million	Total attributable to equity holders £ million	Non-controlling interests £ million	Total equity £ million
At 1st April 2017	221	148	(55)	147	1,776	2,237	(20)	2,217
Impact of adoption of IFRS 15 (note 39)	–	–	–	–	1	1	–	1
At 1st April 2017 (restated)	221	148	(55)	147	1,777	2,238	(20)	2,218
Profit for the year	–	–	–	–	298	298	–	298
Remeasurements of post-employment benefit assets and liabilities	–	–	–	–	103	103	–	103
Exchange differences on translation of foreign operations	–	–	–	(95)	–	(95)	–	(95)
Amounts credited to hedging reserve	–	–	–	5	–	5	–	5
Fair value gains on net investment hedges taken to equity	–	–	–	6	–	6	–	6
Tax on other comprehensive income	–	–	–	–	(31)	(31)	–	(31)
Total comprehensive income	–	–	–	(84)	370	286	–	286
Dividends paid (note 31)	–	–	–	–	(146)	(146)	–	(146)
Share-based payments	–	–	–	–	17	17	–	17
Cost of shares transferred to employees	–	–	7	–	(14)	(7)	–	(7)
Purchase of non-controlling interests	–	–	–	–	(9)	(9)	20	11
At 31st March 2018 (restated)	221	148	(48)	63	1,995	2,379	–	2,379
Impact of adoption of IFRS 9 (note 39)	–	–	–	(1)	–	(1)	–	(1)
At 31st March 2018 (restated)	221	148	(48)	62	1,995	2,378	–	2,378
Profit for the year	–	–	–	–	413	413	–	413
Remeasurements of post-employment benefit assets and liabilities	–	–	–	–	(69)	(69)	–	(69)
Fair value losses on investments at fair value through other comprehensive income	–	–	–	(4)	–	(4)	–	(4)
Exchange differences on translation of foreign operations	–	–	–	22	–	22	–	22
Amounts credited to hedging reserve	–	–	–	4	–	4	–	4
Fair value losses on net investment hedges taken to equity	–	–	–	(1)	–	(1)	–	(1)
Tax on other comprehensive income	–	–	–	–	13	13	–	13
Total comprehensive income	–	–	–	21	357	378	–	378
Dividends paid (note 31)	–	–	–	–	(156)	(156)	–	(156)
Share-based payments	–	–	–	–	17	17	–	17
Cost of shares transferred to employees	–	–	3	–	(10)	(7)	–	(7)
Tax on share-based payments	–	–	–	–	1	1	–	1
Reclassification	–	–	–	4	(4)	–	–	–
At 31st March 2019	**221**	**148**	**(45)**	**87**	**2,200**	**2,611**	**–**	**2,611**

The notes on pages 173 to 222 form an integral part of the accounts.

Parent Company Statement of Changes in Equity

for the year ended 31st March 2019

	Share capital £ million	Share premium account £ million	Shares held in ESOT £ million	Other reserves (note 31) £ million	Retained earnings £ million	Total equity £ million
At 1st April 2017	221	148	(55)	(1)	855	1,168
Profit for the year	–	–	–	–	282	282
Remeasurements of post-employment benefit assets and liabilities	–	–	–	–	98	98
Exchange differences on translation of foreign operations	–	–	–	(3)	–	(3)
Amounts credited to hedging reserve	–	–	–	4	–	4
Tax on other comprehensive income	–	–	–	–	(17)	(17)
Total comprehensive income	–	–	–	1	363	364
Dividends paid (note 31)	–	–	–	–	(146)	(146)
Share-based payments	–	–	–	–	15	15
Cost of shares transferred to employees	–	–	7	–	(12)	(5)
At 31st March 2018	221	148	(48)	–	1,075	1,396
Profit for the year	–	–	–	–	263	263
Remeasurements of post-employment benefit assets and liabilities	–	–	–	–	(63)	(63)
Amounts credited to hedging reserve	–	–	–	5	–	5
Tax on other comprehensive income	–	–	–	(1)	11	10
Total comprehensive income	–	–	–	4	211	215
Dividends paid (note 31)	–	–	–	–	(156)	(156)
Share-based payments	–	–	–	–	15	15
Cost of shares transferred to employees	–	–	3	–	(8)	(5)
Tax on share-based payments	–	–	–	–	1	1
Reclassification	–	–	–	4	(4)	–
At 31st March 2019	**221**	**148**	**(45)**	**8**	**1,134**	**1,466**

The notes on pages 173 to 222 form an integral part of the accounts.

Accounting policies

for the year ended 31st March 2019

Basis of accounting and preparation – group

The accounts are prepared on a going concern basis in accordance with International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB) and interpretations issued by the International Financial Reporting Interpretations Committee (IFRIC) or the Standing Interpretations Committee (SIC) as adopted by the European Union (EU).

The accounts are prepared on the historical cost basis, except for certain assets and liabilities which are measured at fair value as explained below.

The group accounts comprise the accounts of the parent company and its subsidiaries, including the employee share ownership trust, and include the group's interest in joint ventures and associates. Entities the group controls are accounted for as subsidiaries. Entities that are joint ventures or associates are accounted for using the equity method of accounting. Transactions and balances between group companies are eliminated. No profit is recognised on transactions between group companies.

The results of businesses acquired or disposed of in the year are consolidated from or up to the effective date of acquisition or disposal, respectively. The net assets of businesses acquired are recognised in the consolidated accounts at their fair values at the date of acquisition.

Basis of accounting and preparation – parent company

The accounts are prepared on a going concern basis in accordance with Financial Reporting Standard (FRS) 101, Reduced Disclosure Framework, issued in September 2015. The parent company applies the recognition, measurement and disclosure requirements of IFRS as adopted by the EU, but makes amendments where necessary to comply with the Companies Act 2006 and has set out below the FRS 101 disclosure exemptions available to the Company:

- the requirements of paragraphs 45(b) and 46 to 52 of IFRS 2, Share-based Payment;
- the requirements of paragraphs 62, B64(d), B64(e), B64(g), B64(h), B64(j) to B64(m), B64(n)(ii), B64(o)(ii), B64(p), B64(q)(ii), B66 and B67 of IFRS 3, Business Combinations;
- the requirements of paragraph 33(c) of IFRS 5, Non-current Assets Held for Sale and Discontinued Operations;
- the requirements of IFRS 7, Financial Instruments: Disclosures;
- the requirements of paragraphs 91 to 99 of IFRS 13, Fair Value Measurement;
- the requirements of the second sentence of paragraph 110 and paragraphs 113(a), 114, 115, 118, 119(a) to (c), 120 to 127 and 129 of IFRS 15, Revenue from Contracts with Customers;
- the requirement in paragraph 38 of IAS 1, Presentation of Financial Statements, to present comparative information in respect of: paragraph 79(a)(iv) of IAS 1; paragraph 73(e) of IAS 16, Property, Plant and Equipment; paragraph 118(e) of IAS 38, Intangible Assets; and paragraphs 76 and 79(d) of IAS 40, Investment Property;
- the requirements of paragraphs 10(d), 10(f), 16, 38A, 38B, 38C, 38D, 40A, 40B, 40C, 40D, 111 and 134 to 136 of IAS 1, Presentation of Financial Statements;
- the requirements of IAS 7, Statement of Cash Flows;
- the requirements of paragraphs 30 and 31 of IAS 8, Accounting Policies, Changes in Accounting Estimates and Errors;
- the requirements of paragraphs 17 and 18A of IAS 24, Related Party Disclosures;
- the requirements in IAS 24, Related Party Disclosures, to disclose related party transactions entered into between two or more members of a group, provided that any subsidiary which is a party to the transaction is wholly owned by such a member; and
- the requirements of paragraphs 130(f)(ii), 130(f)(iii), 134(d) to 134(f) and 135(c) to 135(e) of IAS 36, Impairment of Assets.

The parent company has not presented its own income statement, statement of total comprehensive income and related notes as permitted by Section 408(3) of the Companies Act 2006. Profit for the year is disclosed in the parent company balance sheet and statement of changes in equity.

In the parent company balance sheet, businesses acquired from other group companies are recognised at book value at the date of acquisition. The difference between the consideration paid and the book value of the net assets acquired is reflected in retained earnings.

Accounting policies continued

for the year ended 31st March 2019

Significant accounting policies

The group's and parent company's significant accounting policies are:

Foreign currencies

Foreign currency transactions are recorded in the functional currency of the relevant subsidiary, joint venture, associate or branch at the exchange rate at the date of the transaction. Foreign currency monetary assets and liabilities are retranslated into the relevant functional currency at the exchange rate at the balance sheet date.

Income statements and cash flows of overseas subsidiaries, joint ventures, associates and branches are translated into sterling at the average rates for the year. Balance sheets of overseas subsidiaries, joint ventures, associates and branches, including any fair value adjustments and related goodwill, are translated into sterling at the exchange rates at the balance sheet date.

Exchange differences arising on the translation of the net investment in overseas subsidiaries, joint ventures, associates and branches, less exchange differences arising on related foreign currency financial instruments which hedge the group's net investment in these operations, are taken to other comprehensive income. On disposal of the net investment, the cumulative exchange difference is reclassified from equity to operating profit. The group has taken advantage of the exemption allowed in IFRS 1, First-time Adoption of International Reporting Standards, to deem the cumulative translation difference for all overseas subsidiaries and branches to be zero at 1st April 2004.

Other exchange differences are recognised in operating profit.

Revenue

Revenue represents income derived from contracts for the provision of goods and services by the parent company and its subsidiaries to customers in exchange for consideration in the ordinary course of the group's activities.

Performance obligations

Upon approval by the parties to a contract, the contract is assessed to identify each promise to transfer either a distinct good or service or a series of distinct goods or services that are substantially the same and have the same pattern of transfer to the customer. Goods and services are distinct and accounted for as separate performance obligations in the contract if the customer can benefit from them either on their own or together with other resources that are readily available to the customer and they are separately identifiable in the contract.

The group typically sells licences to its intellectual property together with other goods and services and, since these licences are not generally distinct in the context of the contract, revenue recognition is considered at the level of the performance obligation of which the licence forms part. Revenue in respect of performance obligations containing bundles of goods and services in which a licence with a sales or usage-based royalty is the predominant item is recognised when sales or usage occur.

Transaction price

At the start of the contract, the total transaction price is estimated as the amount of consideration to which the group expects to be entitled in exchange for transferring the promised goods and services to the customer, excluding sales taxes. Variable consideration, such as trade discounts, is included based on the expected value or most likely amount only to the extent that it is highly probable that there will not be a reversal in the amount of cumulative revenue recognised. The transaction price does not include estimates of consideration resulting from contract modifications until they have been approved by the parties to the contract. The total transaction price is allocated to the performance obligations identified in the contract in proportion to their relative stand-alone selling prices. Many of the group's and parent company's products and services are bespoke in nature and, therefore, stand-alone selling prices are estimated based on cost plus margin or by reference to market data for similar products and services.

Significant accounting policies (continued)

Revenue (continued)

Revenue recognition

Revenue is recognised as performance obligations are satisfied as control of the goods and services is transferred to the customer.

For each performance obligation within a contract, the group and parent company determine whether it is satisfied over time or at a point in time. Performance obligations are satisfied over time if one of the following criteria is satisfied:

- the customer simultaneously receives and consumes the benefits provided by the group's and parent company's performance as they perform;
- the group's and parent company's performance creates or enhances an asset that the customer controls as the asset is created or enhanced;
- the group's and parent company's performance does not create an asset with an alternative use to the group and parent company and they have an enforceable right to payment for performance completed to date.

If the over time criteria are met, revenue is recognised using an input method based on costs incurred to date as a proportion of estimated total contract costs. When it is probable that total contract costs will exceed total contract revenue, the expected loss is recognised immediately as an expense.

The majority of the metal processed by the group's and parent company's refining businesses is owned by customers and, therefore, revenue is recognised over time on the basis that the group and parent company are enhancing an asset controlled by the customer.

If the over time criteria for revenue recognition are not met, revenue is recognised at the point in time that control is transferred to the customer, which is usually when legal title passes to the customer and the business has the right to payment, for example, when the goods are despatched or delivered in line with the International Chamber of Commerce's International Commercial Terms (Incoterms®) as detailed in the relevant contract or on notification that the goods have been used when they are consignment products located at customers' premises. Most of the group's and parent company's contracts satisfy the point in time criteria.

In the event that the group and parent company enter into bill-and-hold transactions at the specific request of customers, revenue is recognised when the goods are ready for transfer to the customer and when the group and parent company are no longer capable of directing those goods to another use.

Revenue includes sales of precious metal to customers and the precious metal content of products sold to customers.

Linked contracts under which the group and parent company sell or buy precious metal and commit to repurchase or sell the metal in the future are accounted for as finance transactions and no revenue is recognised in respect of the sale leg.

No revenue is recognised by the group or parent company in respect of non-monetary exchanges of precious metal on the basis that the counterparties are in the same line of business.

Consideration payable to customers

Consideration payable to customers in advance of the recognition of revenue in respect of the goods and services to which it relates is capitalised and recognised as a deduction to the revenue recognised upon transfer of the goods and services to the customer.

Costs to fulfil a contract

Contract fulfilment costs in respect of over time contracts are expensed as incurred. Contract fulfilment costs in respect of point in time contracts are accounted for under IAS 2, Inventories.

Contract receivables

Contract receivables represent amounts for which the group and parent company have an unconditional right to consideration in respect of unbilled revenue recognised at the balance sheet date.

Contract liabilities

Contract liabilities represent the obligation to transfer goods or services to a customer for which consideration has been received, or consideration is due, from the customer.

Accounting policies continued

for the year ended 31st March 2019

Significant accounting policies (continued)

Finance costs and finance income

Finance costs that are directly attributable to the construction of an asset that necessarily takes a substantial period of time to get ready for its intended use are capitalised as part of the cost of that asset. Other finance costs and finance income are recognised in the income statement in the year incurred.

Grants

Grants related to assets are included in deferred income and released to the income statement in equal instalments over the expected useful lives of the related assets. Grants related to income are deducted in reporting the related expense.

Research and development

Research expenditure is charged to the income statement in the year incurred. Development expenditure is charged to the income statement in the year incurred unless it meets the recognition criteria for capitalisation. When the recognition criteria have been met, any further development expenditure is capitalised as an intangible asset.

Property, plant and equipment

Property, plant and equipment is stated at cost less accumulated depreciation and any provisions for impairment. Depreciation is provided at rates calculated to write-off the cost less estimated residual value of each asset over its useful life. Certain freehold buildings and plant and equipment are depreciated using the units of production method as this more closely reflects their expected consumption. All other assets are depreciated using the straight-line method. The useful lives vary according to the class of the asset, but are typically:

- leasehold property – 30 years (or the life of the lease if shorter);
- freehold buildings – 30 years; and
- plant and equipment – 4 to 10 years.

Freehold land is not depreciated.

Goodwill and other intangible assets

Goodwill arises on the acquisition of a business when the fair value of the consideration exceeds the fair value attributed to the net assets acquired (including contingent liabilities). It is subject to annual impairment reviews. Acquisition-related costs are charged to the income statement as incurred. The group and parent company have taken advantage of the exemption allowed under IFRS 1 and, therefore, goodwill arising on acquisitions made before 1st April 2004 is included at the carrying amount at that date less any subsequent impairments.

Other intangible assets are stated at cost less accumulated amortisation and any provisions for impairment. Customer contracts are amortised when the relevant income stream occurs. All other intangible assets are amortised by using the straight-line method over the useful lives from the time they are first available for use. The estimated useful lives vary according to the specific asset, but are typically:

- customer contracts and relationships – 1 to 15 years;
- capitalised computer software – 3 to 10 years;
- patents, trademarks and licences – 3 to 20 years;
- acquired research and technology – 4 to 10 years; and
- capitalised development currently being amortised – 3 to 8 years.

Intangible assets which are not yet being amortised are subject to annual impairment reviews.

Significant accounting policies (continued)

Investments in subsidiaries

Investments in subsidiaries are stated in the parent company's balance sheet at cost less any provisions for impairment. If a distribution is received from a subsidiary, the investment in that subsidiary is assessed for an indication of impairment.

Leases

Leases are classified as finance leases whenever they transfer substantially all the risks and rewards of ownership to the group. The assets are included in property, plant and equipment and the capital elements of the leasing commitments are shown as obligations under finance leases. The assets are depreciated on a basis consistent with similar owned assets or the lease term if shorter. The interest element of the lease rental is included in the income statement.

The group leases, rather than purchases, precious metals to fund temporary peaks in metal requirements provided market conditions allow. These leases are from banks for specified periods (typically a few months) and the group pays a fee which is expensed on a straight-line basis over the lease term in finance costs. The group holds sufficient precious metal inventories to meet all the obligations under these lease arrangements as they fall due.

All other leases are classified as operating leases and the lease costs are expensed on a straight-line basis over the lease term in operating profit.

Precious metal inventories

Inventories of gold, silver and platinum group metals are valued according to the source from which the metal is obtained. Metal which has been purchased and committed to future sales to customers is valued at the price at which it is contractually committed. Other precious metal inventories owned by the group, which are unhedged, are valued at the lower of cost and net realisable value using the weighted average cost formula.

Other inventories

Non-precious metal inventories are valued at the lower of cost, including attributable overheads, and net realisable value. Except where costs are specifically identified, the first-in, first-out cost formula is used to value inventories.

Cash and cash equivalents

Cash and deposits comprise cash at bank and in hand and short-term deposits with a maturity date of three months or less from the date of acquisition. Money market funds comprise investments in funds that are subject to an insignificant risk of changes in fair value. The group and parent company routinely use short-term bank overdraft facilities, which are repayable on demand, as an integral part of their cash management policies and, therefore, cash and cash equivalents include cash and deposits, money market funds and bank overdrafts. Offset arrangements across group businesses have been applied to arrive at the net cash and overdraft figures.

Financial instruments – accounting policies applied since 1st April 2018

Investments and other financial assets

The group and parent company classify their financial assets in the following measurement categories:

- those measured at fair value either through other comprehensive income or through profit or loss; and
- those measured at amortised cost.

At initial recognition, the group and parent company measure financial assets at fair value plus, in the case of financial assets not measured at fair value through profit or loss, transaction costs that are directly attributable to their acquisition.

The group and parent company subsequently measure equity investments at fair value and have elected to present fair value gains and losses on equity investments in other comprehensive income. There is, therefore, no subsequent reclassification of cumulative fair value gains and losses to profit or loss following disposal of the investments.

The group and parent company subsequently measure trade and other receivables and contract receivables at amortised cost, with the exception of trade receivables that have been designated as at fair value through other comprehensive income because the group has certain operations with business models to hold trade receivables for collection or sale. All other financial assets, including short-term receivables, are measured at amortised cost less any impairment provision.

For trade and contract receivables, the group and parent company apply the simplified approach permitted by IFRS 9, Financial Instruments, which requires expected lifetime losses to be recognised from initial recognition.

Accounting policies continued

for the year ended 31st March 2019

Significant accounting policies (continued)

Financial instruments – accounting policies applied since 1st April 2018 (continued)

Derivative financial instruments

The group and parent company use derivative financial instruments, in particular forward currency contracts, currency swaps and interest rate swaps to manage the financial risks associated with their underlying business activities and the financing of those activities. The group and parent company do not undertake any speculative trading activity in derivative financial instruments.

Derivative financial instruments are measured at their fair value. Derivative financial instruments may be designated at inception as fair value hedges, cash flow hedges or net investment hedges if appropriate. For currency swaps designated as instruments in cash flow or net investment hedging relationships, the impact from currency basis spreads is included in the hedge relationship and may be a source of ineffectiveness recognised in the income statement. Derivative financial instruments which are not designated as hedging instruments are classified as at fair value through profit or loss, but are used to manage financial risk. Changes in the fair value of any derivative financial instruments that are not designated as, or are not determined to be, effective hedges are recognised immediately in the income statement. The vast majority of forward precious metal price contracts are entered into and held for the receipt or delivery of precious metal and, therefore, are not recorded at fair value.

Cash flow hedges

Changes in the fair value of derivative financial instruments designated as cash flow hedges are recognised in other comprehensive income to the extent that the hedges are effective. Ineffective portions are recognised in the income statement immediately. If the hedged item results in the recognition of a non-financial asset or liability, the amount previously recognised in other comprehensive income is transferred out of equity and included in the initial carrying amount of the asset or liability. Otherwise, the amount previously recognised in other comprehensive income is transferred to the income statement in the same period that the hedged item is recognised in the income statement. If the hedging instrument expires or is sold, terminated or exercised, the hedge no longer meets the criteria for hedge accounting or the designation is revoked, amounts previously recognised in other comprehensive income remain in equity until the forecast transaction occurs. If a forecast transaction is no longer expected to occur, the amounts previously recognised in other comprehensive income are transferred to the income statement. If a forward precious metal price contract will be settled net in cash, it is designated and accounted for as a cash flow hedge.

Fair value hedges

Changes in the fair value of derivative financial instruments designated as fair value hedges are recognised in the income statement, together with the related changes in the fair value of the hedged asset or liability. Fair value hedge accounting is discontinued if the hedging instrument expires or is sold, terminated or exercised, the hedge no longer meets the criteria for hedge accounting or the designation is revoked.

Net investment hedges

For hedges of net investments in foreign operations, the effective portion of the gain or loss on the hedging instrument is recognised in other comprehensive income, while the ineffective portion is recognised in the income statement. Amounts taken to other comprehensive income are reclassified from equity to the income statement when the foreign operations are sold or liquidated.

Financial liabilities

Borrowings are measured at amortised cost unless they are designated as being fair value hedged, in which case they are remeasured for the fair value changes in respect of the hedged risk with these changes recognised in the income statement. All other financial liabilities, including short-term payables, are measured at amortised cost.

Precious metal sale and repurchase agreements

The group and parent company undertake linked contracts to sell or buy precious metal and commit to repurchase or sell the metal in the future. An asset representing the metal which the group and parent company have committed to sell or a liability representing the obligation to repurchase the metal are recognised in trade and other receivables or trade and other payables, respectively.

Significant accounting policies (continued)

Financial instruments – accounting policies applied until 31st March 2018

Derivative financial instruments

The group and parent company use derivative financial instruments, in particular forward currency contracts and currency swaps, to manage the financial risks associated with their underlying business activities and the financing of those activities. The group and parent company do not undertake any speculative trading activity in derivative financial instruments.

Derivative financial instruments are measured at their fair value. Derivative financial instruments may be designated at inception as fair value hedges, cash flow hedges or net investment hedges if appropriate. Derivative financial instruments which are not designated as hedging instruments are classified as held for trading, but are used to manage financial risk.

The vast majority of forward precious metal price contracts are entered into and held for the receipt or delivery of precious metal and, therefore, are not recorded at fair value. If a forward precious metal price contract will be settled net in cash then it is designated and accounted for as a cash flow hedge.

Changes in the fair value of any derivative financial instruments that are not designated as, or are not determined to be, effective hedges are recognised immediately in the income statement.

Changes in the fair value of derivative financial instruments designated as fair value hedges are recognised in the income statement, together with the related changes in the fair value of the hedged asset or liability. Fair value hedge accounting is discontinued if the hedging instrument expires or is sold, terminated or exercised, the hedge no longer meets the criteria for hedge accounting or the designation is revoked.

Changes in the fair value of derivative financial instruments designated as cash flow hedges are recognised in other comprehensive income to the extent that the hedges are effective. Ineffective portions are recognised in the income statement immediately. If the hedged item results in the recognition of a non-financial asset or liability, the amount previously recognised in other comprehensive income is transferred out of equity and included in the initial carrying amount of the asset or liability. Otherwise, the amount previously recognised in other comprehensive income is transferred to the income statement in the same period that the hedged item is recognised in the income statement. If the hedging instrument expires or is sold, terminated or exercised, the hedge no longer meets the criteria for hedge accounting or the designation is revoked, amounts previously recognised in other comprehensive income remain in equity until the forecast transaction occurs. If a forecast transaction is no longer expected to occur, the amounts previously recognised in other comprehensive income are transferred to the income statement.

For hedges of net investments in foreign operations, the effective portion of the gain or loss on the hedging instrument is recognised in other comprehensive income, while the ineffective portion is recognised in the income statement. Amounts taken to other comprehensive income are reclassified from equity to the income statement when the foreign operations are sold or liquidated.

Other financial instruments

All other financial instruments are initially recognised at fair value plus transaction costs. Subsequent measurement is as follows:

- Borrowings are measured at amortised cost unless they are designated as being fair value hedged, in which case they are remeasured for the fair value changes in respect of the hedged risk with these changes recognised in the income statement.
- Available-for-sale investments which are investments in equity instruments that have a quoted market price in an active market are fair valued at that price with the gain or loss recognised in other comprehensive income. Investments in equity instruments that do not have a quoted market price in an active market are valued at fair value if it can be measured reliably with the gain or loss recognised in other comprehensive income. If the fair value cannot be measured reliably, they are measured at cost.
- Other available-for-sale investments are measured at fair value with interest calculated using the effective interest method recognised in finance income and the remaining gain or loss recognised in other comprehensive income until the investment is derecognised. At that time, the cumulative gain or loss recognised in other comprehensive income will be transferred to the income statement.
- All other financial assets and liabilities, including short-term receivables and payables, are measured at amortised cost less any impairment provision.

Taxation

Current and deferred tax are recognised in the income statement, except when they relate to items recognised directly in equity, in which case the related tax is also recognised in equity.

Current tax is the amount of income tax expected to be paid in respect of taxable profits using the tax rates that have been enacted or substantively enacted at the balance sheet date.

Deferred tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the balance sheet. It is provided using the tax rates that are expected to apply in the period when the asset or liability is settled, based on tax rates that have been enacted or substantively enacted at the balance sheet date.

Deferred tax assets are recognised to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilised. No deferred tax asset or liability is recognised in respect of temporary differences associated with investments in subsidiaries and branches where the group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future.

Accounting policies continued

for the year ended 31st March 2019

Significant accounting policies (continued)

Provisions and contingencies

Provisions are recognised when the group has a present obligation as a result of a past event and a reliable estimate can be made of a probable adverse outcome, for example warranties, environmental claims and restructuring. Otherwise, material contingent liabilities are disclosed unless the probability of the transfer of economic benefits is remote. Contingent assets are only disclosed if an inflow of economic benefits is probable.

The parent company considers financial guarantees of its subsidiaries' borrowings and precious metal leases to be insurance contracts.

Share-based payments and employee share ownership trust (ESOT)

The fair value of shares awarded to employees under the performance share plan, restricted share plan, long term incentive plan and deferred bonus plan is calculated by adjusting the share price on the date of allocation for the present value of the expected dividends that will not be received. The resulting cost is charged to the income statement over the relevant performance periods, adjusted to reflect actual and expected levels of vesting where appropriate.

The group and parent company provide finance to the ESOT to purchase company shares in the open market. Costs of running the ESOT are charged to the income statement. The cost of shares held by the ESOT is deducted in arriving at equity until they vest unconditionally with employees.

Post-employment benefits

The costs of defined contribution plans are charged to the income statement as they fall due.

For defined benefit plans, the group and parent company recognise the net assets or liabilities of the plans in their balance sheets. Assets are measured at their fair value at the balance sheet date. Liabilities are measured at present value using the projected unit credit method and a discount rate reflecting yields on high quality corporate bonds. The changes in plan assets and liabilities, based on actuarial advice, are recognised as follows:

- The current service cost is deducted in arriving at operating profit.
- The net interest cost, based on the discount rate at the beginning of the year, contributions paid in and the present value of the net defined benefit liabilities during the year, is included in finance costs.
- Past service costs and curtailment gains and losses are recognised in operating profit at the earlier of when the plan amendment or curtailment occurs and when any related restructuring costs or termination benefits are recognised.
- Gains or losses arising from settlements are included in operating profit when the settlement occurs.
- Remeasurements, representing returns on plan assets, excluding amounts included in interest, and actuarial gains and losses arising from changes in financial and demographic assumptions, are recognised in other comprehensive income.

Sources of estimation uncertainty

Determining the carrying amounts of certain assets and liabilities at the balance sheet date requires estimation of the effects of uncertain future events. In the event that actual outcomes differ from those estimated, there may be an adjustment to the carrying amounts of those assets and liabilities within the next financial year. The significant risks of material adjustment to the group's and parent company's financial position during the year ending 31st March 2020 relate to the valuation of the liabilities of the defined benefit pension plans and tax provisions. The group and parent company have considered other estimates that, whilst not deemed to represent a significant risk of material adjustment to the group's and parent company's financial position during the year ending 31st March 2020, represent important accounting estimates.

Post-employment benefits

The group's and parent company's defined benefit plans are assessed annually by qualified independent actuaries. The estimate of the liabilities of the plans is based on a number of actuarial assumptions.

There is a range of possible values for each actuarial assumption and the point within that range is estimated to most appropriately reflect the group's and parent company's circumstances. Small changes in these assumptions can have a significant impact on the estimate of the liabilities of the plans. A description of those discount rate and inflation assumptions, together with sensitivity analysis, is set out in note 30 to the group and parent company accounts.

Sources of estimation uncertainty (continued)

Tax provisions

Tax provisions are determined based on the tax laws and regulations that apply in each of the jurisdictions in which the group operates. Tax provisions are recognised where the impact of those laws and regulations is unclear and it is probable that there will be a tax adjustment representing a future outflow of funds to a tax authority or a consequent adjustment to the carrying value of a tax asset.

Provisions are measured using the best estimate of the most likely amount, being the most likely amount in a range of possible outcomes. The resolution of tax positions taken by the group can take a considerable period of time to conclude and, in some cases, it is difficult to predict the outcome. Group current income tax liabilities at 31st March 2019 of £130 million (2018: £149 million) include tax provisions of £102 million (2018: £86 million) and the estimation of the range of possible outcomes is an increase in those liabilities by £60 million (2018: £61 million) to a decrease of £61 million (2018: £50 million). The estimates made reflect where the group: faces routine tax audits or is in ongoing disputes with tax authorities; has identified potential tax exposures relating to transfer pricing; or is contesting the tax deductibility of certain business costs.

Goodwill and other intangible assets

The group and parent company have significant intangible assets from both business acquisitions and investments in new products and technologies. Some of those acquisitions and investments are at an early stage of commercial development and, therefore, carry a greater risk that they will not be commercially viable. Goodwill and intangible assets not yet ready for use are not amortised, but are subject to annual impairment reviews. Other intangible assets are amortised from the time they are first ready for use and are assessed for impairment when there is a triggering event that provides evidence that they are impaired.

The impairment reviews require the use of estimates of future profit and cash generation based on financial budgets and plans approved by management, generally covering a three-year period, and the pre-tax discount rates used in discounting projected cash flows.

Refining process

The group's and parent company's refining businesses process significant quantities of precious metal and there are uncertainties regarding the actual amount of metal in the refining system at any one time. The group's refining businesses process over four million ounces of platinum group metals per annum with a market value of around £3.7 billion. The majority of metal processed is owned by customers and the group and parent company must return pre-agreed quantities of refined metal based on assays of starting materials and other contractual arrangements, such as the timing of the return of metal. The group and parent company calculate the profits or losses of their refining operations based on estimates, including the extent to which process losses are expected during refining. The risk of process losses or gains depends on the nature of the starting material being refined, the specific refining processes applied, the efficiency of those processes and the contractual arrangements.

Stocktakes are performed to determine the volume and value of metal within the refining system compared with the calculated estimates, with the variance being a profit or a loss. Stocktakes are, therefore, a key control in the assessment of the accuracy of the profit or loss of refining operations. Whilst refining is a complex, large-scale industrial process, the group and parent company have appropriate processes and controls over the movement of material in their refineries.

Judgements made in applying accounting policies

The group and parent company use precious metal owned by customers in their production processes. It has been determined that this metal is not controlled by the group or parent company and, therefore, it is not recognised on the balance sheet.

The group and parent company manage precious metal inventories by entering into physically settled forward sales and purchases of metal positions in line with a well established hedging policy. The own use exemption has been adopted for these transactions and, therefore, the group and parent company do not fair value such physically settled contracts.

In the course of preparing the accounts, no other judgements have been made in the process of applying the group's and parent company's accounting policies, other than those involving estimations, that have had a significant effect on the amounts recognised in the accounts.

Accounting policies continued

for the year ended 31st March 2019

Changes in accounting policies

Standards effective from 1st April 2018

IFRS 9, Financial Instruments, and IFRS 15, Revenue from Contracts with Customers, became effective from 1st April 2018. The impact of adoption is set out in note 39.

Standards effective from 1st April 2019

IFRS 16, Leases

IFRS 16 is effective from 1st April 2019. Whilst lessor accounting is similar to IAS 17, lessee accounting is significantly different. Under IFRS 16, the group and parent company will recognise on the balance sheet a right-of-use asset and a lease liability for future lease payments in respect of all leases unless the underlying assets are of low value or the lease term is 12 months or less. In the income statement, rental expense on the impacted leases will be replaced with depreciation on the right-of-use asset and interest expense on the lease liability. The new standard will primarily impact the accounting for the group's and parent company's operating leases as their activities as a lessor are not significant.

The group and parent company will apply the simplified transition approach and will not restate comparative amounts for the year ended 31st March 2019. All right-of-use assets will be measured at the amount of the lease liability on adoption (adjusted for any prepaid or accrued lease expenses).

As at 31st March 2019, the group has non-cancellable operating lease commitments of £76 million (see note 35), of which approximately £2 million relates to short-term leases which will be recognised in the income statement on a straight-line basis under IFRS 16.

For the remaining lease commitments, the group expects to recognise right-of-use assets and lease liabilities of approximately £75 million on 1st April 2019. The discounted lease liabilities include cancellable lease term extension options which are not included in the operating lease commitments note, but are expected to be exercised. The group estimates that profit before tax will be reduced by approximately £1 million in the year ending 31st March 2020 as a result of adopting IFRS 16.

It is unclear whether contracts entered into by the group and parent company to lease metal from third parties constitute leases as defined by IFRS 16. Specifically, it is not clear whether the leased metal represents a defined asset given its fungible nature. However, on the basis that there is no alternative accounting standard applicable to these transactions, the group and parent company will continue to recognise the expense in the income statement on a straight-line basis, with no recognition on the balance sheet.

IFRIC 23, Uncertainty over Income Tax Treatments

IFRIC 23 is effective from 1st April 2019. The interpretation clarifies how to recognise and measure current and deferred income tax assets and liabilities where there is uncertainty over a tax treatment. The group does not expect IFRIC 23 to have a material impact on its reported results or net assets.

The group does not consider that any other standards or interpretations issued, but not yet effective, will have a significant impact on its reported results or net assets.

Non-GAAP measures

The group uses various measures to manage its business which are not defined by generally accepted accounting principles (GAAP). The group's management believes these measures provide valuable additional information to users of the accounts in understanding the group's performance. The principal non-GAAP measures are as follows:

- Sales – note 1
- Underlying operating profit – note 1
- Working capital days (excluding precious metals) – note 22
- Net debt – note 24
- Return on invested capital (ROIC) – note 31
- Net debt (including post tax pension deficits) to underlying EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation) – note 31

1 Segmental information

The group has four operating sectors, Clean Air, Efficient Natural Resources, Health and New Markets, and a corporate headquarters that retains certain costs that have not been allocated to the operating sectors. The Group Management Committee (the chief operating decision maker as defined by IFRS 8, Operating Segments) monitors the results of these operating sectors to assess performance and make decisions about the allocation of resources. Each operating sector is represented by a member of the Group Management Committee. These operating sectors represent the group's reportable segments. Their principal activities are described on pages 78 to 85. The performance of the operating sectors is assessed on sales and underlying operating profit.

Sales

Definition: Revenue excluding sales of precious metals to customers and the precious metal content of products sold to customers.

Purpose: The group believes that sales is a better measure of the growth of the group than revenue. Total revenue can be heavily distorted by year on year fluctuations in the market prices of precious metals and, in many cases, the value of precious metals is passed directly on to customers.

Underlying operating profit

Definition: Operating profit excluding profit or loss on disposal of businesses (note 5), gain or loss on significant legal proceedings, together with associated legal costs (note 6), amortisation of acquired intangibles (note 7) and major impairment and restructuring charges (note 8).

Purpose: The group believes that underlying operating profit provides a better guide to the underlying performance of the group.

Sales between segments are made at market prices, taking into account the volumes involved.

Revenue, sales and underlying operating profit by segment

The group did not receive revenue from any individual external customer which represents more than 10% of the group's total revenue from external customers during the year ended 31st March 2019. Following the restatement of the prior year comparative for revenue (see note 39), no individual customer represented more than 10% of revenue during the year ended 31st March 2018.

Year ended 31st March 2019

	Clean Air £ million	Efficient Natural Resources £ million	Health £ million	New Markets £ million	Corporate £ million	Eliminations £ million	Total £ million
Revenue from external customers	**4,948**	**5,074**	**259**	**464**	**–**	**–**	**10,745**
Inter-segment revenue	**210**	**2,608**	**–**	**9**	**–**	**(2,827)**	**–**
Revenue	**5,158**	**7,682**	**259**	**473**	**–**	**(2,827)**	**10,745**
External sales	**2,719**	**880**	**256**	**359**	**–**	**–**	**4,214**
Inter-segment sales	**1**	**111**	**1**	**3**	**–**	**(116)**	**–**
Sales	**2,720**	**991**	**257**	**362**	**–**	**(116)**	**4,214**
Underlying operating profit (note 4)	**393**	**181**	**43**	**2**	**(53)**	**–**	**566**

Year ended 31st March 2018

	Clean Air £ million	Efficient Natural Resources Restated[1] £ million	Health £ million	New Markets £ million	Corporate £ million	Eliminations £ million	Total Restated[1] £ million
Revenue from external customers	4,248	5,389	252	385	–	–	10,274
Inter-segment revenue	260	2,342	–	18	–	(2,620)	–
Revenue	4,508	7,731	252	403	–	(2,620)	10,274
External sales	2,454	845	247	300	–	–	3,846
Inter-segment sales	–	111	–	12	–	(123)	–
Sales	2,454	956	247	312	–	(123)	3,846
Underlying operating profit (note 4)	349	158	44	17	(43)	–	525

[1] See note 39.

Notes on the accounts continued

for the year ended 31st March 2019

1 Segmental information (continued)

Reconciliation from underlying operating profit to operating profit by segment

Year ended 31st March 2019

	Clean Air £ million	Efficient Natural Resources £ million	Health £ million	New Markets £ million	Corporate £ million	Total £ million
Underlying operating profit (note 4)	**393**	**181**	**43**	**2**	**(53)**	**566**
Loss on disposal of businesses (note 5)	**–**	**–**	**–**	**(12)**	**–**	**(12)**
Loss on significant legal proceedings (note 6)	**–**	**–**	**–**	**–**	**(17)**	**(17)**
Amortisation of acquired intangibles (note 7)	**(3)**	**(6)**	**–**	**(5)**	**–**	**(14)**
Major impairment and restructuring charges (note 8)	**–**	**–**	**7**	**–**	**1**	**8**
Operating profit	**390**	**175**	**50**	**(15)**	**(69)**	**531**

Year ended 31st March 2018

	Clean Air £ million	Efficient Natural Resources £ million	Health £ million	New Markets £ million	Corporate £ million	Total £ million
Underlying operating profit (note 4)	349	158	44	17	(43)	525
Loss on disposal of businesses (note 5)	–	–	–	(7)	–	(7)
Loss on significant legal proceedings (note 6)	(50)	–	–	–	–	(50)
Amortisation of acquired intangibles (note 7)	(3)	(7)	–	(9)	–	(19)
Major impairment and restructuring charges (note 8)	–	(13)	(56)	(21)	–	(90)
Operating profit	296	138	(12)	(20)	(43)	359

Other segmental information

Year ended 31st March 2019

	Clean Air £ million	Efficient Natural Resources £ million	Health £ million	New Markets £ million	Corporate £ million	Total £ million
Segmental net assets	**1,339**	**1,243**	**496**	**235**	**108**	**3,421**
Net debt						**(866)**
Post-employment benefit net assets and liabilities						**103**
Deferred income tax net liabilities						**(33)**
Provisions and non-current other payables						**(34)**
Investments in joint venture and associate						**20**
Net assets						**2,611**
Capital expenditure	**124**	**53**	**29**	**48**	**69**	**323**
Other additions to non-current assets (excluding financial, deferred tax and post-employment benefit net assets)	**3**	**–**	**–**	**–**	**–**	**3**
Total additions to non-current assets	**127**	**53**	**29**	**48**	**69**	**326**
Depreciation and amortisation	**69**	**49**	**19**	**9**	**11**	**157**
Amortisation of acquired intangibles (note 7)	**3**	**6**	**–**	**5**	**–**	**14**
Total depreciation and amortisation	**72**	**55**	**19**	**14**	**11**	**171**

1 Segmental information (continued)

Year ended 31 March 2018

	Clean Air £ million	Efficient Natural Resources Restated[1] £ million	Health £ million	New Markets £ million	Corporate £ million	Total Restated[1] £ million
Segmental net assets	1,133	1,084	481	208	101	3,007
Net debt						(679)
Post-employment benefit net assets and liabilities						133
Deferred income tax net liabilities						(46)
Provisions and non-current other payables						(56)
Investments in joint venture and associate						20
Net assets						2,379
Capital expenditure	71	49	40	18	39	217
Other additions to non-current assets (excluding financial, deferred tax and post-employment benefit net assets)	11	–	–	–	–	11
Total additions to non-current assets	82	49	40	18	39	228
Depreciation and amortisation	74	47	21	8	6	156
Amortisation of acquired intangibles (note 7)	3	7	–	9	–	19
Total depreciation and amortisation	77	54	21	17	6	175

[1] See note 39.

The group's country of domicile is the UK. Revenue from external customers based on the customer's location and non-current assets based on the location of the assets are presented below:

	Revenue from external customers		Non-current assets	
	2019 £ million	2018 Restated[1] £ million	**2019 £ million**	2018 £ million
UK	**1,838**	1,793	**924**	849
Germany	**1,252**	1,198	**266**	276
Rest of Europe	**1,869**	1,510	**257**	236
USA	**2,567**	2,520	**440**	399
Rest of North America	**205**	212	**32**	33
China (including Hong Kong)	**1,199**	1,342	**183**	159
Rest of Asia	**1,267**	1,190	**124**	112
Rest of World	**548**	509	**18**	18
Sub-total	**10,745**	10,274	**2,244**	2,082
Investments at fair value through other comprehensive income			**52**	56
Interest rate swaps			**13**	6
Deferred income tax assets			**58**	48
Post-employment benefit net assets			**209**	236
Total			**2,576**	2,428

[1] See note 39.

Notes on the accounts continued

for the year ended 31st March 2019

2 Revenue

Principal products and services

The group's principal products and services by operating sector and sub-sector, together with information regarding performance obligations and revenue recognition, are shown in the table below:

Sector	Sub-sector	Primary industry	Principal products and services	Performance obligations	Revenue recognition
Clean Air	Light Duty Catalysts	Automotive	Catalysts for cars and other light duty vehicles	Point in time	On despatch or delivery
	Heavy Duty Catalysts	Automotive	Catalysts for trucks, buses and non-road equipment	Point in time	On despatch or delivery
Efficient Natural Resources	Catalyst Technologies	Chemicals / oil and gas	Speciality catalysts and additives	Point in time	On despatch or delivery
			Process technology licences	Over time	Based on costs incurred or straight-line over the licence term[1]
			Engineering design services	Over time	Based on costs incurred
	Platinum Group Metal Services	Various	Platinum Group Metal refining and recycling services	Over time	Based on costs incurred
			Precious metal and other precious metal products	Point in time	On despatch or delivery
			Platinum Group Metal chemical and industrial products	Point in time	On despatch or delivery
	Advanced Glass Technologies	Automotive	Precious metal pastes and enamels	Point in time	On despatch or delivery
	Diagnostic Services	Oil and gas	Detection, diagnostic and measurement solutions	Over time	Based on costs incurred
Health	Generics	Pharmaceuticals	Active pharmaceutical ingredients	Point in time[2]	On despatch or delivery
	Innovators	Pharmaceuticals	Active pharmaceutical ingredients	Point in time	On despatch or delivery
New Markets	Alternative Powertrain	Automotive	Battery materials and fuel cell technologies	Point in time	On despatch or delivery
		Consumer goods	Battery systems for a range of applications	Point in time	On despatch or delivery
	Medical Device Components	Pharmaceuticals	Products found in devices used in medical procedures	Point in time	On despatch or delivery
	Life Science Technologies	Pharmaceuticals / agriculture	Advanced catalysts	Point in time	On despatch or delivery

1 Revenue recognition depends on whether the licence is distinct in the context of the contract.

2 Revenue is recognised over time on one significant contract.

2 Revenue (continued)

	2019				
	Clean Air £ million	**Efficient Natural Resources £ million**	**Health £ million**	**New Markets £ million**	**Total £ million**
Revenue from external customers by principal products and services					
Metal	**2,229**	**4,194**	**3**	**105**	**6,531**
Heavy Duty Catalysts	**938**	**–**	**–**	**–**	**938**
Light Duty Catalysts	**1,737**	**–**	**–**	**–**	**1,737**
Catalyst Technologies	**–**	**504**	**–**	**–**	**504**
Platinum Group Metal Services	**–**	**233**	**–**	**–**	**233**
Advanced Glass Technologies	**–**	**75**	**–**	**–**	**75**
Diagnostic Services	**–**	**68**	**–**	**–**	**68**
Generics	**–**	**–**	**171**	**–**	**171**
Innovators	**–**	**–**	**85**	**–**	**85**
Alternative Powertrain	**–**	**–**	**–**	**206**	**206**
Medical Device Components	**–**	**–**	**–**	**70**	**70**
Life Science Technologies	**–**	**–**	**–**	**46**	**46**
Other	**44**	**–**	**–**	**37**	**81**
Revenue	**4,948**	**5,074**	**259**	**464**	**10,745**
Revenue from external customers by point in time and over time performance obligations					
Revenue recognised at a point in time	**4,948**	**4,869**	**233**	**464**	**10,514**
Revenue recognised over time	**–**	**205**	**26**	**–**	**231**
Revenue	**4,948**	**5,074**	**259**	**464**	**10,745**

	2018				
	Clean Air £ million	Efficient Natural Resources Restated[1] £ million	Health £ million	New Markets £ million	Total Restated[1] £ million
Revenue from external customers by principal products and services					
Metal	1,794	4,544	5	85	6,428
Heavy Duty Catalysts	846	–	–	–	846
Light Duty Catalysts	1,564	–	–	–	1,564
Catalyst Technologies	–	478	–	–	478
Platinum Group Metal Services	–	228	–	–	228
Advanced Glass Technologies	–	82	–	–	82
Diagnostic Services	–	57	–	–	57
Generics	–	–	173	–	173
Innovators	–	–	74	–	74
Alternative Powertrain	–	–	–	153	153
Medical Device Components	–	–	–	69	69
Life Science Technologies	–	–	–	41	41
Other	44	–	–	37	81
Revenue	4,248	5,389	252	385	10,274
Revenue from external customers by point in time and over time performance obligations					
Revenue recognised at a point in time	4,248	5,213	217	385	10,063
Revenue recognised over time	–	176	35	–	211
Revenue	4,248	5,389	252	385	10,274

[1] See note 39.

Notes on the accounts continued

for the year ended 31st March 2019

2 Revenue (continued)

Unsatisfied performance obligations

At 31st March 2019, for contracts that had an original expected duration of more than one year, the group had unsatisfied performance obligations of £323 million, representing contractually committed revenue to be recognised at a future date. Of this amount, £38 million is expected to be recognised within one year and £285 million is expected to be recognised after one year.

Payment terms

The group supplies goods and services on payment terms that are consistent with those standard across the industry and it does not have any contracts with a material financing component. Where revenue is recognised over time, payment terms are generally consistent with the timeframe over which revenue is recognised.

3 Effect of exchange rate movements on translation of sales and underlying operating profit of foreign operations

Average exchange rates used for translation of the results of foreign operations

	2019	2018
US dollar / £	**1.310**	1.328
Euro / £	**1.134**	1.134
Chinese renminbi / £	**8.81**	8.79

The main impact of exchange rate movements on the group's sales and underlying operating profit comes from the translation of the results of foreign operations into sterling.

	Year ended 31st March 2019 £ million	Year ended 31st March 2018 At last year's rates £ million	At this year's rates £ million	Change at this year's rates %
Sales				
Clean Air	**2,720**	2,454	2,451	+11
Efficient Natural Resources	**991**	956	956	+4
Health	**257**	247	250	+3
New Markets	**362**	312	310	+17
Inter-segment sales	**(116)**	(123)	(124)	
Sales (note 1)	**4,214**	3,846	3,843	+10
Underlying operating profit				
Clean Air	**393**	349	349	+13
Efficient Natural Resources	**181**	158	158	+15
Health	**43**	44	45	−4
New Markets	**2**	17	17	−85
Corporate	**(53)**	(43)	(43)	
Underlying operating profit (note 4)	**566**	525	526	+8

4 Underlying profit reconciliations

Underlying profit and earnings are non-GAAP measures that the group believes provide a better guide to the underlying performance of the group. These measures exclude profit or loss on disposal of businesses, gain or loss on significant legal proceedings, together with associated legal costs, amortisation of acquired intangibles and major impairment and restructuring charges, and are reconciled to their equivalent GAAP measures below.

	2019 £ million	2018 £ million
Underlying operating profit (note 1)	**566**	525
Loss on disposal of businesses (note 5)	**(12)**	(7)
Loss on significant legal proceedings (note 6)	**(17)**	(50)
Amortisation of acquired intangibles (note 7)	**(14)**	(19)
Major impairment and restructuring charges (note 8)	**8**	(90)
Operating profit	**531**	359
Underlying profit before tax	**523**	486
Loss on disposal of businesses (note 5)	**(12)**	(7)
Loss on significant legal proceedings (note 6)	**(17)**	(50)
Amortisation of acquired intangibles (note 7)	**(14)**	(19)
Major impairment and restructuring charges (note 8)	**8**	(90)
Profit before tax	**488**	320
Tax on underlying profit before tax	**(83)**	(86)
Tax on loss on disposal of businesses (note 5)	**4**	–
Tax on loss on significant legal proceedings (note 6)	**3**	16
Tax on amortisation of acquired intangibles (note 7)	**3**	4
Tax on major impairment and restructuring charges (note 8)	**(2)**	21
Tax thereon	**8**	41
Tax rate changes (note 13)	**–**	23
Income tax expense	**(75)**	(22)
Underlying profit for the year	**440**	400
Loss on disposal of businesses (note 5)	**(12)**	(7)
Loss on significant legal proceedings (note 6)	**(17)**	(50)
Amortisation of acquired intangibles (note 7)	**(14)**	(19)
Major impairment and restructuring charges (note 8)	**8**	(90)
Tax thereon	**8**	41
Tax rate changes (note 13)	**–**	23
Profit for the year	**413**	298

5 Loss on disposal of businesses

Profit or loss on disposal of businesses is shown separately on the face of the income statement and excluded from underlying operating profit. On 1st February 2019, the group sold its water disinfection business, Miox. After costs, the net proceeds were £2 million which resulted in a loss on sale of £12 million. Net assets sold comprise intangible assets (£9 million), property, plant and equipment (£2 million) and working capital (£3 million). In the prior year, the group sold its UK automotive battery systems business. After costs, the net proceeds were £5 million which resulted in a loss on sale of £7 million.

6 Loss on significant legal proceedings

Gains and losses on significant legal proceedings, together with associated legal costs, are shown separately on the face of the income statement and excluded from underlying operating profit. In April 2019, the group paid £17 million in respect of a settlement with a customer on mutually acceptable terms with no admission of fault relating to failures in certain engine systems for which it supplied a component in the US. The settlement has been recognised in the year ended 31st March 2019 on the basis that it confirms that the group had a present obligation at the year end. In the prior year, the group recognised a charge of £50 million in connection with the resolution of a contract dispute lawsuit related to a component supplied by the group in the US.

7 Amortisation of acquired intangibles

The amortisation of intangible assets which arise on the acquisition of businesses, together with any subsequent impairment of these intangible assets, is shown separately on the face of the income statement and excluded from underlying operating profit.

Notes on the accounts continued

for the year ended 31st March 2019

8 Major impairment and restructuring charges

Major impairment and restructuring charges are shown separately on the face of the income statement and excluded from underlying operating profit. As part of the group's operational efficiency programme announced on 31st March 2017, a restructuring and impairment charge of £90 million was incurred in the prior year. The £90 million comprised £66 million asset write offs, £11 million provisions and £13 million cash costs incurred. Contained within the £90 million were costs for redundancies and business or plant closures as part of the optimisation of the manufacturing footprint in Health (including £36 million relating to the closure of the Riverside, US, manufacturing facility and £17 million relating to the exit of certain operations in Portugal). The group is at an advanced stage of negotiations to sell the Riverside site for £7 million, net of costs, and an equivalent amount of the prior year impairment has been reversed during the year ended 31st March 2019.

9 Operating profit

	2019 £ million	2018 £ million
Operating profit is arrived at after charging / (crediting):		
Total research and development expenditure	**190**	193
Less: Development expenditure capitalised	**(19)**	(18)
Research and development charged	**171**	175
Less: External funding received – from governments	**(12)**	(8)
– from other organisations	**(2)**	(4)
Net research and development charged	**157**	163
Inventories recognised as an expense[1]	**8,715**	8,413
Write-down of inventories recognised as an expense	**25**	26
Reversal of write-down of inventories from increases in net realisable value	**(5)**	(5)
Net losses on foreign exchange	**10**	10
Net gains on foreign currency forwards at fair value through profit or loss	**(6)**	(9)
Depreciation of property, plant and equipment	**142**	143
Amortisation of internally generated intangible assets included in cost of sales	**6**	9
Amortisation and impairment of other intangible assets included in – cost of sales	**2**	4
– distribution costs	**1**	1
– administrative expenses	**6**	2
– amortisation of acquired intangibles (note 7)	**14**	19
– major impairment and restructuring charges (note 8)	**–**	4
Amortisation and impairment of other intangible assets	**29**	39
Operating lease rentals payable – minimum lease payments	**17**	19

[1] 2018 restated. See note 39.

10 Fees payable to auditors

	2019 £ million	2018 £ million
Fees payable to the company's auditor and its associates for:		
The audit of these accounts	**0.9**	0.8
The audit of the accounts of the company's subsidiaries	**1.7**	1.4
Total audit fees	**2.6**	2.2
Audit-related assurance services	**0.2**	0.1
Other assurance services	**–**	0.4
Other services	**0.3**	0.3
Total non-audit fees	**0.5**	0.8
Total fees payable to the company's auditor and its associates	**3.1**	3.0

Fees payable for services to the group's pension plans for the audit of the pension plan accounts were £0.1 million (2018: £0.1 million).

Audit fees paid to other auditors were £nil (2018: £0.1 million).

11 Employee numbers and costs

Average number of employees

	2019	2018
Clean Air	**5,679**	5,302
Efficient Natural Resources	**3,602**	3,670
Health	**879**	992
New Markets	**1,855**	1,538
Corporate	**973**	817
Average number of employees	**12,988**	12,319

The number of temporary employees included above at 31st March 2019 is 526 (2018: 367).

Year-end headcount

	At 31st March 2019			At 31st March 2018		
	Actual employees	Agency staff	Total headcount	Actual employees	Agency staff	Total headcount
Clean Air	**5,919**	**629**	**6,548**	5,470	554	6,024
Efficient Natural Resources	**3,645**	**163**	**3,808**	3,711	171	3,882
Health	**858**	**8**	**866**	964	113	1,077
New Markets	**1,934**	**343**	**2,277**	1,714	429	2,143
Corporate	**1,043**	**253**	**1,296**	856	148	1,004
Total	**13,399**	**1,396**	**14,795**	12,715	1,415	14,130

Employee benefits expense

	2019 £ million	2018 Restated[1] £ million
Wages and salaries	**593**	548
Social security costs	**64**	59
Post-employment costs	**56**	69
Share-based payments	**17**	17
Termination benefits	**1**	5
Employee benefits expense	**731**	698

12 Net finance costs

	2019 £ million	2018 Restated[1] £ million
Net loss on remeasurement of foreign currency swaps held at fair value through profit or loss	**(1)**	(3)
Interest payable on financial liabilities held at amortised cost and interest on related swaps	**(37)**	(30)
Interest payable on other liabilities	**(69)**	(29)
Interest on post-employment benefits	**–**	(1)
Total finance costs	**(107)**	(63)
Interest receivable on financial assets held at amortised cost	**3**	4
Interest receivable on other assets	**58**	21
Interest on post-employment benefits	**3**	–
Total finance income	**64**	25
Net finance costs	**(43)**	(38)

[1] See note 39.

Notes on the accounts continued

for the year ended 31st March 2019

13 Tax expense

	2019 £ million	2018 £ million
Current tax		
Corporation tax on profit for the year	**84**	104
Benefit from previously unrecognised tax losses, tax credits or temporary differences	**–**	(1)
Adjustment for prior years	**(7)**	(11)
Total current tax	**77**	92
Deferred tax		
Origination and reversal of temporary differences	**6**	(35)
Tax rate adjustments	**(1)**	(25)
Recognition of previously unrecognised deferred tax assets	**(5)**	(9)
Adjustment for prior years	**(2)**	(1)
Total deferred tax	**(2)**	(70)
Tax expense	**75**	22

The tax expense can be reconciled to profit before tax in the income statement as follows:

	2019 £ million	2018 £ million
Profit before tax	**488**	320
Tax expense at UK corporation tax rate of 19% (2018: 19%)	**93**	61
Effects of:		
Overseas tax rates	**2**	–
Expenses not deductible for tax purposes	**3**	13
Losses and other temporary differences not recognised	**7**	8
Recognition or utilisation of previously unrecognised tax assets	**(6)**	(7)
Adjustment for prior years	**(9)**	(12)
Patent box / Innovation box	**(19)**	(17)
Other tax incentives	**(4)**	(3)
Tax rate adjustments	**(1)**	(25)
Disposal of businesses	**(2)**	1
Irrecoverable withholding tax	**6**	1
Other	**5**	2
Tax expense	**75**	22

Losses and other temporary differences not recognised includes current year tax losses arising in Canada, Brazil and China which are not expected to be used in the foreseeable future.

Recognition or utilisation of previously unrecognised tax assets is mainly the recognition of tax incentives in Poland.

Adjustments for prior years is mainly current and deferred tax adjustments in respect of Macedonia.

Other tax incentives includes research and development tax incentives in the US, China and Japan and other tax incentives in Poland.

Tax rate adjustments in the prior year included £24 million and £1 million relating to the US and UK, respectively. The US federal tax rate was reduced from 35% to 21% with effect from 1st January 2018. In line with this change, the rate applying to US deferred tax assets and liabilities at 31st March 2018 was reduced from 37% to 23% (including state taxes), creating a US tax rate adjustment which was partly reflected in the consolidated income statement and partly in the consolidated statement of comprehensive income.

Irrecoverable withholding tax and other include movements on certain global tax provisions where the ultimate outcome cannot be ascertained with certainty.

14 Tax on other comprehensive income

	2019 Before tax £ million	2019 Tax £ million	2019 Net of tax £ million	2018 Before tax £ million	2018 Tax £ million	2018 Net of tax £ million
Items that will not be reclassified to the income statement						
Remeasurements of post-employment benefit assets and liabilities	**(69)**	**13**	**(56)**	103	(18)	85
Fair value losses on equity investments at fair value through other comprehensive income	**(3)**	**–**	**(3)**	–	–	–
Tax rate adjustments	**–**	**–**	**–**	–	(13)	(13)
Items that may be reclassified to the income statement						
Exchange differences on translation of foreign operations	**22**	**1**	**23**	(95)	1	(94)
Amounts credited to hedging reserve	**4**	**(1)**	**3**	5	(1)	4
Fair value (losses) / gains on net investment hedges	**(1)**	**–**	**(1)**	6	–	6
Fair value losses on other investments at fair value through other comprehensive income	**(1)**	**–**	**(1)**	–	–	–
Total other comprehensive income	**(48)**	**13**	**(35)**	19	(31)	(12)

The US federal tax rate was reduced from 35% to 21% with effect from 1st January 2018. In line with this change, the rate applying to US deferred tax assets and liabilities at 31st March 2018 was reduced from 37% to 23% (including state taxes), creating a US tax rate adjustment which was partly reflected in the consolidated income statement and partly in the consolidated statement of comprehensive income.

15 Earnings per ordinary share

	2019 pence	2018 pence
Basic	**215.2**	155.2
Diluted	**214.6**	155.0

Earnings per ordinary share have been calculated by dividing profit for the year by the weighted average number of shares in issue during the year.

	2019	2018
Weighted average number of shares in issue		
Basic	**192,128,811**	191,985,992
Dilution for long-term incentive plans	**559,693**	246,916
Diluted	**192,688,504**	192,232,908

Underlying earnings per ordinary share have been calculated by dividing underlying profit for the year (note 4) by the weighted average number of shares in issue during the year.

	2019 pence	2018 pence
Underlying earnings per share		
Basic	**228.8**	208.4
Diluted	**228.2**	208.1

Notes on the accounts continued

for the year ended 31st March 2019

16 Property, plant and equipment

Group

	Freehold land and buildings £ million	Long and short leasehold £ million	Plant and machinery £ million	Assets in the course of construction £ million	Total £ million
Cost					
At 1st April 2017	588	27	1,882	237	2,734
Additions	7	–	40	114	161
Reclassification between categories	21	–	114	(135)	–
Disposals	(12)	–	(25)	(1)	(38)
Disposal of businesses (note 5)	–	–	(3)	–	(3)
Exchange adjustments	(26)	(2)	(89)	(6)	(123)
At 31st March 2018	578	25	1,919	209	2,731
Additions	10	1	60	164	235
Reclassification between categories	13	1	63	(77)	–
Reclassification as held for sale	(7)	–	–	(1)	(8)
Transfer from other intangible assets (note 18)	–	–	11	–	11
Disposals	–	(3)	(40)	–	(43)
Disposal of businesses (note 5)	–	–	(2)	–	(2)
Exchange adjustments	13	1	45	1	60
At 31st March 2019	607	25	2,056	296	2,984
Accumulated depreciation and impairment					
At 1st April 2017	244	15	1,234	6	1,499
Charge for the year	20	1	122	–	143
Impairment losses	7	–	30	3	40
Disposals	(8)	–	(24)	–	(32)
Disposal of businesses (note 5)	–	–	(1)	–	(1)
Exchange adjustments	(13)	(1)	(59)	–	(73)
At 31st March 2018	250	15	1,302	9	1,576
Charge for the year	19	1	121	1	142
Impairment (reversals) / losses	(6)	–	–	1	(5)
Reclassification as held for sale	(1)	–	–	–	(1)
Reclassification between categories	(1)	1	(5)	5	–
Disposals	–	(3)	(37)	–	(40)
Exchange adjustments	7	1	33	–	41
At 31st March 2019	268	15	1,414	16	1,713
Carrying amount at 31st March 2019	**339**	**10**	**642**	**280**	**1,271**
Carrying amount at 31st March 2018	328	10	617	200	1,155
Carrying amount at 1st April 2017	344	12	648	231	1,235

Finance costs capitalised were £4 million (2018: £4 million) and the capitalisation rate used to determine the amount of finance costs eligible for capitalisation was 3.2% (2018: 3.3%).

In the prior year, impairment losses of £40 million were included in major impairment and restructuring charges (note 8). The impairment included £30 million relating to the closure of the Riverside, US, manufacturing facility in Health. The recoverable amount of the plant was estimated to be nil based on fair value less costs to sell using level 2 inputs (see note 33) reflecting its specialised nature.

The group is at an advanced stage of negotiations to sell the Riverside site for £7 million, net of costs, and an equivalent amount of the prior year impairment has been reversed during the year ended 31st March 2019.

16 Property, plant and equipment (continued)

Parent company

	Freehold land and buildings £ million	Long and short leasehold £ million	Plant and machinery £ million	Assets in the course of construction £ million	Total £ million
Cost					
At 31st March 2018	130	2	556	31	719
Additions	–	–	31	29	60
Reclassification between categories	(1)	1	9	(9)	–
Transfer from other intangible assets (note 18)	–	–	11	–	11
Disposals	–	–	(15)	–	(15)
At 31st March 2019	129	3	592	51	775
Accumulated depreciation and impairment					
At 31st March 2018	58	1	382	–	441
Charge for the year	4	–	33	–	37
Reclassification between categories	(1)	1	–	–	–
Disposals	–	–	(15)	–	(15)
At 31st March 2019	61	2	400	–	463
Carrying amount at 31st March 2019	**68**	**1**	**192**	**51**	**312**
Carrying amount at 31st March 2018	72	1	174	31	278

Finance costs capitalised were £2 million (2018: £2 million) and the capitalisation rate used to determine the amount of finance costs eligible for capitalisation was 3.2% (2018: 3.3%).

17 Goodwill

	Group £ million	Parent company £ million
Cost		
At 1st April 2017	607	123
Disposal of businesses (note 5)	(9)	–
Exchange adjustments	(13)	–
At 31st March 2018	585	123
Exchange adjustments	4	–
At 31st March 2019	589	123
Impairment		
At 1st April 2017	–	–
Impairment losses	11	–
At 31st March 2019 and 31st March 2018	11	–
Carrying amount at 31st March 2019	**578**	**123**
Carrying amount at 31st March 2018	574	123
Carrying amount at 1st April 2017	607	123

The impairment losses in the year ended 31st March 2018 of £11 million were included in major impairment and restructuring charges (note 8).

Notes on the accounts continued

for the year ended 31st March 2019

17 Goodwill (continued)

Goodwill arising on the acquisition of businesses is allocated, at acquisition, to the cash-generating units (CGUs) that are expected to benefit from that business combination. Goodwill is allocated as follows:

	Group		Parent company	
	2019 £ million	2018 £ million	**2019 £ million**	2018 £ million
Clean Air				
– Heavy Duty Catalysts	**85**	85	**–**	–
Efficient Natural Resources				
– Catalyst Technologies	**267**	264	**113**	113
– Diagnostic Services	**50**	50	**–**	–
– Other	**3**	3	**–**	–
Health				
– Pharma Materials EU	**117**	117	**–**	–
– Innovators	**27**	26	**2**	2
New Markets[1]	**29**	29	**8**	8
	578	574	**123**	123

[1] New Markets comprises CGUs with goodwill balances individually less than £10 million.

The group and parent company test goodwill annually for impairment or more frequently if there are indications that goodwill might be impaired. The recoverable amounts of the CGUs are determined using value in use calculations which generally use cash flow projections based on financial budgets and plans covering a three-year period approved by management. The budgets and plans are based on a number of key assumptions, including market share, expected changes to selling prices, product profitability, precious metal prices and other direct input costs, based on past experience and management's expectations of future changes in the markets using external sources of information where appropriate. Unallocated corporate costs are split between CGUs using a revenue-based methodology. These cash flows are then extrapolated using the long term average growth rates for the relevant products, industries and countries in which the CGUs operate. The cash flows are discounted at the group's estimated pre-tax weighted average cost of capital adjusted for the estimated tax cash flows and risk applicable to each CGU.

The key assumptions are:

	Discount rate		Long term growth rate	
	2019	2018	**2019**	2018
Clean Air				
– Heavy Duty Catalysts	**9.5%**	9.9%	**–1.0%**	0.0%
Efficient Natural Resources				
– Catalyst Technologies	**10.3%**	10.5%	**2.7%**	2.4%
– Diagnostic Services	**10.3%**	n/a	**1.3%**	n/a
Health				
– Pharma Materials EU	**8.6%**	8.1%	**4.0%**	2.8%
– Innovators	**9.2%**	8.8%	**3.0%**	2.8%

Different long-term growth rates are used for the Clean Air – Heavy Duty Catalysts CGU because of expected macroeconomic trends in the industry in which the business operates. The growth rate for years four to ten is expected to be 1% (2018: 1.5%). After that, growth is expected to slow and, therefore, the long term growth rate above is used for year 11 onwards.

The impairment tests result in headroom of at least 50% over the carrying value of the net assets of the material CGUs.

18 Other intangible assets

Group

	Customer contracts and Relationships £ million	Computer Software £ million	Patents, trademarks and licences £ million	Acquired research and technology £ million	Development expenditure £ million	Total £ million
Cost						
At 1st April 2017	164	154	71	64	176	629
Additions	–	38	–	–	18	56
Disposals	–	(1)	–	–	–	(1)
Disposal of businesses (note 5)	(5)	–	–	(11)	–	(16)
Exchange adjustments	(7)	(3)	(2)	–	(14)	(26)
At 31st March 2018	152	188	69	53	180	642
Additions	–	63	6	–	19	88
Transfer to property, plant and equipment (note 16)	–	(11)	–	–	–	(11)
Disposals	–	(9)	–	–	–	(9)
Disposal of businesses (note 5)	–	–	(13)	(1)	(1)	(15)
Exchange adjustments	–	–	1	–	8	9
At 31st March 2019	152	231	63	52	206	704
Accumulated amortisation and impairment						
At 1st April 2017	106	52	30	35	118	341
Charge for the year	9	5	3	6	9	32
Impairment losses	1	–	3	1	2	7
Disposals	–	(1)	–	–	–	(1)
Disposal of businesses (note 5)	(5)	–	–	(11)	–	(16)
Exchange adjustments	(4)	(2)	(1)	–	(9)	(16)
At 31st March 2018	107	54	35	31	120	347
Charge for the year	6	9	4	4	6	29
Disposals	–	(9)	–	–	–	(9)
Disposal of businesses (note 5)	–	–	(5)	(1)	–	(6)
Exchange adjustments	1	–	1	–	5	7
At 31st March 2019	114	54	35	34	131	368
Carrying amount at 31st March 2019	**38**	**177**	**28**	**18**	**75**	**336**
Carrying amount at 31st March 2018	45	134	34	22	60	295
Carrying amount at 1st April 2017	58	102	41	29	58	288

Parent company

	Computer Software £ million	Patents, trademarks and licences £ million	Acquired research and technology £ million	Development expenditure £ million	Total £ million
Cost					
At 31st March 2018	148	33	11	16	208
Additions	62	6	–	7	75
Transfer to property, plant and equipment (note 16)	(11)	–	–	–	(11)
Disposals	(9)	–	–	–	(9)
Disposal of businesses	–	(13)	(1)	(1)	(15)
At 31st March 2019	190	26	10	22	248
Accumulated amortisation and impairment					
At 31st March 2018	23	6	4	9	42
Charge for the year	6	1	1	6	14
Disposals	(9)	–	–	–	(9)
Disposal of businesses	–	(5)	(1)	–	(6)
At 31st March 2019	20	2	4	15	41
Carrying amount at 31st March 2019	**170**	**24**	**6**	**7**	**207**
Carrying amount at 31st March 2018	125	27	7	7	166

Notes on the accounts continued

for the year ended 31st March 2019

19 Investments in subsidiaries

	Cost of investments in subsidiaries £ million	Accumulated impairment £ million	Carrying amount £ million
At 1st April 2017	2,255	(192)	2,063
Impairment losses	–	(66)	(66)
At 31st March 2018	2,255	(258)	1,997
Additions	12	–	12
Disposals	(97)	–	(97)
At 31st March 2019	**2,170**	**(258)**	**1,912**

Impairment losses in the year ended 31st March 2018 were recognised following changes to the group's structure. The subsidiaries are shown in note 38.

20 Investments in joint venture and associate

	2019 £ million	2018 £ million
Investment in joint venture	**5**	5
Investment in associate	**15**	15
Investments in joint venture and associate	**20**	20

The movements in the year were:

	Joint venture £ million	Associate £ million	Total £ million
At 1st April 2017	6	16	22
Group's share of loss for the year	–	(1)	(1)
Dividends received	(1)	–	(1)
At 31st March 2018 and 31st March 2019	**5**	**15**	**20**

The group has an 11.1% interest in the ordinary share capital of Shanghai Bi Ke Clean Energy Technology Co Ltd (CECC) and has significant influence in this entity as CECC requires unanimous board decisions. As a result, this investment is accounted for as an investment in an associate in the group accounts. In addition, the parent company has a revenue share agreement with CECC which is accounted for as a non-current investment at fair value through other comprehensive income (note 21).

During the year ended 31st March 2019, the group made purchases from its joint venture and associate totalling £1 million (2018: £nil).

21 Non-current investments at fair value through other comprehensive income

	Group		Parent company	
	2019 £ million	2018 £ million	**2019 £ million**	2018 £ million
Quoted bonds purchased to fund pension deficit	**52**	53	**–**	–
Unquoted investments	**–**	3	**7**	7
	52	56	**7**	7

21 Non-current investments at fair value through other comprehensive income (continued)

There is no active market for the unquoted investments and, therefore, they are categorised as level 3 (note 33). The group's unquoted investment was impaired by £3 million during the year as the group expects to realise a nominal amount from its sale. The parent company's investment is the revenue share agreement with CECC (note 20). Movements in the unquoted investments in the year are shown below:

	Group £ million	Parent company £ million
At 1st April 2017	4	7
Impairment losses	(1)	–
At 31st March 2018	3	7
Impairment loss	(3)	–
At 31st March 2019	**–**	**7**

22 Inventories

	Group		Parent company	
	2019 £ million	2018 Restated[1] £ million	**2019 £ million**	2018 Restated[1] £ million
Raw materials and consumables	**277**	232	**42**	31
Work in progress	**750**	400	**311**	103
Finished goods and goods for resale	**289**	292	**77**	75
Inventories	**1,316**	924	**430**	209

The group also holds customers' materials in the process of refining and fabrication and for other reasons.

Working capital days (excluding precious metals)

Definition: Non-precious metal related inventories, trade and other receivables and trade and other payables (including any classified as held for sale) divided by sales for the last three months multiplied by 90 days.

Purpose: A measure of efficiency in the business with lower days driving higher returns and a healthier liquidity position for the group.

	Group	
	2019 £ million	2018 Restated[1] £ million
Inventories	**1,316**	924
Trade and other receivables (note 23)	**1,553**	1,304
Trade and other payables (note 27)	**(1,647)**	(1,228)
Total working capital	**1,222**	1,000
Less: Precious metal working capital	**(590)**	(404)
Working capital (excluding precious metals)	**632**	596
Average working capital days (excluding precious metals)	**59**	62

[1] See note 39.

Notes on the accounts continued

for the year ended 31st March 2019

23 Trade and other receivables

	Group		Parent company	
	2019	2018 Restated[1]	**2019**	2018 Restated[1]
	£ million	£ million	**£ million**	£ million
Current				
Trade receivables	**1,204**	1,049	**206**	165
Contract receivables	**43**	36	**–**	–
Amounts receivable from subsidiaries	**–**	–	**945**	1,049
Prepayments	**109**	85	**33**	19
Value added tax and other sales tax receivable	**33**	34	**5**	11
Advance payments to customers	**5**	1	**–**	–
Amounts receivable under precious metal sale and repurchase agreements	**97**	56	**75**	56
Other receivables	**62**	43	**50**	33
Current trade and other receivables	**1,553**	1,304	**1,314**	1,333
Non-current				
Amounts receivable from subsidiaries	**–**	–	**1,009**	1,113
Prepayments	**18**	21	**–**	–
Advance payments to customers	**21**	17	**1**	–
Non-current trade and other receivables	**39**	38	**1,010**	1,113

[1] See note 39.

Of the parent company's amounts receivable from subsidiaries, £131 million is impaired (2018: £128 million). Future expected credit losses on amounts receivable from subsidiaries are immaterial.

The fair value of the precious metal contracted to be sold by the group under sale and repurchase agreements is £113 million (2018: £60 million).

24 Net debt

Definition: Cash and cash equivalents, borrowings and related swaps.

Purpose: Management of capital and committed borrowing facilities.

	Group		Parent company	
	2019 **£ million**	2018 Restated[1] £ million	**2019** **£ million**	2018 Restated[1] £ million
Cash and cash equivalents				
Cash and deposits	**90**	203	**11**	82
Money market funds	**347**	171	**347**	171
Bank overdrafts	**(59)**	(70)	**(33)**	(46)
Cash and cash equivalents	**378**	304	**325**	207
Net debt				
Non-current borrowings and related swaps	**(1,073)**	(951)	**(1,066)**	(951)
Bank overdrafts	**(59)**	(70)	**(33)**	(46)
Other current borrowings and related swaps	**(184)**	(38)	**(107)**	(4)
Total borrowings	**(1,316)**	(1,059)	**(1,206)**	(1,001)
Cash and deposits	**90**	203	**11**	82
Money market funds	**347**	171	**347**	171
Non-current interest rate swaps	**13**	6	**13**	6
Net debt	**(866)**	(679)	**(835)**	(742)
Bank and other loans				
1.945% €124 million European Investment Bank (EIB) loan 2019	**–**	(109)	**–**	(109)
$50 million KfW IPEX-Bank GmbH (KfW) loan 2020	**(38)**	(36)	**(38)**	(36)
4.66% €100 million Bonds 2021	**(86)**	(87)	**(86)**	(87)
€166 million EIB loan 2022	**(143)**	(145)	**(143)**	(145)
3.26% $150 million Bonds 2022	**(116)**	(106)	**(116)**	(106)
2.99% $165 million Bonds 2023	**(127)**	(117)	**(127)**	(117)
2.44% €20 million Bonds 2023	**(17)**	(17)	**(17)**	(17)
3.57% £65 million Bonds 2024	**(65)**	(65)	**(65)**	(65)
3.565% $50 million KfW loan 2024	**(38)**	(36)	**(38)**	(36)
3.14% $130 million Bonds 2025	**(100)**	(97)	**(100)**	(97)
1.40% €77 million Bonds 2025	**(68)**	–	**(68)**	–
2.54% £45 million Bonds 2025	**(45)**	–	**(45)**	–
3.39% $180 million Bonds 2028	**(138)**	(128)	**(138)**	(128)
1.81% €90 million Bonds 2028	**(80)**	–	**(80)**	–
Other bank and other loans repayable in one to two years	**(7)**	–	**–**	–
Cross currency interest rate swaps designated as net investment hedges	**(5)**	(7)	**–**	–
Cross currency interest rate swaps designated as fair value hedges	**–**	–	**(5)**	(7)
Interest rate swaps designated as fair value hedges	**–**	(1)	**–**	(1)
Non-current borrowings and related swaps	**(1,073)**	(951)	**(1,066)**	(951)
1.945% €124 million EIB loan 2019	**(107)**	–	**(107)**	–
Other bank and other loans	**(77)**	(36)	**–**	(2)
Cross currency interest rate swaps designated as net investment hedges	**–**	(2)	**–**	–
Cross currency interest rate swaps designated as fair value hedges	**–**	–	**–**	(2)
Other current borrowings and related swaps	**(184)**	(38)	**(107)**	(4)
Cross currency interest rate swaps designated as cash flow hedges	**8**	6	**8**	6
Interest rate swaps designated as fair value hedges	**5**	–	**5**	–
Non-current interest rate swaps	**13**	6	**13**	6

1 See note 39.

The 3.26% $150 million Bonds 2022 have been swapped into floating rate US dollars. The 1.40% €77 million Bonds 2025 and the 1.81% €90 million Bonds 2028 have been swapped into floating rate euros. $100 million of the 3.14% $130 million Bonds 2025 have been swapped into sterling at 2.83%.

All borrowings bear interest at fixed rates with the exception of the KfW loan 2020, the EIB loan 2022 and the bank overdrafts, which bear interest at commercial floating rates.

Notes on the accounts continued

for the year ended 31st March 2019

25 Movements in assets and liabilities arising from financing activities

	2018 Restated[1] £ million	Cash (inflow)/ outflow £ million	Non-cash movements: Transfers £ million	Non-cash movements: Foreign exchange movements £ million	Non-cash movements: Fair value and other movements £ million	**2019 £ million**
Non-current assets						
Interest rate swaps	6	–	(1)	–	8	**13**
Non-current liabilities						
Borrowings and related swaps	(951)	(202)	110	(26)	(4)	**(1,073)**
Current liabilities						
Other borrowings and related swaps	(38)	(39)	(109)	–	2	**(184)**
		(241)	**–**	**(26)**	**6**	
Dividends paid to equity shareholders		156				
Interest paid		108				
Net cash outflow from financing activities		**23**				

	2017 Restated[1] £ million	Cash (inflow)/ outflow Restated[1] £ million	Non-cash movements: Transfers £ million	Non-cash movements: Foreign exchange movements[2] £ million	Non-cash movements: Fair value and other movements[2] £ million	2018 Restated[1] £ million
Non-current assets						
Interest rate swaps	17	–	(2)	–	(9)	6
Non-current liabilities						
Borrowings and related swaps	(1,011)	–	4	58	(2)	(951)
Current liabilities						
Other borrowings and related swaps	(20)	(16)	(2)	–	–	(38)
Other financial liabilities[3]	(1)	1	–	–	–	–
		(15)	–	58	(11)	
Dividends paid to equity shareholders		146				
Interest paid		65				
Net cash outflow from financing activities		196				

1 See note 39.
2 2018 re-presented to separately analyse fair value movements in net debt relating to hedging instruments.
3 Foreign exchange swaps designated as hedges of a net investment in foreign operations.

26 Other financial assets and liabilities

	Group **2019 £ million**	Group 2018 £ million	Parent company **2019 £ million**	Parent company 2018 £ million
Other financial assets				
Forward foreign exchange contracts designated as cash flow hedges	**5**	6	**5**	6
Forward precious metal price contracts designated as cash flow hedges	**1**	–	**1**	–
Forward foreign exchange contracts and currency swaps at fair value through profit or loss	**16**	9	**17**	9
Other financial assets	**22**	15	**23**	15
Other financial liabilities				
Forward foreign exchange contracts designated as cash flow hedges	**(3)**	(2)	**(4)**	(4)
Forward precious metal price contracts designated as cash flow hedges	**–**	(3)	**–**	(3)
Forward foreign exchange contracts and currency swaps at fair value through profit or loss	**(10)**	(7)	**(10)**	(7)
Other financial liabilities	**(13)**	(12)	**(14)**	(14)

27 Trade and other payables

	Group 2019 £ million	Group 2018 Restated[1] £ million	Parent company 2019 £ million	Parent company 2018 Restated[1] £ million
Current				
Trade payables	**637**	597	**229**	205
Contract liabilities	**85**	59	**17**	13
Amounts payable to subsidiaries	**–**	–	**1,734**	2,152
Accruals	**332**	269	**112**	97
Amounts payable under precious metal sale and repurchase agreements	**525**	222	**483**	198
Other payables	**68**	81	**21**	28
Current trade and other payables	**1,647**	1,228	**2,596**	2,693
Non-current				
Amounts payable to subsidiaries	**–**	–	**486**	489
Other payables	**5**	5	**3**	3
Non-current other payables	**5**	5	**489**	492

[1] See note 39.

The fair value of the precious metal contracted to be repurchased by the group under sale and repurchase agreements is £502 million (2018: £216 million).

28 Provisions

Group

	Restructuring provisions £ million	Warranty and technology provisions £ million	Other provisions £ million	Total £ million
At 1st April 2018	15	9	27	51
Charge for the year	–	3	2	5
Utilised	(8)	(1)	(14)	(23)
Released	(4)	(1)	(1)	(6)
Exchange adjustments	–	–	2	2
At 31st March 2019	**3**	**10**	**16**	**29**

	2019 £ million	2018 £ million
Current	**20**	37
Non-current	**9**	14
Total provisions	**29**	51

The restructuring provisions are expected to be fully utilised by 31st March 2020.

The warranty and technology provisions represent management's best estimate of the group's liability under warranties granted and remedial work required under technology licences based on past experience in Clean Air, Efficient Natural Resources and New Markets. Warranties generally cover a period of up to three years.

The other provisions include environmental, onerous lease and legal provisions arising across the group. Amounts provided reflect management's best estimate of the expenditure required to settle the obligations at the balance sheet date. They are expected to be fully utilised within the next 15 years.

During the prior year, the group recognised a charge in connection with the resolution of a contract dispute lawsuit related to a component supplied by the group in the US (note 6). At 31st March 2019, there is a provision of £9 million (2018: £18 million) in respect of this settlement agreement which is estimated to be fully utilised by 31st March 2020.

Notes on the accounts continued

for the year ended 31st March 2019

28 Provisions (continued)

Parent company

	Restructuring provisions £ million	Other provisions £ million	Total £ million
At 1st April 2018	4	18	22
Charge for the year	–	7	7
Utilised	(3)	(2)	(5)
At 31st March 2019	**1**	**23**	**24**

	2019 £ million	2018 £ million
Current	**23**	5
Non-current	**1**	17
Total provisions	**24**	22

The restructuring provisions are expected to be fully utilised by 31st March 2020.

The other provisions include onerous contracts and provisions to buy metal to cover positions created by the parent company selling metal belonging to subsidiaries. Amounts provided reflect management's best estimate of the expenditure required to settle the obligations at the balance sheet date.

29 Deferred taxation

Group

	Property, plant and equipment £ million	Post-employment benefits £ million	Provisions £ million	Inventories £ million	Intangibles £ million	Other £ million	Total deferred tax (assets) / liabilities £ million
At 1st April 2017	54	–	(22)	(13)	34	34	87
(Credit) / charge to the income statement	(29)	(3)	(5)	2	(11)	(24)	(70)
Tax on items taken directly to or transferred from equity	–	31	–	–	–	–	31
Exchange adjustments	(4)	2	2	1	(2)	(1)	(2)
At 31st March 2018	21	30	(25)	(10)	21	9	46
Charge / (credit) to the income statement	8	7	1	(8)	(1)	(9)	(2)
Disposal of businesses (note 5)	–	–	–	–	–	1	1
Tax on items taken directly to or transferred from equity	–	(13)	–	–	–	–	(13)
Exchange adjustments	1	(1)	(1)	–	1	1	1
At 31st March 2019	**30**	**23**	**(25)**	**(18)**	**21**	**2**	**33**

	2019 £ million	2018 £ million
Deferred tax assets	**(58)**	(48)
Deferred tax liabilities	**91**	94
	33	46

Deductible temporary differences, unused tax losses and unused tax credits not recognised on the balance sheet total £157 million (2018: £147 million), of which £25 million is expected to expire within 5 years, £12 million within 5 to10 years, £20 million after 10 years and £100 million carry no expiry date.

Deferred tax liabilities have not been recognised on temporary differences of £1,672 million (2018: £1,416 million) associated with investments in subsidiaries.

29 Deferred taxation (continued)

Parent company

	Property, plant and equipment £ million	Post-employment benefits £ million	Provisions £ million	Inventories £ million	Intangibles £ million	Other £ million	Total deferred tax (assets) / liabilities £ million
At 1st April 2017	2	25	(1)	(7)	–	8	27
(Credit) / charge to the income statement	(6)	3	(1)	2	–	1	(1)
Tax on items taken directly to or transferred from equity	–	17	–	–	–	–	17
At 31st March 2018	(4)	45	(2)	(5)	–	9	43
Charge / (credit) to the income statement	5	6	1	(6)	1	(1)	6
Tax on items taken directly to or transferred from equity	–	(11)	–	–	–	1	(10)
At 31st March 2019	**1**	**40**	**(1)**	**(11)**	**1**	**9**	**39**

Deductible temporary differences, unused tax losses and unused tax credits not recognised on the balance sheet are £2 million (2018: £2 million) and have no expiry date.

30 Post-employment benefits

Group

Background

Pension plans

The group operates a number of post-employment retirement and medical benefit plans around the world. The retirement plans in the UK, US and other countries include both defined contribution and defined benefit plans.

For defined contribution plans, retirement benefits are determined by the value of funds arising from contributions paid in respect of each employee and the investment returns on those contributions prior to retirement.

For defined benefit plans, which include final salary, career average and other types of plans with committed pension payments, the retirement benefits are based on factors, such as the employee's pensionable salary and length of service. The majority of the group's final salary and career average defined benefit retirement plans are closed to new entrants, but remain open to ongoing accrual for current members.

Regulatory framework and governance

The UK pension plan, the Johnson Matthey Employees Pension Scheme (JMEPS), is a registered arrangement established under trust law and, as such, is subject to UK pension, tax and trust legislation. It is managed by a corporate trustee, JMEPS Trustees Limited. The trustee board includes representatives appointed by both the parent company and employees, and includes an independent chairman.

Although the parent company bears the financial cost of the plan, the trustee directors are responsible for the overall management and governance of JMEPS, including compliance with all applicable legislation and regulations. The trustee directors are required by law to act in the interests of all relevant beneficiaries and: to set certain policies; to manage the day-to-day administration of the benefits; and to set the plan's investment strategy following consultation with the parent company.

UK pensions are regulated by the Pensions Regulator whose statutory objectives and regulatory powers are described on its website: www.thepensionsregulator.gov.uk

The US pension plans are qualified pension arrangements and are subject to the requirements of the Employee Retirement Income Security Act, the Pension Protection Act 2006 and the Department of Labor and Internal Revenue. The plans are managed by a pension committee which acts as the fiduciary and, as such, is ultimately responsible for: the management of the plans' investments; compliance with all applicable legislation and regulations; and overseeing the general management of the plans.

Other trustee or fiduciary arrangements that have similar responsibilities and obligations are in place for the group's other funded defined benefit pension plans outside of the UK and US.

Notes on the accounts continued

for the year ended 31st March 2019

30 Post-employment benefits (continued)

Group (continued)

Background (continued)

Benefits

The UK defined benefit pension plan is segregated into two sections – a legacy section which provides final salary and career average pension benefits and a cash balance section.

The legacy section provides benefits to members in the form of a set level of pension payable for life based on the member's length of service and final pensionable salary at retirement or averaged over their career with the company. The majority of the benefits attract inflation-related increases both before and after retirement. The final salary element of the legacy section was closed to future accrual of benefits from 1st April 2010 and the career average element of the legacy section was closed to new entrants on 1st October 2012, but remains open to future accrual for existing members.

The cash balance section provides benefits to members at the point of retirement in the form of a cash lump sum. The benefits attract inflation-related increases before retirement but, following the payment of the retirement lump sum benefit, the plan has no obligation to pay any further benefits to the member. All new employees join the cash balance section of the plan.

During the year, employees in the career average element of the legacy section were given the option of switching to the cash balance section, with 57% electing to switch.

The group operates two defined benefit pension plans in the US. The hourly pension plan is for unionised employees and provides a fixed retirement benefit for life based upon years of service. The salaried pension plan provides retirement benefits for life based on the member's length of service and final pensionable salary (averaged over the last five years). The salaried plan benefits attract inflation-related increases before leaving, but are non-increasing thereafter. On retirement, members in either plan have the option to take the cash value of their benefit instead of a lifetime annuity in which case the plan has no obligation to pay any further benefits to the member.

The US salaried pension plan was closed to new entrants on 1st September 2013, but remains open to future accrual for existing members. All new non-unionised US employees now join a defined contribution plan.

Other post-employment benefits

The group's principal post-employment medical plans are in the UK and US, and are unfunded arrangements that have been closed to new entrants for over ten years.

Maturity profile

The estimated weighted average durations of the defined benefit obligations of the main plans as at 31st March 2019 are:

	Weighted average duration Years
Pensions:	
UK	**20**
US	**12**
Post-retirement medical benefits:	
UK	**12**
US	**14**

Funding

Introduction

The group's principal defined benefit retirement plans are funded through separate fiduciary or trustee administered funds that are independent of the sponsoring company. The contributions paid to these arrangements are jointly agreed by the sponsoring company and the relevant trustee or fiduciary body after each funding valuation and in consultation with independent qualified actuaries. The plans' assets, together with the agreed funding contributions, should be sufficient to meet the plans' future pension obligations.

30 Post-employment benefits (continued)

Group (continued)

Funding (continued)

UK valuations

UK legislation requires that pension plans are funded prudently and that, when undertaking a funding valuation (every three years), assets are taken at their market value and liabilities are determined based on a set of prudent assumptions set by the trustee following consultation with their appointed actuary. The assumptions used for funding valuations may, therefore, differ to the actuarial assumptions used for IAS 19, Employee Benefits, accounting purposes.

In January 2013, a special purpose vehicle (SPV), Johnson Matthey (Scotland) Limited Partnership, was set up to provide deficit reduction contributions and greater security to the trustee. The group invested £50 million in a bond portfolio which is beneficially held by the SPV. The income generated by the SPV is used to make annual distributions of £3.5 million to JMEPS for a period of up to 25 years. These annual distributions are only payable if the legacy section of JMEPS continues to be in deficit on a funding basis. This bond portfolio is held as a non-current investment at fair value through other comprehensive income (note 21) and the group's liability to pay the income to the plan is not a plan asset under IAS 19, although it is for actuarial funding valuation purposes. The SPV is exempt from the requirement to prepare audited annual accounts as it is included on a consolidated basis in these accounts.

A funding valuation of JMEPS was carried out as at 1st April 2018 and showed that there was a deficit of £34 million in the legacy section of the plan. To address this deficit, the parent company agreed to make a contribution of £23 million prior to 31st December 2019, of which £6 million was paid during the year ended 31st March 2019. At 31st March 2018, £43 million remained available within the SPV for future distribution which created an overall surplus of £9 million in the legacy section of the plan at that date. The valuation also showed a surplus in the cash balance section of the plan.

In accordance with the governing documentation of JMEPS, any future plan surplus would be returned to the parent company by way of a refund assuming gradual settlement of the liabilities over the lifetime of the plan. As such, there are no adjustments required in respect of IFRIC 14, IAS 19 – The Limit on a Defined Benefit Asset, Minimum Funding Requirements and their Interaction.

US valuations

The last annual review of the US defined benefit pension plans was carried out by a qualified actuary as at 1st July 2018 and showed that there was a deficit of $3 million on the projected funding basis. To address this deficit, the parent company made a contribution of $3 million in November 2018. The assumptions used for funding valuations may differ to the actuarial assumptions used for IAS 19 accounting purposes.

Other valuations

Similar funding valuations are undertaken on the group's other defined benefit pension plans outside of the UK and US in accordance with prevailing local legislation.

Notes on the accounts continued

for the year ended 31st March 2019

30 Post-employment benefits (continued)

Group (continued)

Funding (continued)

Risk management

The group is exposed to a number of risks relating to its post-retirement pension plans, the most significant of which are:

Risk	Mitigation
Market (investment) risk	
Asset returns may not move in line with the liabilities and may be subject to volatility.	The group's various plans have highly diversified investment portfolios, investing in a wide range of assets that provide reasonable assurance that no single security or type of security could have a material adverse impact on the plan. A de-risking strategy is in place to reduce volatility in the plans as a result of the mismatch between the assets and liabilities. As the funding level of the plans improve and hit pre-agreed triggers, plan investments are switched from return-seeking assets to liability-matching assets. The plans implement partial currency hedging on their overseas assets to mitigate currency risk.
Interest (discount) rate risk	
Liabilities are sensitive to movements in bond yields (interest rates), with lower interest rates leading to an increase in the valuation of liabilities, albeit the impact on the plan's funding level will be partially offset by an increase in the value of its bond holdings.	The group's defined benefit plans hold a high proportion of their assets in government or corporate bonds, which provide a natural hedge against falling interest rates. In the UK, this interest rate hedge is extended by the use of interest rate swaps, such that approximately 70% of the plan's interest rate risk is currently hedged. The swaps are held with several banks to reduce counterparty risk.
Inflation risk	
Liabilities are sensitive to movements in inflation, with higher inflation leading to an increase in the valuation of liabilities.	Where plan benefits provide inflation-related increases, the plan holds some inflation-linked assets which provide a natural hedge against higher than expected inflation increases. In the UK, this inflation hedge is extended by the use of inflation swaps, such that approximately 70% of the plan's inflation risk is currently hedged. The swaps are held with several banks to reduce counterparty risk.
Longevity risk	
The majority of the group's defined benefit plans provide benefits for the life of the member, so the liabilities are sensitive to life expectancy, with increases in life expectancy leading to an increase in the valuation of liabilities.	The group has closed most of its defined benefit pension plans to new entrants, replacing them with either a cash balance plan or defined contribution plans, both of which are unaffected by life expectancy. During the year ended 31st March 2019, 57% of the members of the career average element of the legacy section of JMEPS elected to switch to the cash balance section as part of a pension plan review. For the plans where a benefit for life continues to be payable, prudent mortality assumptions are used that appropriately allow for a future improvement in life expectancy. These assumptions are reviewed on a regular basis.

Contributions

During the year, total contributions to the group's post-employment defined benefit plans were £75 million (2018: £69 million), including deficit contributions of £23 million (2018: £23 million) in respect of JMEPS.

It is estimated that the group will contribute approximately £67 million to the post-employment defined benefit plans during the year ending 31st March 2020.

IAS 19 accounting

Principal actuarial assumptions

Qualified independent actuaries have updated the IAS 19 valuations of the group's major defined benefit plans to 31st March 2019. The assumptions used are chosen from a range of possible actuarial assumptions which, due to the long-term nature of the plans, may not necessarily be borne out in practice.

30 Post-employment benefits (continued)

Group (continued)

IAS 19 accounting (continued)

Principal actuarial assumptions (continued)

Financial assumptions

	2019 UK plan %	2019 US plans %	2019 Other plans %	2018 UK plan %	2018 US plans %	2018 Other plans %
First year's rate of increase in salaries	**3.85**	**3.00**	**2.45**	3.75	3.00	2.50
Ultimate rate of increase in salaries	**3.85**	**3.00**	**2.45**	3.75	3.00	2.50
Rate of increase in pensions in payment	**2.95**	**–**	**1.50**	2.85	–	1.50
Discount rate	**2.40**	**3.80**	**1.82**	2.70	4.00	2.33
Inflation		**2.20**	**1.60**		2.20	1.60
– UK Retail Prices Index (RPI)	**3.10**			3.00		
– UK Consumer Prices Index (CPI)	**2.10**			2.00		
Current medical benefits cost trend rate	**5.40**	**2.95**	**–**	5.40	2.95	–
Ultimate medical benefits cost trend rate	**5.40**	**2.95**	**–**	5.40	2.95	–

Demographic assumptions

The mortality assumptions are based on country-specific mortality tables and, where appropriate, include an allowance for future improvements in life expectancy. In addition, where credible data exists, actual plan experience is taken into account. The group's most substantial pension liabilities are in the UK and the US where, using the mortality tables adopted, the expected lifetime of average members currently at age 65 and average members at age 65 in 25 years' time (i.e. members who are currently aged 40 years) is respectively:

	Currently age 65		**Age 65 in 25 years**	
	UK plan	**US plans**	**UK plan**	**US plans**
Male	**87**	**86**	**89**	**88**
Female	**89**	**88**	**91**	**90**

Financial information

Plan assets

Movements in the fair value of plan assets during the year were:

	UK pension – legacy section £ million	UK pension – cash balance section £ million	UK post-retirement medical benefits £ million	US pensions £ million	US post-retirement medical benefits £ million	Other £ million	Total £ million
At 1st April 2017	1,916	32	–	292	–	47	2,287
Administrative expenses	–	–	–	(1)	–	–	(1)
Interest income	50	1	–	11	–	1	63
Return on plan assets excluding interest	(11)	–	–	8	–	(2)	(5)
Employee contributions	2	1	–	1	1	–	5
Company contributions	44	12	–	10	1	2	69
Benefits paid	(66)	(2)	–	(15)	(2)	(2)	(87)
Exchange adjustments	–	–	–	(34)	–	1	(33)
At 31st March 2018	1,935	44	–	272	–	47	2,298
Administrative expenses	(3)	–	–	(1)	–	–	(4)
Interest income	53	1	–	11	–	1	66
Return on plan assets excluding interest	68	3	–	7	–	4	82
Employee contributions	2	5	–	1	1	–	9
Company contributions	36	18	–	16	2	3	75
Benefits paid	(66)	(3)	–	(16)	(3)	(2)	(90)
Exchange adjustments	–	–	–	21	–	(1)	20
At 31st March 2019	**2,025**	**68**	**–**	**311**	**–**	**52**	**2,456**

Notes on the accounts continued

for the year ended 31st March 2019

30 Post-employment benefits (continued)

Group (continued)

Financial information (continued)

Plan assets (continued)

The fair values of plan assets are analysed as follows:

	2019 UK pension – legacy section £ million	**2019 UK pension – cash balance section £ million**	**2019 US pensions £ million**	**2019 Other £ million**	2018 UK pension – legacy section £ million	2018 UK pension – cash balance section £ million	2018 US pensions £ million	2018 Other £ million
Quoted corporate bonds	**1,089**	**67**	**156**	**5**	1,050	43	137	5
Inflation and interest rate swaps	**86**	**–**	**–**	**–**	63	–	–	–
Quoted government bonds	**20**	**–**	**110**	**–**	22	–	87	–
Cash and cash equivalents	**43**	**1**	**12**	**–**	59	1	–	–
Quoted equity	**680**	**–**	**33**	**2**	630	–	48	2
Unquoted equity	**42**	**–**	**–**	**–**	47	–	–	–
Property	**65**	**–**	**–**	**–**	64	–	–	–
Insurance policies	**–**	**–**	**–**	**45**	–	–	–	40
	2,025	**68**	**311**	**52**	1,935	44	272	47

The UK plan's unquoted equities are assets within a pooled infrastructure fund where the underlying assets are a broad range of private infrastructure investments, diversified by geographic region, infrastructure sector, underlying asset type and development stage. These infrastructure assets are valued using widely recognised valuation techniques which use market data and discounted cash flows. The same valuation approach is used to determine the value of the swaps and insurance policies. The UK plan's property is a unitised fund where the underlying assets are taken at market value. The valuation of the fund is periodically independently audited.

The defined benefit pension plans do not invest directly in Johnson Matthey Plc shares and no property or other assets owned by the pension plans are used by the group.

Defined benefit obligation

Movements in the defined benefit obligation during the year were:

	UK pension – legacy section £ million	UK pension – cash balance section £ million	UK post-retirement medical benefits £ million	US pensions £ million	US post-retirement medical benefits £ million	Other £ million	Total £ million
At 1st April 2017	(1,808)	(33)	(10)	(312)	(42)	(82)	(2,287)
Current service cost	(28)	(13)	–	(8)	(1)	(3)	(53)
Past service credit	4	–	–	–	–	1	5
Interest cost	(47)	(1)	–	(12)	(2)	(2)	(64)
Employee contributions	(2)	(1)	–	(1)	(1)	–	(5)
Remeasurements due to changes in:							
Financial assumptions	91	2	–	(7)	4	3	93
Demographic assumptions	14	1	1	(2)	1	–	15
Benefits paid	66	2	–	15	2	2	87
Exchange adjustments	–	–	–	35	5	(1)	39
At 31st March 2018	(1,710)	(43)	(9)	(292)	(34)	(82)	(2,170)
Current service cost	(12)	(17)	–	(8)	–	(3)	(40)
Past service credit	7	–	–	2	–	–	9
Interest cost	(46)	(2)	–	(12)	(1)	(2)	(63)
Employee contributions	(2)	(5)	–	(1)	(1)	–	(9)
Remeasurements due to changes in:							
Financial assumptions	(132)	(6)	–	(5)	(1)	(9)	(153)
Demographic assumptions	3	1	–	(3)	1	1	3
Benefits paid	66	3	–	16	3	2	90
Exchange adjustments	–	–	–	(23)	(4)	2	(25)
At 31st March 2019	**(1,826)**	**(69)**	**(9)**	**(326)**	**(37)**	**(91)**	**(2,358)**

30 Post-employment benefits (continued)

Group (continued)

Financial information (continued)

Defined benefit obligation (continued)

The past service credit in the legacy section of the UK pension plan during the year ended 31st March 2019 includes a credit of £8 million as a result of the breaking of the salary linkage on the accrued pensions of employees who elected to switch from the career average section to the cash balance section with effect from 1st July 2018. It also includes a charge of £1 million in respect of a High Court ruling that UK defined benefit pension plans should be amended to equalise pension benefits for men and women in relation to guaranteed minimum pensions. The additional liabilities have been treated as a plan amendment and, therefore, this past service cost has been reflected in the income statement.

The remeasurement loss due to changes in financial assumptions in the legacy section of the UK pension plan during the year ended 31st March 2019 mainly reflects a 40 basis-point decrease in the real (after inflation) discount rate caused by falling corporate bond yields and rising market-implied inflation.

Reimbursement rights

A government subsidy is receivable under the US Medicare legislation as the US post-retirement medical benefits plan is actuarially equivalent to the Medicare Prescription Drug Act and there is an insurance policy taken out to reinsure the pension commitments of one of the small pension plans which does not meet the definition of a qualifying insurance policy. These are accounted for as reimbursement rights and are shown on the balance sheet in post-employment benefit net assets.

Movements in the reimbursement rights during the year were:

	UK pension – legacy section £ million	UK pension – cash balance section £ million	UK post-retirement medical benefits £ million	US pensions £ million	US post-retirement medical benefits £ million	Other £ million	Total £ million
At 1st April 2017 and 1st April 2018	–	–	–	–	8	1	9
Return on assets excluding interest	–	–	–	–	(1)	–	(1)
Exchange adjustments	–	–	–	–	1	–	1
At 31st March 2019	**–**	**–**	**–**	**–**	**8**	**1**	**9**

Net post-employment benefit asset and liabilities

The net post-employment benefit assets and liabilities are:

	UK pension – legacy section £ million	UK pension – cash balance section £ million	UK post-retirement medical benefits £ million	US pensions £ million	US post-retirement medical benefits £ million	Other £ million	Total £ million
At 31st March 2019							
Defined benefit obligation	**(1,826)**	**(69)**	**(9)**	**(326)**	**(37)**	**(91)**	**(2,358)**
Fair value of plan assets	**2,025**	**68**	**–**	**311**	**–**	**52**	**2,456**
Reimbursement rights	**–**	**–**	**–**	**–**	**8**	**1**	**9**
Net post-employment benefit assets and liabilities	**199**	**(1)**	**(9)**	**(15)**	**(29)**	**(38)**	**107**
At 31st March 2018							
Defined benefit obligation	(1,710)	(43)	(9)	(292)	(34)	(82)	(2,170)
Fair value of plan assets	1,935	44	–	272	–	47	2,298
Reimbursement rights	–	–	–	–	8	1	9
Net post-employment benefit assets and liabilities	225	1	(9)	(20)	(26)	(34)	137

Accounts

Notes on the accounts continued

for the year ended 31st March 2019

30 Post-employment benefits (continued)

Group (continued)

Financial information (continued)

Net post-employment benefit asset and liabilities (continued)

These are included in the balance sheet as follows:

	2019 Post-employment benefit net assets £ million	2019 Employee benefit net obligation £ million	2019 Total £ million	2018 Post-employment benefit net assets £ million	2018 Employee benefit net obligation £ million	2018 Total £ million
UK pension – legacy section	**199**	**–**	**199**	225	–	225
UK pension – cash balance section	**–**	**(1)**	**(1)**	1	–	1
UK post-retirement medical benefits	**–**	**(9)**	**(9)**	–	(9)	(9)
US pensions	**–**	**(15)**	**(15)**	–	(20)	(20)
US post-retirement medical benefits	**8**	**(37)**	**(29)**	8	(34)	(26)
Other	**2**	**(40)**	**(38)**	2	(36)	(34)
Total post-employment plans	**209**	**(102)**	**107**	236	(99)	137
Other long-term employee benefits		**(4)**			(4)	
Total long-term employee benefit obligations		**(106)**			(103)	

Income statement

Amounts recognised in the income statement for long-term employment benefits were:

	2019 £ million	2018 £ million
Administrative expenses	**(4)**	(1)
Current service cost	**(40)**	(53)
Past service credit	**9**	5
Defined benefit post-employment costs charged to operating profit	**(35)**	(49)
Defined contribution plans' expense	**(21)**	(19)
Other long-term employee benefits	**–**	(1)
Charge to operating profit	**(56)**	(69)
Interest on post-employment benefits charged to finance costs	**3**	(1)
Charge to profit before tax	**(53)**	(70)

Sensitivity analysis

The calculations of the defined benefit obligations are sensitive to the assumptions used. The following summarises the estimated impact on the group's main plans of a change in the assumption while holding all other assumptions constant. This sensitivity analysis may not be representative of the actual change as it is unlikely that the change in assumptions would occur in isolation of one another.

Financial assumptions

A 0.1% change in the discount rate and inflation assumptions would (increase) / decrease the UK and US pension plans' defined benefit obligations at 31st March 2019 as follows:

	0.1% increase		0.1% decrease	
	UK plan £ million	US plans £ million	UK plan £ million	US plans £ million
Effect of discount rate	**37**	**4**	**(38)**	**(4)**
Effect of inflation	**(34)**	**–**	**20**	**–**

Demographic assumptions

A one-year increase in life expectancy would increase the UK and US pension plans' defined benefit obligation by £63 million and £6 million, respectively.

30 Post-employment benefits (continued)

Parent company

The parent company is the sponsoring employer of the group's UK defined benefit pension plan and the UK post-retirement medical benefits plan. There is no contractual agreement or stated policy for charging the net defined benefit cost for the plans to the individual group entities. The parent company recognises the net defined benefit cost for these plans and information is disclosed above.

31 Share capital and other reserves

Share capital

	Number	£ million
Issued and fully paid ordinary shares		
At 1st April 2017, 31st March 2018 and 31st March 2019	**198,940,606**	**221**

Details of outstanding allocations under the company's long term incentive plans and awards under the deferred bonus which have yet to mature are disclosed in note 34.

At the last annual general meeting on 26th July 2018, shareholders approved a resolution for the company to make purchases of its own shares up to a maximum number of 19,353,343 ordinary shares of 110 $^{49}/_{53}$ pence each. The resolution remains valid until the conclusion of this year's annual general meeting. The company will purchase its own shares when the board believes it to be in the best interests of the shareholders generally and will result in an increase in earnings per share.

The group and parent company's employee share ownership trust (ESOT) also buys shares on the open market and holds them in trust for employees participating in the group's executive long term incentive plans. At 31st March 2019, the ESOT held 1,439,984 shares (2018: 1,560,224 shares) which had not yet vested unconditionally to employees. Computershare Trustees (CI) Limited, as trustee for the ESOT, has waived its dividend entitlement.

The total number of treasury shares held was 5,407,176 (2018: 5,407,176) at a total cost of £92 million (2018: £92 million).

Dividends

	2019 £ million	2018 £ million
2016/17 final ordinary dividend paid – 54.5 pence per share	**–**	104
2017/18 interim ordinary dividend paid – 21.75 pence per share	**–**	42
2017/18 final ordinary dividend paid – 58.25 pence per share	**112**	–
2018/19 interim ordinary dividend paid – 23.25 pence per share	**44**	–
Total dividends	**156**	146

A final dividend of 62.25 pence per ordinary share has been proposed by the board which will be paid on 6th August 2019 to shareholders on the register at the close of business on 7th June 2019, subject to shareholders' approval. The estimated amount to be paid is £120 million and has not been recognised in these accounts.

Other reserves

Capital redemption reserve: The capital redemption reserve represents the cumulative nominal value of the company's ordinary shares repurchased and subsequently cancelled.

Foreign currency translation reserve: The foreign currency translation reserve comprises all foreign currency differences arising from the translation of the financial statements of foreign operations.

Fair value through other comprehensive income reserve: The fair value through other comprehensive income reserve represents the equity movements on financial assets held within this category.

Hedging reserve: The hedging reserve comprises the effective portion of the cumulative net change in the fair value of cash flow hedging instruments. All amounts recorded in reserves at year end in relation to cash flow and net investment hedges relate to continuing hedge relationships.

Notes on the accounts continued

for the year ended 31st March 2019

31 Share capital and other reserves (continued)

Other reserves (continued)

Group

	Capital redemption reserve £ million	Foreign currency translation reserve £ million	Fair value through other comprehensive income reserve £ million	Hedging reserve[1] Forward currency contracts £ million	Hedging reserve[1] Cross currency contracts £ million	Hedging reserve[1] Forward metal contracts £ million	Total other reserves £ million
At 1st April 2017	7	144	7	(4)	(6)	(1)	147
Cash flow hedges – gains / (losses) taken to equity	–	–	–	5	(10)	(3)	(8)
Cash flow hedges – transferred to revenue (income statement)	–	–	–	3	–	–	3
Cash flow hedges – transferred to foreign exchange (income statement)	–	–	–	–	10	–	10
Cash flow hedges – transferred to inventory (balance sheet)	–	–	–	(2)	–	2	–
Fair value gains on net investment hedges taken to equity	–	6	–	–	–	–	6
Exchange differences on translation of foreign operations taken to equity	–	(95)	–	–	–	–	(95)
Tax on above items taken directly to or transferred from equity	–	1	–	(1)	–	–	–
At 31st March 2018	7	56	7	1	(6)	(2)	63
Impact of adoption of IFRS 9 (note 39)	–	–	(1)	–	–	–	(1)
At 31st March 2018 (restated)	7	56	6	1	(6)	(2)	62
Cash flow hedges – (losses) / gains taken to equity	–	–	–	(4)	7	1	4
Cash flow hedges – transferred to revenue (income statement)	–	–	–	1	–	–	1
Cash flow hedges – transferred to foreign exchange (income statement)	–	–	–	–	(5)	–	(5)
Cash flow hedges – transferred to inventory (balance sheet)	–	–	–	1	–	3	4
Fair value losses on net investment hedges taken to equity	–	(1)	–	–	–	–	(1)
Fair value losses on investments at fair value through other comprehensive income	–	–	(4)	–	–	–	(4)
Exchange differences on translation of foreign operations taken to equity	–	22	–	–	–	–	22
Tax on above items taken directly to or transferred from equity	–	1	–	–	–	(1)	–
Reclassification	–	4	–	–	–	–	4
At 31st March 2019	**7**	**82**	**2**	**(1)**	**(4)**	**1**	**87**

[1] 2018 re-presented to separately analyse the individual components of the hedging reserve.

31 Share capital and other reserves (continued)

Other reserves (continued)

Parent company

				Hedging reserve[1]			
	Capital redemption reserve £ million	Foreign currency translation reserve £ million	Fair value through other comprehensive income reserve £ million	Forward currency contracts £ million	Cross currency contracts £ million	Forward metal contracts £ million	Total other reserves £ million
At 1st April 2017	7	(1)	3	(3)	(6)	(1)	(1)
Cash flow hedges – gains / (losses) taken to equity	–	–	–	3	(10)	(3)	(10)
Cash flow hedges – transferred to revenue (income statement)	–	–	–	3	–	–	3
Cash flow hedges – transferred to foreign exchange (income statement)	–	–	–	–	10	–	10
Cash flow hedges – transferred to inventory (balance sheet)	–	–	–	(1)	–	2	1
Exchange differences on translation of foreign operations taken to equity	–	(3)	–	–	–	–	(3)
At 31st March 2018	7	(4)	3	2	(6)	(2)	–
Cash flow hedges – (losses) / gains taken to equity	–	–	–	(2)	7	1	6
Cash flow hedges – transferred to revenue (income statement)	–	–	–	1	–	–	1
Cash flow hedges – transferred to foreign exchange (income statement)	–	–	–	–	(5)	–	(5)
Cash flow hedges – transferred to inventory (balance sheet)	–	–	–	–	–	3	3
Tax on items taken directly to or transferred from equity	–	–	–	–	–	(1)	(1)
Reclassification	–	4	–	–	–	–	4
At 31st March 2019	**7**	**–**	**3**	**1**	**(4)**	**1**	**8**

[1] 2018 re-presented to separately analyse the individual components of the hedging reserve.

Capital

The group's policy for managing capital is to maintain an efficient balance sheet to ensure that the group always has sufficient resources to be able to invest in future growth.

Return on invested capital (ROIC)

Definition: Underlying operating profit divided by average equity, excluding post tax pension net assets, plus net debt for the same period.

Purpose: The group has a long-term target of a return on invested capital of 20% to ensure focus on efficient use of the group's capital.

	2019 £ million	2018 £ million
Underlying operating profit (note 4)	**566**	525
Average net debt	**1,128**	923
Average equity	**2,541**	2,276
Average capital employed	**3,669**	3,199
Less: Average pension net assets	**(251)**	(125)
Less: Average related deferred taxation	**41**	14
Average capital employed (excluding post tax pension net assets)	**3,459**	3,088
ROIC (excluding post tax pension net assets)	**16.4%**	17.0%
ROIC	**15.4%**	16.4%

31 Share capital and other reserves (continued)

Net debt (including post tax pension deficits) to underlying EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation)

Definition: Net debt, including post tax pension deficits and quoted bonds purchased to fund the UK pension (excluded when the UK pension plan is in surplus), divided by underlying EBITDA for the same period.

Purpose: The group has a long-term target of net debt (including post tax pension deficits) to underlying EBITDA of between 1.5 and 2.0 times, although in any given year it may fall outside this range depending on future plans.

Net debt (including post tax pension deficits) is reduced for the quoted bonds purchased to fund the UK pension deficit. Since the UK pension plan is in surplus, the pension deficits do not include the UK plan and, therefore, an amendment has been made to the definition of net debt (including post tax pension deficits) to reduce it for these bonds (net of the related deferred tax) only when the UK pension plan is in deficit.

	2019 £ million	2018 £ million
Net debt	(866)	(679)
Add: Pension deficits	(56)	(56)
Add: Related deferred tax	10	10
Net debt (including post tax pension deficits)	**(912)**	(725)
Operating profit	531	359
Add back:		
Depreciation and amortisation	171	175
Loss on disposal of businesses (note 5)	12	7
Loss on significant legal proceedings (note 6)	17	50
Major impairment and restructuring charges (note 8)	(8)	90
Underlying EBITDA	**723**	681
Net debt (including post tax pension deficits) to underlying EBITDA	**1.3**	1.1

32 Financial risk management

The group's activities expose it to a variety of financial risks, including credit risk, market risk and liquidity risk. Market risk includes foreign currency risk, interest rate risk and price risk. The financial risks are managed by the group under policies approved by the board. The group uses derivative financial instruments, including forward currency contracts, interest rate swaps and currency swaps, to manage the financial risks associated with its underlying business activities and the financing of those activities. Some derivative financial instruments used to manage financial risk are not designated as hedges and, therefore, are classified as at fair value through profit or loss. The group does not undertake any speculative trading activity in financial instruments.

Credit risk

Within certain businesses, the group derives a significant proportion of its revenue from sales to major customers. Sales to individual customers are large if the value of precious metals is included in the price. The failure of any such company to honour its debts could materially impact the group's results. The group derives significant benefit from trading with its customers and manages the risk at many levels. Each sector has a credit committee that regularly monitors its exposure. The Audit Committee receives a report every six months that details all significant credit limits, amounts due and overdue within the group, and the relevant actions being taken. At 31st March 2019, trade receivables for the group amounted to £1,204 million (2018: £1,049 million), of which £928 million (2018: £799 million) are in Clean Air which mainly supplies car and truck manufacturers and component suppliers in the automotive industry. Although Clean Air has a wide range of customers, the concentrated nature of this industry means that amounts owed by individual customers can be large. Other parts of the group tend to sell to a larger number of customers and amounts owed tend to be lower. At 31st March 2019, no single outstanding balance exceeded 2% (2018: 2%) of revenue.

The credit profiles of the group's customers are obtained from credit rating agencies where possible and are closely monitored. The scope of these reviews includes amounts overdue and credit limits. The group's exposure to credit risk is influenced mainly by the individual characteristics of each customer. However, risk associated with the industry and country in which customers operate may also influence the credit risk. The credit quality of customers is assessed by taking into account financial position, past experience and other relevant factors. Generally, payments are made promptly in the automotive industry and in the other markets in which the group operates.

From 1st April 2018, the group has applied the simplified approach to measuring expected credit losses under IFRS 9, Financial Instruments, which requires lifetime expected credit losses to be recognised from initial recognition for trade and contract receivables. Lifetime expected credit losses for trade and contract receivables are calculated based on historical loss rates and the group reviews a broad range of forward-looking information to provide assurance that its historical loss information remains appropriate. Trade receivables are specifically impaired when the amount is in dispute, customers are in financial difficulty or for other reasons which imply there is doubt over the recoverability of the debt. They are written off when there is no reasonable expectation of recovery, based on an estimate of the financial position of the counterparty.

32 Financial risk management (continued)

Credit risk (continued)

Movements in the allowance for credit losses are as follows:

	2019 £ million	2018 £ million
At 1st April	**9**	6
Charge for the year	**9**	5
Utilised	**(2)**	–
Released	**(1)**	(2)
At 31st March	**15**	9

For contract receivables, the allowance for expected credit losses is immaterial as the probability of default is insignificant.

Trade receivables can be analysed as:

	2019 £ million	2018 £ million
Amounts not past due	**1,094**	966
Amounts past due:		
less than 30 days	**80**	62
30 – 90 days	**23**	19
more than 90 days	**10**	2
Total past due	**113**	83
Lifetime expected credit losses	**(3)**	–
Amounts specifically impaired	**12**	9
Specific allowances for bad and doubtful debts	**(12)**	(9)
Carrying amount of impaired receivables	**–**	–
Trade receivables net of allowances	**1,204**	1,049

The group's financial assets included in other receivables are all current and not impaired.

The credit risk on cash and deposits and derivative financial instruments is limited because the counterparties with significant balances are banks with strong credit ratings. The exposure to individual banks is monitored frequently against internally-defined limits, together with each bank's credit rating and credit default swap prices. At 31st March 2019, the maximum net exposure with a single bank for cash and deposits was £30 million (2018: £67 million), whilst the largest mark to market exposure for derivative financial instruments to a single bank was £7 million (2018: £3 million). The group also uses money market funds to invest surplus cash thereby further diversifying credit risk and, at 31st March 2019, the group's exposure to these funds was £347 million (2018: £171 million). The amounts on deposit at the year end represent the group's maximum exposure to credit risk on cash and deposits. Expected credit losses on cash and cash equivalents are immaterial.

Foreign currency risk

The group operates globally with a significant amount of its profit earned outside the UK. The main impact of movements in exchange rates on the group's results arises on translation of overseas subsidiaries' profits into sterling. The largest exposure is to the US dollar and a 5% (6.6 cent (2018: 6.6 cent)) movement in the average exchange rate for the US dollar against sterling would have had a £13 million (2018: £11 million) impact on underlying operating profit. The group is also exposed to the euro and a 5% (5.7 cent (2018: 5.7 cent)) movement in the average exchange rate for the euro against sterling would have had a £12 million (2018: £10 million) impact on underlying operating profit. This exposure is part of the group's economic risk of operating globally which is essential to remain competitive in the markets in which it operates.

The group matches foreign currency assets and liabilities (where these differ to the functional currency of the relevant subsidiary) to avoid the risk of a material impact on the income statement resulting from movements in exchange rates. The group does, however, have foreign exchange exposure on movements through equity related to cash flow and net investment hedges. A 10% depreciation or appreciation in the US dollar and euro exchange rates against sterling would increase / (decrease) other reserves as follows:

	10% depreciation		10% appreciation	
	2019 £ million	2018 £ million	2019 £ million	2018 £ million
Cash flow hedges	**6**	8	**(7)**	(9)
Net investment hedges	**20**	21	**(25)**	(25)

For the net investment hedges, these movements would be offset in other reserves by an equal and opposite movement on the retranslation of the net assets of the overseas subsidiaries.

Notes on the accounts continued

for the year ended 31st March 2019

32 Financial risk management (continued)

Foreign currency risk (continued)

Investments in foreign operations

To protect the group's sterling balance sheet and reduce cash flow risk, the group has financed most of its investment in the US and Europe by borrowing US dollars and euros, respectively. Although much of this funding is obtained by directly borrowing the relevant currency, a part is achieved through currency swaps which can be more efficient and reduce costs.

The group has designated US dollar and euro loans and a cross currency swap as hedges of net investments in foreign operations as they hedge changes in the value of the subsidiaries' net assets against movements in exchange rates. The change in the value of the net investment hedges from movements in foreign currency exchange rates is recognised in equity and is offset by an equal and opposite movement in the carrying value of the net assets of the subsidiaries. All critical terms of the hedging instruments and hedged items matched during the year and, therefore, hedge ineffectiveness was immaterial. The hedge ratio is 1:1.

	US dollar and euro loans[1] £ million	Cross currency swap[2] £ million	**Total £ million**
Carrying value of hedging instruments at 31st March 2019	(158)	(5)	**(163)**
Change in carrying value of hedging instruments recognised in equity during the year	(3)	2	**(1)**
Change in fair value of hedged items during the year used to determine hedge effectiveness	3	(2)	**1**

1 The designated hedging instruments are the 4.66% €100 million Bonds 2021, $75 million of the 3.26% $150 million Bonds 2022 and €17 million of the 2.44% €20 million Bonds 2023.

2 The designated hedging instrument is a cross currency swap expiring in 2025 whereby the group pays 2.609% fixed on €77 million and receives 2.83% fixed on £65 million.

Forecast receipts and payments in foreign currencies

The group uses forward foreign exchange contracts to hedge foreign exchange exposures arising on forecast receipts and payments in foreign currencies. These are designated and accounted for as cash flow hedges. The group's policy is to hedge between 50% and 80% of forecast receipts and payments in foreign currencies.

For hedges of forecast receipts and payments in foreign currencies, the critical terms of the hedging instruments match exactly with the terms of the hedged items and, therefore, the group performs a qualitative assessment of effectiveness. Ineffectiveness may arise if the timing of the forecast transaction changes from what was originally estimated or if there are changes in the credit risk of the group or the derivative counterparty. Hedge ineffectiveness was immaterial during the year. The hedge ratio is 1:1.

	Sterling / US dollar £ million	Sterling / euro £ million	Other £ million	**Total £ million**
Carrying value of hedging instruments at 31st March 2019 – assets	1	2	2	**5**
– liabilities	(1)	(1)	(1)	**(3)**
Change in carrying value of hedging instruments recognised in equity during the year	(3)	1	(2)	**(4)**
Change in fair value of hedged items during the year used to determine hedge effectiveness	3	(1)	2	**4**
Notional amount[1]	34	106		

1 The notional amount is the sterling equivalent of the net currency amount purchased or sold.

The weighted average exchange rates on sterling / US dollar and sterling / euro forward foreign exchange contracts are 1.33 and 1.14, respectively. The hedged, highly probable forecast transactions denominated in foreign currencies are expected to occur over the next 12 months.

Foreign currency borrowings

The group has designated a US dollar fixed interest rate to sterling fixed interest rate cross currency swap as a cash flow hedge. This swap hedges the movement in the cash flows on $100 million of the 3.14% $130 million bonds 2025 attributable to changes in the US dollar / sterling exchange rate. The currency swap has similar critical terms as the hedged item, such as reference rate, reset dates, payment dates, maturity and notional amount. As all critical terms matched during the year, hedge ineffectiveness was immaterial. The hedge ratio is 1:1. The interest element of the swap is recognised in the income statement each year.

	Cross currency swap £ million
Carrying value of hedging instruments at 31st March 2019[1]	**8**
Change in carrying value of hedging instruments recognised in equity during the year	**7**
Change in fair value of hedged items during the year used to determine hedge effectiveness	**(7)**

1 The designated hedging instrument is a cross currency swap expiring in 2025 whereby the group pays 2.83% fixed on £65 million and receives 3.14% fixed on $100 million.

32 Financial risk management (continued)

Interest rate risk

The group's interest rate risk arises from fixed rate borrowings (fair value risk) and floating rate borrowings (cash flow risk). Its policy is to optimise interest cost and reduce volatility in reported earnings and equity. The group manages its risk by reviewing the profile of debt regularly and by selectively using interest rate swaps to maintain borrowings at competitive rates. At 31st March 2019, 94% (2018: 99%) of the group's net debt was at fixed rates with an average interest rate of 3.1% (2018: 3.1%). The remaining debt is floating rate. Based on the group's net debt at floating rates, after taking into account the effect of the swaps, a 1% change in all interest rates during the current or prior years would have had an immaterial impact on the group's profit before tax.

The group has designated four (2018: one) fixed rate to floating interest rate swaps as fair value hedges as they hedge the changes in fair value of bonds attributable to changes in interest rates. All hedging instruments have maturities in line with the repayment dates of the hedged bonds and the cash flows of the instruments are consistent. All critical terms of the hedging instruments and hedged items matched during the year and, therefore, hedge ineffectiveness was immaterial. The hedge ratio is 1:1.

	£ million
Carrying value of hedging instruments at 31st March 2019[1]	5
Amortised cost	(259)
Fair value adjustment	(5)
Carrying value of hedged items at 31st March 2019[1]	(264)
Change in carrying value of hedging instruments recognised in profit or loss during the year	6
Change in fair value of hedged items during the year used to determine hedge effectiveness	(6)

[1] The hedged items are the 3.26% $150 million Bonds 2022, 1.40% €77 million Bonds 2025 and 1.81% €90 million Bonds 2028. Interest rate swaps have been contracted with aligned notional amounts and maturities to the bonds with the effect that the group pays an average floating rate of six-month Libor plus 0.64% on the US dollar bonds and six-month Euribor plus 0.94% on the euro bonds.

Price risk

The group enters into forward precious metal price contracts for the receipt or delivery of precious metal. The group has policies in place to ensure that sales and purchases are matched and, therefore, that it is not exposed to price risk in respect of these contracts.

Liquidity risk

The group's policy on funding capacity is to ensure that it always has sufficient long-term funding and committed bank facilities in place to meet foreseeable peak borrowing requirements. At 31st March 2019, the group had borrowings under committed bank facilities of £nil (2018: £nil). The group also has a number of uncommitted facilities and overdraft lines at its disposal.

	2019 £ million	2018 £ million
Undrawn committed bank facilities		
Expiring in more than one year but not more than two years	175	362
Expiring in more than two years	422	148
	597	510

The maturity analyses for financial liabilities showing the remaining contractual undiscounted cash flows, including future interest payments, at current year exchange rates and assuming floating interest rates remain at the latest fixing rates are:

	Within 1 year £ million	1 to 2 years £ million	2 to 5 years £ million	After 5 years £ million	Total £ million
At 31st March 2019					
Bank overdrafts	59	–	–	–	59
Bank and other loans – principal	184	131	403	529	1,247
Bank and other loans – interest payments	31	27	59	36	153
Financial liabilities in trade and other payables	1,562	1	2	–	1,565
Total non-derivative financial liabilities	1,836	159	464	565	3,024
Forward foreign exchange contracts – payments	227	–	–	–	227
Forward foreign exchange contracts – receipts	(223)	–	–	–	(223)
Currency swaps – payments	612	–	–	–	612
Currency swaps – receipts	(602)	–	–	–	(602)
Cross currency interest rate swaps – payments	2	2	4	68	76
Cross currency interest rate swaps – receipts	(2)	(2)	(5)	(67)	(76)
Total derivative financial liabilities	14	–	(1)	1	14

Notes on the accounts continued

for the year ended 31st March 2019

32 Financial risk management (continued)

Liquidity risk (continued)

	Within 1 year Restated[1] £ million	1 to 2 years £ million	2 to 5 years £ million	After 5 years £ million	Total Restated[1] £ million
At 31st March 2018					
Bank overdrafts	70	–	–	–	70
Bank and other loans – principal[2]	36	109	375	455	975
Bank and other loans – interest payments[2]	27	25	57	35	144
Financial liabilities in trade and other payables	1,169	1	2	–	1,172
Total non-derivative financial liabilities	1,302	135	434	490	2,361
Forward foreign exchange contracts – payments	185	–	–	–	185
Forward foreign exchange contracts – receipts	(182)	–	–	–	(182)
Currency swaps – payments	551	28	–	–	579
Currency swaps – receipts	(545)	(28)	–	–	(573)
Cross currency interest rate swaps – payments	18	2	4	70	94
Cross currency interest rate swaps – receipts	(16)	(2)	(5)	(69)	(92)
Total derivative financial liabilities[2]	11	–	(1)	1	11

1 See note 39.

2 2018 re-presented to separately analyse swaps.

Offsetting financial assets and liabilities

The group offsets financial assets and liabilities when it currently has a legally enforceable right to offset the recognised amounts and it intends to either settle on a net basis or realise the asset and settle the liability simultaneously. The following financial assets and liabilities are subject to offsetting, enforceable master netting arrangements or similar agreements:

As at 31st March 2019	**Gross financial assets / (liabilities) £ million**	**Amounts set off £ million**	**Net amounts in balance sheet £ million**	**Related amounts not set off £ million**	**Net £ million**
Non-current interest rate swaps	**13**	**–**	**13**	**(5)**	**8**
Cash and cash equivalents – cash and deposits	**95**	**(5)**	**90**	**–**	**90**
Other financial assets	**22**	**–**	**22**	**(10)**	**12**
Cash and cash equivalents – bank overdrafts	**(64)**	**5**	**(59)**	**–**	**(59)**
Other financial liabilities	**(13)**	**–**	**(13)**	**10**	**(3)**
Non-current borrowings and related swaps	**(1,073)**	**–**	**(1,073)**	**5**	**(1,068)**

As at 31st March 2018	Gross financial assets / (liabilities) Restated[1] £ million	Amounts set off Restated[1] £ million	Net amounts in balance sheet Restated[1] £ million	Related amounts not set off £ million	Net Restated[1] £ million
Cash and cash equivalents – cash and deposits	207	(4)	203	–	203
Other financial assets	15	–	15	(7)	8
Cash and cash equivalents – bank overdrafts	(74)	4	(70)	–	(70)
Other financial liabilities	(12)	–	(12)	7	(5)

1 See note 39. The gross amounts of cash and deposits and bank overdrafts have also been decreased by an additional £18 million as part of the same restatement.

33 Fair values

Fair value of financial instruments

Certain of the group's financial instruments are held at fair value. The fair value of a financial instrument is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the balance sheet date.

Fair value hierarchy

Fair values are measured using a hierarchy where the inputs are:

- Level 1 – quoted prices in active markets for identical assets or liabilities.
- Level 2 – not level 1 but are observable for that asset or liability either directly or indirectly.
- Level 3 – not based on observable market data (unobservable).

The fair value of forward foreign exchange contracts, interest rate swaps, forward precious metal price contracts and currency swaps is estimated by discounting the future contractual cash flows using forward exchange rates, interest rates and prices at the balance sheet date.

The fair value of money market funds is calculated by multiplying the net asset value per share by the investment held at the balance sheet date.

There were no transfers of any financial instrument between the levels of the fair value hierarchy during the current or prior years.

	2019 £ million	2018 Restated[1] £ million	Fair value hierarchy Level	Note
Financial instruments measured at fair value				
Non-current				
Quoted bonds purchased to fund pension deficit	**52**	53	1	
Unquoted investments	**–**	3	3	
Investments at fair value through other comprehensive income	**52**	56		21
Interest rate swaps	**13**	6	2	24
Borrowings and related swaps	**(5)**	(8)	2	24
Current				
Trade receivables[2]	**173**	160	2	23
Other receivables[3]	**9**	10	2	23
Cash and cash equivalents – money market funds	**347**	171	2	24
Other financial assets	**22**	15	2	26
Other borrowings and related swaps	**–**	(2)	2	24
Other financial liabilities	**(13)**	(12)	2	26
Financial instruments not measured at fair value				
Non-current				
Borrowings and related swaps	**(1,068)**	(943)		24
Current				
Cash and cash equivalents – cash and deposits	**90**	203		24
Cash and cash equivalents – bank overdrafts	**(59)**	(70)		24
Other borrowings and related swaps	**(184)**	(36)		24

1 See note 39.

2 Trade receivables held in a part of the group with a business model to hold trade receivables for collection or sale.

3 Other receivables with cash flows that do not represent solely the payment of principal and interest.

33 Fair values (continued)

The fair value of financial instruments, excluding accrued interest, is approximately equal to book value except for:

	2019		2018	
	Carrying amount £ million	**Fair value £ million**	Carrying amount £ million	Fair value £ million
US Dollar Bonds 2022, 2023, 2025 and 2028	**(481)**	**(477)**	(448)	(420)
Euro Bonds 2021, 2023, 2025 and 2028	**(251)**	**(264)**	(104)	(118)
Euro EIB loan 2019	**(107)**	**(108)**	(109)	(113)
Sterling Bonds 2024 and 2025	**(110)**	**(118)**	(65)	(71)
KfW US dollar loan 2024	**(38)**	**(39)**	(36)	(35)

The fair values are calculated using level 2 inputs by discounting future cash flows to net present values using appropriate market interest rates prevailing at the year end.

34 Share-based payments

After considering expected lapses due to leavers and the probability that performance conditions will not be met, the total expense recognised during the year in respect of equity-settled share-based payments was £17 million (2018: £17 million).

Further details of the directors' remuneration under share-based payment plans are given in the Remuneration Report.

Performance share plan (PSP)

From 2017, shares are awarded to certain of the group's executive directors and senior managers under the PSP based on a percentage of salary and are subject to performance targets over a three-year period.

At 31st March 2019, 684,015 shares awarded in 2017 and 2018 were outstanding (31st March 2018: 357,562 awarded in 2017). The minimum release of 15% of the award is subject to achieving underlying earnings per share (uEPS) growth of 4% compound per annum and the full release is subject to uEPS growing by at least 10% compound per annum. The number of awarded shares released will vary on a straight-line basis between these points. Awards will lapse if the uEPS growth is less than the minimum.

Awards to the executive directors are also subject to a deferred release whereby a third is released on the third anniversary of the award date and the remaining vested shares are released in equal instalments on the fourth and fifth anniversaries of the award date. The Remuneration Committee is entitled to claw back the awards to the executive directors in cases of misstatement or misconduct.

Activity relating to the PSP during the year was:

	2019 Number of shares	2018 Number of shares
Outstanding at the start of the year	**357,562**	–
Awarded during the year	**350,211**	370,505
Forfeited during the year	**(23,647)**	(12,943)
Released during the year	**(111)**	–
Outstanding at the end of the year	**684,015**	357,562

The fair value of the shares awarded during the year under the PSP was 3,442.6 pence per share (2018: 2,548.9 pence per share). The fair value was calculated using a modified Black Scholes model based on the share price at the date of award of 3,667.0 pence (2018: 2,764.0 pence) adjusted for the present value of the expected dividends that will not be received at an expected dividend rate of 2.11% (2018: 2.71%).

34 Share-based payments (continued)

Restricted share plan (RSP)

From 2017, shares are awarded to certain of the group's senior managers below the board under the RSP based on a percentage of salary. Awards under the RSP are not subject to performance targets. The shares are subject only to the condition that the employee remains employed by the group on the vesting date (three years after the award date).

Activity relating to the RSP during the year was:

	2019 Number of shares	2018 Number of shares
Outstanding at the start of the year	**80,047**	–
Awarded during the year	**99,543**	85,203
Forfeited during the year	**(15,270)**	(4,858)
Released during the year	**(2,629)**	(298)
Outstanding at the end of the year	**161,691**	80,047

The fair value of the shares awarded during the year under the RSP was 3,442.6 pence per share (2018: 2,548.9 pence per share). The fair value was calculated using a modified Black Scholes model based on the share price at the date of award of 3,667.0 pence (2018: 2,764.0 pence) adjusted for the present value of the expected dividends that will not be received at an expected dividend rate of 2.11% (2018: 2.71%).

Long-term incentive plan (LTIP)

Prior to 2017, shares were awarded to approximately 1,300 of the group's executive directors, senior managers and middle managers under the LTIP based on a percentage of salary and were subject to performance targets over a three-year period.

At 31st March 2019, 693,691 shares awarded in 2016 (31st March 2018: 1,350,170 shares awarded in 2015 and 2016) were outstanding, together with 10,007 shares awarded in 2014 subject to deferred release (2018: 20,013 shares awarded in 2014 subject to deferred release) as explained below.

For the 2016 awards, the minimum release of 15% of the award is subject to achieving uEPS growth of 4% compound per annum over the three-year period to 31 March 2019 and the full release is subject to uEPS growing by at least 10% compound per annum. The number of awarded shares released varies on a straight-line basis between these points. Awards lapse if the uEPS growth is less than the minimum. Actual uEPS growth was 7.7% and, therefore, 67% (463,392 shares) will vest in August 2019.

Awards to the executive directors are also subject to a deferred release whereby a third is released on the third anniversary of the award date and the remaining vested shares are released in equal instalments on the fourth and fifth anniversaries of the award date. The Remuneration Committee is entitled to claw back the awards to the executive directors in cases of misstatement or misconduct.

Activity relating to the LTIP during the year was:

	2019 Number of shares	2018 Number of shares
Outstanding at the start of the year	**1,370,183**	2,175,761
Forfeited during the year	**(55,357)**	(194,782)
Released during the year	**(72,702)**	(156,849)
Expired during the year	**(538,426)**	(453,947)
Outstanding at the end of the year	**703,698**	1,370,183

Notes on the accounts continued

for the year ended 31st March 2019

34 Share-based payments (continued)

Deferred bonus

A proportion of the bonus payable to executive directors and senior managers is awarded as shares and deferred for three years. The Remuneration Committee is entitled to claw back the deferred element in cases of misstatement or misconduct or other relevant reason as determined by it.

Activity relating to the deferred bonus during the year was:

	2019 Number of shares	2018 Number of shares
Outstanding at the start of the year	**81,781**	83,956
Awarded during the year	**41,542**	24,831
Released during the year	**(41,698)**	(27,006)
Outstanding at the end of the year	**81,625**	81,781

The fair value of the shares awarded during the year under the deferred bonus was 3,371.0 pence per share (2018: 2,481.0 pence per share). The fair value was calculated using a modified Black Scholes model based on the share price at the date of award of 3,667.0 pence (2018: 2,764.0 pence) adjusted for the present value of the expected dividends that will not be received at an expected dividend rate of 2.11% (2018: 2.71%).

All employee share incentive plan (SIP) – UK and overseas

Under the SIP, all employees with at least one year of service with the group and who are employed by a participating group company are entitled to contribute up to 2.5% of base pay each month, subject to a £125 per month limit. The SIP trustees buy shares (partnership shares) at market value each month with the employees' contributions. For each partnership share purchased, the group purchases two shares (matching shares) which are awarded to the employee.

In the UK SIP, if the employee sells or transfers partnership shares within three years of the date of award, the linked matching shares are forfeited.

In the overseas SIP, partnership shares and matching shares are subject to a three-year holding period and cannot be sold or transferred during that time.

During the year, 190,284 (2018: 201,476) matching shares under the SIP were awarded to employees. These are nil cost awards on which performance conditions are substantially completed at the date of grant and, consequently, the fair value of these awards is based on the market value of the shares at that date.

401k approved savings investment plans (401k plans)

In the US, there are two 401k plans, one for salaried employees and one for hourly employees. Salaried employees may contribute up to 50% of their base pay and hourly employees up to 20% of their base pay, both subject to a statutory limit. Salaried employees choosing Johnson Matthey Plc share matching are matched 100% of the first 4% contributed and hourly employees are matched 50% of the first 6% contributed. Employees may contribute after one month of service and are eligible for matching after one year of service.

During the year, 5,488 (2018: 6,560) shares under the 401k plans were awarded to employees. These are nil cost awards on which performance conditions are substantially completed at the date of grant and, consequently, the fair value of these awards is based on the market value of the shares at that date.

35 Commitments

	Group		Parent company	
	2019 £ million	2018 £ million	**2019 £ million**	2018 £ million
Capital lease commitments – future capital expenditure contracted but not provided				
Property, plant and equipment	**60**	20	**5**	–
Other intangible assets	**13**	15	**2**	5
Operating lease commitments				
Future minimum amounts payable under non-cancellable operating leases:				
Within one year	**18**	16	**4**	3
From one to five years	**40**	41	**8**	8
After five years	**18**	36	**5**	10
	76	93	**17**	21

The group and parent company lease some of its property, plant and equipment which are used by the group and parent company in their operations.

At 31st March 2019, precious metal leases were £372 million (2018: £184 million) at year end prices.

36 Contingent liabilities

The group is involved in various disputes and claims which arise from time to time in the course of its business including, for example, in relation to commercial matters, product quality or liability, employee matters and tax audits. The group is also involved from time to time in the course of its business in legal proceedings and actions, engagement with regulatory authorities and in dispute resolution processes. These are reviewed on a regular basis and, where possible, an estimate is made of the potential financial impact on the group. In appropriate cases a provision is recognised based on advice, best estimates and management judgement. Where it is too early to determine the likely outcome of these matters, no provision is made. Whilst the group cannot predict the outcome of any current or future such matters with any certainty, it currently believes the likelihood of any material liabilities to be low, and that such liabilities, if any, will not have a material adverse effect on its consolidated income, financial position or cash flows.

On a specific matter, the group previously disclosed that it had been informed by two customers of failures in certain engine systems for which the group supplied a particular coated substrate as a component for their customers' emissions after-treatment systems. The particular coated substrate was sold to only these two customers. The group has not been contacted by any regulatory authority about these engine system failures. The reported failures have not been demonstrated to be due to the coated substrate supplied by the group. In the period, we settled with one of these customers on mutually acceptable terms with no admission of fault. Under this settlement, the group recognised a charge of £17 million in the year ended 31st March 2019 and made the associated cash settlement post year end. This charge has been excluded from underlying operating profit.

Having reviewed its contractual obligations and the information currently available to it, the group believes it has defensible warranty positions in respect of its supplies of coated substrate for the after-treatment systems in the affected engines remaining at issue (as it believes it had in respect of the matter settled in the period). If required, it will vigorously assert its available contractual protections and defences. The outcome of any discussions relating to the matters raised is not certain, nor is the group able to make a reliable estimate of the possible financial impact at this stage, if any. While the group works with all its customers to ensure appropriate product quality, we have not received claims in respect of other emissions after-treatment components from these or any other customers. Our vision is for a world that's cleaner and healthier; today and for future generations. We are committed to enabling improving air quality and we work constructively with our customers to achieve this.

Notes on the accounts continued

for the year ended 31st March 2019

37 Transactions with related parties

The group has a related party relationship with its joint venture and associate (note 20), its post-employment benefit plans (note 30) and its key management personnel (below).

The key management of the group and parent company consist of the Board of Directors and the members of the Group Management Committee (GMC). During the year ended 31st March 2019, the GMC had an average of 6 members (2018: 8 members). The only transactions with any key management personnel was compensation charged in the year which was:

	2019 £ million	2018 £ million
Short term employee benefits	6	6
Share-based payments	5	3
Non-executive directors' fees and benefits	1	1
Total compensation of key management personnel	**12**	10

Balances outstanding at the year end were £nil (2018: £nil). Information on directors' remuneration is given in the Remuneration Report.

38 Related undertakings

A full list of related undertakings at 31st March 2019 (comprising subsidiaries, joint ventures and associates) is set out below. Those held directly by the parent company are marked with an asterisk (*) and those held jointly by the parent company and a subsidiary are marked with a cross (+). All the companies are wholly owned unless otherwise stated. All the related undertakings are involved in the principal activities of the group. Unless otherwise stated, the share class of each related undertaking comprises ordinary shares only.

Entity	Registered address
+ Johnson Matthey Argentina S.A.	Tucumán 1 Piso 4, CP 1049, Buenos Aires, Argentina
Johnson Matthey (Aust.) Ltd	64 Lillee Crescent, Tullamarine VIC 3043, Australia
+ Johnson Matthey Holdings Limited	64 Lillee Crescent, Tullamarine VIC 3043, Australia
Johnson Matthey Belgium BVBA	Pegasuslaan 5, 1831 Diegem, Belgium
Tracerco Europe BVBA	1731 Zellik, Z3 Doornveld 115, Belgium
The Argent Insurance Co. Limited	Clarendon House, 2 Church Street, Hamilton, HM11, Bermuda
Johnson Matthey Brasil Ltda	Avenida Macuco, 726, 12th Floor, Edifício International Office, CEP04523-001, Brazil
Stepac Brazil Ltda	Rua Itapolis, n° 1921, Pacaembu, São Paulo, 01245-000, Brazil
Tracerco do Brasil – Diagnosticos de Processos Industriais Ltda	Estrada dos Bandeirantes, 1793, Curicica, Jacarepagua, Rio de Janeiro, Brazil
Johnson Matthey Battery Materials Ltd.	280 Liberté Ave, Candiac Québec J5R 6X1, Canada
Tracerco Radioactive Diagnostic Services Canada Inc.	8908 60 Avenue NW, Edmonton AB, T6E 6A6, Canada
Johnson Matthey Argillon (Shanghai) Emission Control Technologies Ltd.	No. 298, East Rong Le Road, Songjiang District, Shanghai, China
Johnson Matthey Battery Materials (Changzhou) Co., Ltd.	1 Xin Wei Liu Road, Changzhou Export Processing Zone, Changzhou, Jiangsu Province, China
Johnson Matthey Chemical Process Technologies (Shanghai) Company Limited	Room 1066, Building 1, No 215 Lian He Bei Lu, Fengxian District, Shanghai, China
Johnson Matthey Clean Energy Technologies (Beijing) Co., Ltd	2007C, 20th Floor, No. 21 Building, No.5 Community, Shuguangxili Lane, Chaoyang District, Beijing, China
Johnson Matthey Process Technologies (Beijing) Co., Ltd.	Unit No. 2001-2007A, No. 21 Building, Shuguangxili Lane A5, Chaoyang District, Beijing, China
Johnson Matthey Research & Development (Yantai) Co., Ltd.	No. 9 Wuxi Road, Yantai Economic and Technology Development Zone, Yantai, Shandong Province, China
Johnson Matthey (Shanghai) Catalyst Co., Ltd.	586 Dongxing Road, Songjiang Industry Zone, Shanghai, 201613, China
Johnson Matthey (Shanghai) Chemicals Limited	588 Dongxing Road, Songjiang Industry Zone, Shanghai, 201613, China
Johnson Matthey (Shanghai) Trading Limited	Room 1615B, No. 118 Xinling Road, Shanghai Pilot Free Trade Zone, China
Johnson Matthey (Tianjin) Chemical Co., Ltd.	Suite 1-1201, BoRun Commercial Plaza, Tianjin Development Zone, China
Johnson Matthey (Zhangjiagang) Environmental Protection Technology Co., Ltd	No. 9 Dongxin Road, Jiangsu Yangtze River International Chemical Industrial Park, Jiangsu Province, China
Johnson Matthey (Zhangjiagang) Precious Metal Technology Co., Ltd.	Rm. 1116-1117, The Petrochemical Trading Edifice, Zhangjiagang Free Trade Zone, Jiangsu Province, China
Qingdao Johnson Matthey Hero Catalyst Company Limited (51.0%)	New Material Industrial Park, Shiyuan Road, Qinda Industrial Park, Chengyang District, Qingdao, 200331, China
Shanghai Bi Ke Clean Energy Technology Co Ltd (11.1%)	Room 427 Building 2 No 351 Guo Shou Jing Road, China (Shanghai) Pilot Free Trade Zone, China
Shanghai Johnson Matthey Applied Materials Technologies Co., Ltd	Area A, 1st Floor, Building 7, 298 East Rongle Road, Songjiang District, Shanghai, China
Tracerco China Process Diagnostics & Instrumentation (Shanghai) Co., Ltd.	Section G Floor 2, Building 7, 298 East Rongle Road, Songjiang District, Shanghai, China

38 Related undertakings (continued)

	Entity	Registered address
	Johnson Matthey A/S	Frederikssundvej 274D, DK-2700 Brønshøj, Copenhagen, Denmark
*	AG Holding Ltd	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
*	Cascade Biochem Limited[1]	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
	Ilumink Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
*	JMEPS Trustees Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
	Johnson Matthey Battery Systems Engineering Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
*	Johnson Matthey (CM) Limited (dissolved on 28th May 2019)	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
	Johnson Matthey Davy Technologies International Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
*	Johnson Matthey Davy Technologies Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
*	Johnson Matthey Fuel Cells Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
	Johnson Matthey Investments Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
*	Johnson Matthey (Nominees) Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
*	Johnson Matthey Precious Metals Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
	Johnson Matthey South Africa Holdings Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
	Johnson Matthey Tianjin Holdings Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
	Matthey Finance Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
*	Matthey Holdings Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
*	Tracerco Limited	5th Floor, 25 Farringdon Street, London, EC4A 4AB, England
	Finex Oy	Seppolantie 1, Kotka, 48230, Finland
	Johnson Matthey Finland Oy	Autokatu 6, 20380 Turku, Finland
	Kiinteistö Oy Kotkan Huumantie 5 (70.0%)	c/o Finex Oy, Seppolantie 1, Kotka, 48230, Finland
	Johnson Matthey SAS	Les Diamants – Immeuble B, 41 rue Delizy, 93500 Pantin, France
	Johnson Matthey Battery Materials GmbH	Ostenriederstr. 15, 85368 Moosburg a.d. Isar, Germany
	Johnson Matthey Catalysts (Germany) GmbH	Bahnhofstrasse 43, 96257 Redwitz an der Rodach, Germany
	Johnson Matthey Chemicals GmbH	Wardstrasse 17, D-46446 Emmerich am Rhein, Germany
	Johnson Matthey GmbH & Co. KG[2]	Otto-Volger-Strasse 9b, 65843 Sulzbach/Ts, Germany
	Johnson Matthey Holding GmbH	Bahnhofstrasse 43, 96257 Redwitz an der Rodach, Germany
	Johnson Matthey Management GmbH	Otto-Volger-Strasse 9b, 65843 Sulzbach/Ts, Germany
	Johnson Matthey Piezo Products GmbH	Bahnhofstrasse 43, 96257 Redwitz an der Rodach, Germany
	Johnson Matthey Redwitz Real Estate (Germany) B.V. & Co. KG[2]	Bahnhofstrasse 43, 96257 Redwitz an der Rodach, Germany
	Johnson Matthey Hong Kong Limited	Unit 2-6, 8/F, 909 Cheung Sha Wan Road, Cheung Sha Wan, Kowloon, Hong Kong
	Johnson Matthey Pacific Limited[3]	Unit 2-6, 8/F, 909 Cheung Sha Wan Road, Cheung Sha Wan, Kowloon, Hong Kong
	Johnson Matthey Process Technologies Holdings Hong Kong Limited	Unit 2-6, 8/F, 909 Cheung Sha Wan Road, Cheung Sha Wan, Kowloon, Hong Kong
	Johnson Matthey Tracerco Holdings Hong Kong Limited	Unit 2-6, 8/F, 909 Cheung Sha Wan Road, Cheung Sha Wan, Kowloon, Hong Kong
	Macfarlan Smith (Hong Kong) Limited	Unit 2-6, 8/F, 909 Cheung Sha Wan Road, Cheung Sha Wan, Kowloon, Hong Kong
	Johnson Matthey Chemicals India Private Limited	Plot No 6A, MIDC Industrial Estate, Taloja, District Raigad, Maharashtra 410208, India
	Johnson Matthey India Private Limited	103, Ashoka Estate, 24, Barakhamba Road, New Delhi – 110 001, India
	Johnson Matthey Limited	13-18 City Quay, Dublin 2, D02 ED70, Ireland
	Stepac L.A. Ltd.	Tefen Industrial Park Bldg. #12, Post Box 73, Tefen, Western Galilee, 2495900, Israel
	Johnson Matthey Italia S.r.l.	No 2, Via Talucchi, Turin, Italy
	Johnson Matthey Fuel Cells Japan Limited	5123-3 Kitsuregawa, Sakura-shi, Tochigi, 329-1412, Japan
	Johnson Matthey Japan Godo Kaisha	5123-3 Kitsuregawa, Sakura-shi, Tochigi, 329-1412, Japan
	Johnson Matthey DOOEL Skopje	TIDZ Skopje 1, 1041 Ilinden, Macedonia
*	Johnson Matthey Sdn. Bhd.	Suite 16-03, Level 16, Wisma UOA II, 21 Jalan Pinang, 50450 Kuala Lumpur, Malaysia
	Johnson Matthey Services Sdn. Bhd.	Suite 16-03, Level 16, Wisma UOA II, 21 Jalan Pinang, 50450 Kuala Lumpur, Malaysia
	Tracerco Asia Sdn. Bhd.	Suite 16-03, Level 16, Wisma UOA II, 21 Jalan Pinang, 50450 Kuala Lumpur, Malaysia
	Tracerco Asia Services Sdn. Bhd.	Suite 16-03, Level 16, Wisma UOA II, 21 Jalan Pinang, 50450 Kuala Lumpur, Malaysia
	Johnson Matthey de Mexico, S. de R.L. de C.V.	Av. de Margues y Av. de la Canada, 2a Etapa Parque Industrial Bernardo Quintana, El Marques, Queretaro C.P., 76246, Mexico
	Johnson Matthey Servicios, S. de R.L. de C.V.	Av Ramon Rivera Lara 6620, Parque Industrial Juarez, Chihuahua, Mexico
	Intercat Europe B.V.	Fregatweg 38, 6222 NZ Maastricht, Netherlands
	Johnson Matthey Advanced Glass Technologies B.V.	Fregatweg 38, 6222 NZ Maastricht, Netherlands
	Johnson Matthey B.V.	Otto-Volger-Strasse 9b, 65843 Sulzbach/Ts, Germany
	Johnson Matthey Holdings B.V.	Fregatweg 38, 6222 NZ Maastricht, Netherlands
	Johnson Matthey Netherlands B.V.	Fregatweg 38, 6222 NZ Maastricht, Netherlands
	Johnson Matthey Netherlands 2 B.V.	Fregatweg 38, 6222 NZ Maastricht, Netherlands
	Matthey Finance B.V.[1]	Fregatweg 38, 6222 NZ Maastricht, Netherlands
	Tracerco Norge AS	Kokstadflaten 35, 5257 Kokstad, Norway

Notes on the accounts continued

for the year ended 31st March 2019

38 Related undertakings (continued)

	Entity	Registered address
	Johnson Matthey Battery Systems Spólka z ograniczoną odpowiedzialnocścią	PL 44-109 Gliwice, ul. Einsteina 36, Poland
	Johnson Matthey Poland Spólka z ograniczoną odpowiedzialnocścią	Ul. Alberta Einsteina 6, 44-109, Gliwice, Poland
	RPGZ VI Spółka z ograniczoną odpowiedzialnocścią	Ul. Pilotów 2E, 31-462, Krakow, Poland
	Macfarlan Smith Portugal, Lda	Largo de São Carlos 3, 1200-410 Lisboa, Portugal
	Johnson Matthey Catalysts LLC	1 Transportny Proezd, 660027 Krasnoyarsk, Russia
	International Diol Company (4.3%)	1st Basic Industrial Road 218, P.O. Box 12021, Jubail Industrial City, 31961, Saudi Arabia
*	Johnson Matthey General Partner (Scotland) Limited	10 Wheatfield Road, Edinburgh, Midlothian, EH11 2QA, Scotland
*	Johnson Matthey (Scotland) Limited Partnership[2]	10 Wheatfield Road, Edinburgh, Midlothian, EH11 2QA, Scotland
*	Macfarlan Smith Limited	10 Wheatfield Road, Edinburgh, Midlothian, EH11 2QA, Scotland
*	Meconic Limited	10 Wheatfield Road, Edinburgh, Midlothian, EH11 2QA, Scotland
	Johnson Matthey Singapore Private Limited	4 Shenton Way, #15-01 SGX Centre 2, 068807, Singapore
	Johnson Matthey (Proprietary) Limited	Corner Henderson and Premier Roads, Germiston South Ext 7, Gauteng, South Africa
	Johnson Matthey Research South Africa (Proprietary) Limited	Corner Henderson and Premier Roads, Germiston South Ext 7, Gauteng, South Africa
	Johnson Matthey Salts (Proprietary) Limited	Corner Henderson and Premier Roads, Germiston South Ext 7, Gauteng, South Africa
	Johnson Matthey Catalysts Korea Limited	A-dong 2906-ho, 13 Heungdeok 1-ro, Giheung-gu, Yongin-si, Gyeonggi-do, South Korea
	Johnson Matthey Korea Limited	101-2803, Lotte Castle, 109, Mapo-daero, Mapo-gu Seoul, South Korea
	Johnson Matthey AB	Viktor Hasselblads gata 8, 421 31 Västra Frölunda, Göteborg, Sweden
	Johnson Matthey Formox AB	SE-284 80, Perstorp, Sweden
	Johnson Matthey & Brandenberger AG	Glatttalstrasse 18, 8052 Zurich, Switzerland
	Johnson Matthey Finance GmbH	Hertensteinstrasse 51, 6004 Lucerne, Switzerland
	Johnson Matthey Finance Zurich GmbH	Glatttalstrasse 18, 8052 Zurich, Switzerland
	LiFePO4+C Licensing AG	Hertensteinstrasse 51, 6004 Lucerne, Switzerland
	Johnson Matthey (Thailand) Limited	1858/12 Interlink Tower, 5th Floor, Debaratna Road, Kwang Bangna Tai, Khet Bangna, Bangkok 10260, Thailand
	Johnson Matthey Holdings (Thailand) Limited	1858/12 Interlink Tower, 5th Floor, Debaratna Road, Kwang Bangna Tai, Khet Bangna, Bangkok 10260, Thailand
	Johnson Matthey Services (Trinidad and Tobago) Limited	Queen's Park Place, 17-20 Queens Park West, Port of Spain, Trinidad and Tobago
	Stepac Ambalaj Malzemeleri Sanayi Ve Ticaret Anonim Sirketi	Güzeloba Mah. Rauf Denktaş Cad., No.56/101, Muratpaşa/Antalya, Turkey
	JM Holdings UK LLC	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA
	JM Holdings US LLC	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA
	Johnson Matthey Fuel Cells, Inc.	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA
	Johnson Matthey Holdings, Inc.	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA
	Johnson Matthey Inc.[4]	Corporation Service Company, 2595 Interstate Drive, Suite 103 PA 17110, USA
	Johnson Matthey Japan, Inc.	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA
	Johnson Matthey Materials, Inc.	CSC Lawyers Incorporating Service, 2730 Gateway Oaks Drive, Suite 100, Sacramento CA 95833, USA
	Johnson Matthey North America, Inc.	Corporation Trust Center, 1209 Orange Street, Wilmington DE 19801, USA
	Johnson Matthey Overseas Holdings Inc.	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA
	Johnson Matthey Pharmaceutical Materials, Inc.	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA
	Johnson Matthey Process Technologies, Inc.	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA
	Johnson Matthey Stationary Emissions Control LLC	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA
	Johnson Matthey US 2 LLC	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA
	Matthey Pharmaceutical Alkaloids, LLC (50.0%)	Corporation Trust Center, 1209 Orange Street, Wilmington DE 19801, USA
	Red Maple LLC (50.0%)	Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington DE 19808, USA

In some jurisdictions in which the group operates, share classes are not defined and in these instances, for the purpose of disclosure, these holdings have been classified as ordinary shares.

1 Ordinary and preference shares

2 Limited partnership, no share capital

3 Ordinary and non-cumulative redeemable preference shares

4 Ordinary and series A preferred stock

39 Changes in accounting policies and restatements

This note explains the impact on the group's and parent company's accounts of the adoption of IFRS 9, Financial Instruments, and IFRS 15, Revenue from Contracts with Customers, that have been applied from 1st April 2018 and the restatement of prior year comparatives for location swaps, sale and repurchase agreements and cash and borrowings.

IFRS 9

IFRS 9 introduces new requirements for recognition, classification and measurement of financial assets and financial liabilities, a new impairment model for financial assets based on expected credit losses and simplified hedge accounting, replacing the requirements of IAS 39, Financial Instruments: Recognition and Measurement.

Impact of adoption

Under IFRS 9, changes to the classification and measurement of financial assets have been applied retrospectively by adjusting opening retained earnings at 1st April 2018. The group has chosen not to restate comparative information for prior periods. The impact of adopting IFRS 9 on the group's equity as at 1st April 2018 is a decrease of £1 million (and was immaterial for the parent company).

Classification and measurement

The group and parent company have classified their financial instruments in the appropriate IFRS 9 categories as at 1st April 2018 and, as a result, £160 million of trade receivables were reclassified from being valued at amortised cost to fair value through other comprehensive income because they are held in a part of the group with a business model to hold trade receivables for collection or sale. Derivative financial instruments that did not qualify for hedge accounting under IAS 39 were classified in the fair value through profit or loss category and gains and losses have been recognised in the income statement for the year. There is no change in the classification of these financial instruments under IFRS 9 as they fail the contractual cash flow characteristics test.

The group and parent company have reclassified their financial assets as follows:

			Group		Parent company	
Financial assets	IFRS 9	IAS 39	**2019** **IFRS 9** **£ million**	2018 Restated[1] IAS 39 £ million	**2019** **IFRS 9** **£ million**	2018 Restated[1] IAS 39 £ million
Quoted bonds purchased to fund pension deficit	FVTOCI[4]	Available for sale	**52**	53	**–**	–
Unquoted investments	FVTOCI[4]	Available for sale	**–**	3	**7**	7
Trade receivables	Amortised cost	Loans and receivables	**1,031**	889	**206**	165
Trade receivables[2]	FVTOCI[4]	Loans and receivables	**173**	160	**–**	–
Other receivables	Amortised cost	Loans and receivables	**226**	159	**2,084**	2,262
Other receivables[3]	FVTPL[5]	Loans and receivables	**9**	10	**–**	–
Cash and cash equivalents – cash and deposits	Amortised cost	Loans and receivables	**90**	203	**11**	82
Cash and cash equivalents – money market funds[3]	FVTPL[5]	Loans and receivables	**347**	171	**347**	171
Derivatives	FVTPL[5]	Held for trading	**35**	21	**36**	21

1 See below.

2 Trade receivables reclassified to fair value through other comprehensive income on adoption of IFRS 9 because they are held in a part of the group with a business model to hold trade receivables for collection or sale.

3 Other receivables and money market funds reclassified to fair value through profit or loss on adoption of IFRS 9 because the cash flows do not represent solely the payment of principal and interest.

4 Fair value through other comprehensive income.

5 Fair value through profit or loss.

Impairment of financial assets

Trade and contract receivables are subject to IFRS 9's new expected credit loss model and, as they do not contain a significant financing element, expected credit losses are measured using the simplified approach, which requires expected lifetime losses to be recognised from initial recognition. Whilst cash and deposits are also subject to the impairment requirements of IFRS 9, there was no identified impairment loss on these balances.

Hedge accounting

Derivative financial instruments designated as part of cash flow hedges, fair value hedges and net investment hedges under IAS 39 at 31st March 2018, continue to qualify for hedge accounting under IFRS 9 at 1st April 2018 and are, therefore, treated as continuing hedges.

Notes on the accounts continued

for the year ended 31st March 2019

39 Changes in accounting policies and restatements (continued)

IFRS 15

IFRS 15 supersedes all revenue standards and interpretations in IFRS. It provides a principles-based approach for revenue recognition and requires that revenue is recognised as the distinct performance obligations promised within a contract are satisfied either at a point in time or over time. Following the detailed review of the transactions performed in the year ended 31st March 2018, the group has concluded that all swaps (location and form) and sale and repurchase agreements will be excluded from revenue under IFRS 15.

The impact on the financial statements as a result of the move to IFRS 15 has led the group to conclude that the group and parent company should apply IFRS 15 on a fully retrospective basis, which means that the comparative information for the year ended 31st March 2018 has been restated. The following expedients have been used in accordance with paragraph C5:

- revenue in respect of completed contracts with variable consideration reflects the transaction price at the date the contracts were completed; and
- the transaction price allocated to unsatisfied and partially unsatisfied performance obligations as at 31st March 2018 is not disclosed.

The group and parent company have not shown the amount of the adjustments relating to periods before those presented on the basis that it is not practicable to do so. Movements in inventories, receivables and payables in the consolidated cash flow statement for the year ended 31st March 2018 have not been restated on the same basis. The overall impact on equity is less than £5 million as a result of the re-presentation of the financial statements as at 31st March 2018 and there is no impact on sales excluding precious metals, profit, working capital, net debt or net assets. We have taken the same approach to the parent company accounts and restated those accordingly.

Impact of adoption

The group has noted that the presentation of sales and purchases of certain commodity forward contracts varies across its industry peer group. In conjunction with its adoption of IFRS 15, the group has reviewed its accounting for a number of such contracts held by the Platinum Group Metal Services business. The group regularly enters into contracts whereby metal is transferred with a separate agreement to buy back the metal, either in a different location and/or in a different form. IFRS 15 requires the presentation of swap transactions (regardless of whether they are a location or form swap) with counterparties of a similar nature to the group to be excluded from revenue. It further clarifies that transactions with a linked sale and future repurchase (sale and repurchase agreements) are excluded from revenue and treated as finance transactions.

The impact of applying this presentation of form and location swaps to the financial statements is to reduce revenue and cost of sales for the year ended 31st March 2018 by £840 million with no impact on sales excluding precious metals, profit, working capital, net debt or net assets. This change has also decreased inventories by £2 million and increased receivables by £2 million as at 31st March 2018. Location swaps are also non-revenue transactions under IAS 18. Had the group not restated under IFRS 15, the financial impact of restating location swaps and other, smaller errors identified during the process, would be to decrease revenue and cost of sales by £621 million, with no impact on reported profit, net assets or net debt.

IFRS 15 provides new guidance in respect of principal versus agent considerations which is relevant to the sale of metal and substrate in Clean Air and to the sale of metal in Efficient Natural Resources. Revenue from refining metal owned by customers in Efficient Natural Resources continues to be recognised over time on the basis that the group is enhancing an asset controlled by the customer. Revenue in respect of the sale of the company's metal and substrate continues to be recognised on a gross basis reflecting the fact that the group is the principal. Where the group refines metal owned by customers and control of the metal remains with the customer during the process, the revenue recognised does not include the value of the metal controlled by the customer. The impact on the group's income statement is to increase revenue and cost of sales by £2 million, with no net impact on profit. The impact on the group's balance sheet is to reduce inventory by £18 million, increase contract receivables £20 million, increase accruals £2 million, decrease contract liabilities £1 million and increase opening retained earnings £1 million. There is no impact on the parent company accounts.

Restatements

Sale and repurchase agreements

The group has restated the financial statements to exclude revenue and cost of sales derived from sale and repurchase agreements and account for these as finance transactions. Application of this change in presentation to the financial statements for the year ended 31st March 2018 reduces revenue and cost of sales by £3,010 million. This change has also increased inventories by £161 million, creditors by £215 million and receivables by £54 million as at 31st March 2018. This change also increased finance costs and finance income by £20 million, respectively.

The re-presentation of the financial statements has no impact on sales excluding precious metals, profit, working capital, net debt or net assets and, therefore, historic business performance measures communicated by the group are unchanged.

Cash and borrowings

The group's consolidated balance sheet and cash flow statement have been restated to increase cash and deposits by £45 million, bank overdrafts by £17 million and other current borrowings and related swaps by £28 million at 31st March 2018 to better reflect the group's cash pooling arrangements. In addition, money market funds of £171 million have been shown separately from cash and deposits. The parent company balance sheet has also been restated to increase cash and deposits by £35 million and bank overdrafts by £35 million at 31st March 2018.

39 Changes in accounting policies and restatements (continued)

Impact on the group accounts

Consolidated Income Statement

	Year ended 31st March 2018			
	As previously reported £ million	IFRS 15 £ million	Location swaps and sale and repurchase agreements £ million	**Restated £ million**
Revenue	14,122	(217)	(3,631)	**10,274**
Cost of sales	(13,214)	217	3,631	**(9,366)**
Gross profit	908	–	–	**908**
Finance costs	(43)	–	(20)	**(63)**
Finance income	5	–	20	**25**
Profit before tax	320	–	–	**320**

Consolidated Balance Sheet

	As at 31st March 2018				
	As previously reported £ million	IFRS 15 £ million	Location swaps and sale and repurchase agreements £ million	Cash and borrowings £ million	**Restated £ million**
Total non-current assets	2,428	–	–	–	**2,428**
Current assets					
Inventories	783	(20)	161	–	**924**
Current income tax assets	35	–	–	–	**35**
Trade and other receivables	1,228	22	54	–	**1,304**
Cash and cash equivalents – cash and deposits	329	–	–	(126)	**203**
Cash and cash equivalents – money market funds	–	–	–	171	**171**
Other financial assets	15	–	–	–	**15**
Total current assets	2,390	2	215	45	**2,652**
Total assets	4,818	2	215	45	**5,080**
Current liabilities					
Trade and other payables	(1,012)	(1)	(215)	–	**(1,228)**
Current income tax liabilities	(149)	–	–	–	**(149)**
Cash and cash equivalents – bank overdrafts	(53)	–	–	(17)	**(70)**
Other borrowings and related swaps	(10)	–	–	(28)	**(38)**
Other financial liabilities	(12)	–	–	–	**(12)**
Provisions	(37)	–	–	–	**(37)**
Total current liabilities	(1,273)	(1)	(215)	(45)	**(1,534)**
Total non-current liabilities	(1,167)	–	–	–	**(1,167)**
Total liabilities	(2,440)	(1)	(215)	(45)	**(2,701)**
Net assets	2,378	1	–	–	**2,379**

Notes on the accounts continued

for the year ended 31st March 2019

39 Changes in accounting policies and restatements (continued)

Impact on the parent company accounts

Parent Company Balance Sheet

	As at 31st March 2018					
	As previously reported £ million	IFRS 15 £ million	Location swaps and sale and repurchase agreements £ million	Cash and borrowings £ million	Ageing reclassification £ million	**Restated £ million**
Other receivables	1,013	–	–	–	100	**1,113**
Other	2,803	–	–	–	–	**2,803**
Total non-current assets	3,816	–	–	–	100	**3,916**
Current assets						
Inventories	124	(2)	87	–	–	**209**
Trade and other receivables	1,377	2	54	–	(100)	**1,333**
Cash and cash equivalents – cash and deposits	218	–	–	(136)	–	**82**
Cash and cash equivalents – money market funds	–	–	–	171	–	**171**
Other financial assets	15	–	–	–	–	**15**
Total current assets	1,734	–	141	35	(100)	**1,810**
Total assets	5,550	–	141	35	–	**5,726**
Current liabilities						
Trade and other payables	(2,552)	–	(141)	–	–	**(2,693)**
Current income tax liabilities	(56)	–	–	–	–	**(56)**
Cash and cash equivalents – bank overdrafts	(11)	–	–	(35)	–	**(46)**
Other borrowings and related swaps	(4)	–	–	–	–	**(4)**
Other financial liabilities	(14)	–	–	–	–	**(14)**
Provisions	(5)	–	–	–	–	**(5)**
Total current liabilities	(2,642)	–	(141)	(35)	–	**(2,818)**
Total non-current liabilities	(1,512)	–	–	–	–	**(1,512)**
Total liabilities	(4,154)	–	(141)	(35)	–	**(4,330)**
Net assets	1,396	–	–	–	–	**1,396**

Independent auditor's report

to the members of Johnson Matthey Plc

pwc

Report on the audit of the financial statements

Opinion

In our opinion:

- Johnson Matthey Plc's Group financial statements and parent company financial statements (the "financial statements") give a true and fair view of the state of the Group's and of the parent company's affairs as at 31 March 2019 and of the Group's profit and cash flows for the year then ended;
- the Group financial statements have been properly prepared in accordance with International Financial Reporting Standards (IFRSs) as adopted by the European Union;
- the parent company financial statements have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising 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 and, as regards the Group financial statements, Article 4 of the IAS Regulation.

We have audited the financial statements, included within the Annual Report, which comprise: the consolidated and parent company balance sheets as at 31 March 2019; the consolidated income statement and consolidated statement of total comprehensive income; the consolidated cash flow statement; the consolidated and parent company statement of changes in equity for the year then ended; and the notes to the financial statements, including the Accounting Policies.

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 to the Group or the parent company.

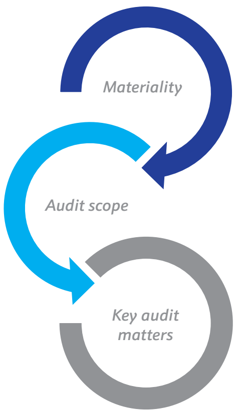
Other than those disclosed in note 10 to the financial statements, we have provided no non-audit services to the Group or the parent company in the period from 1 April 2018 to 31 March 2019.

Independent auditor's report continued

to the members of Johnson Matthey Plc

Our audit approach

Overview



- Overall Group materiality: £25 million, based on 5% of profit before tax, adjusted for loss on disposal of businesses, loss on significant legal proceedings, major impairment and restructuring charges.
- Overall parent company materiality: £15 million, based on 1% of total assets capped at the allocated Group component materiality.

- We conducted an audit or specified procedures at 77 components which together accounted for 80% of Group profit before taxation.
- In addition to the UK reporting units, the US and China components were visited by members of the Group engagement team during the year.

- Carrying value of goodwill and capitalised development costs (Group)
- Claims, uncertainties and other provisions (Group)
- Taxation accounting (Group)
- Refinery metal accounting (Group, Company)
- Precious metals management - accounting for hedged metal (Group, 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.

Capability of the audit in detecting irregularities, including fraud

Based on our understanding of the Group and industry, we identified that the principal risks of non-compliance with laws and regulations related to the failure to comply with international tax regulations, environmental regulations, health and safety regulations (EHS), and anti-bribery and corruption laws, 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 preparation of the financial statements such as the Companies Act 2006. 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:

- Discussions with management, internal audit and the Group's legal advisors, including consideration of known or suspected instances of non-compliance with laws and regulations and fraud; and
- Identifying and testing significant manual journal entries and auditing assumptions and judgements made by management in making significant accounting estimates.

There are inherent limitations in the audit procedures described above, and the further removed non-compliance with laws and regulations is from the events and transactions reflected in the financial statements, the less likely we would become aware of it. 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.

We did not identify any key audit matters relating to irregularities, including fraud. As in all of our audits, we addressed the risk of management override of internal controls, including testing journals and evaluating whether there was evidence of bias by the directors that represented a risk of material misstatement due to fraud, and the risk of fraud in revenue recognition.

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.

Key audit matter	How our audit addressed the key audit matter
Carrying value of goodwill and capitalised development costs Refer to the Significant issues considered by the Audit Committee on page 127 and notes 17 and 18 to the financial statements. The Group holds goodwill of £578 million (2018: £574 million) and capitalised development costs of £75 million (2018: £60 million) at 31 March 2019. The Group has significant goodwill arising from the acquisition of businesses and investments in new products and technologies. The Group also has significant capitalised development costs which are at an early stage of their commercial life cycle and as such, carry a greater risk that they will not be commercially viable. The impairment reviews performed by management contain a number of significant judgements and estimates. Changes in these assumptions can result in materially different impairment charges or available headroom. Certain assets are subject to annual impairment assessment, while others with a finite life are reviewed if a triggering event has been identified.	We obtained management's value in use goodwill impairment models and tested and evaluated the reasonableness of key assumptions, including CGU identification, operating cash flow forecasts and key inputs to these forecasts, long term growth rates, and discount rates. We obtained the impairment trigger assessment and value in use impairment models over generic drug development performed by management to assess the key assumptions considered, including operating cash flow forecasts and key inputs to these forecasts, perpetuity growth rates, and discount rates. We tested the mathematical integrity of the forecasts and carrying values in management's impairment models and confirmed that management's estimate of each CGU's recoverable amount is appropriately based on the higher of fair value less costs of disposal and value in use. We agreed the forecast cash flows to management's approved budget, assessed how these budgets are compiled and understood key related judgements and estimates, including short-term growth rates and cost allocations. For each material CGU we either performed independent testing of the assumptions (as explained below) or corroborated them to supporting evidence. We have assessed the reasonableness of cash flow forecasts in the context of the individual impairment analyses. We engaged our valuations experts where necessary to assess the long term growth rate and discount rate for each CGU by comparison with third party information, past performance and relevant risk factors. We performed our own independent sensitivity analysis to assess whether a reasonable downside change in the key assumptions could give rise to a material impairment. We assessed management's historical forecasting accuracy by comparing the prior year forecasts with actual results. This informed the assumptions applied to our independent sensitivity analysis. As a result of our work, we agreed with management's conclusions on the recoverability of the goodwill and capitalised development costs. We have assessed management's disclosures in light of the impairment testing performed and we considered the disclosures made to be reasonable.

Independent auditor's report continued

to the members of Johnson Matthey Plc

Key audit matter	How our audit addressed the key audit matter
Claims, uncertainties and other provisions	
Refer to the Significant issues considered by the Audit Committee on page 127 and notes 28 and 36 to the financial statements This risk covers product liability issues and other litigious matters across the Group. Due to the complex nature of the products offered by Johnson Matthey, the Group at any point in time may be exposed to product liability issues including claims for damages or compensation. The assumptions underpinning these claims and the identification of when such claims arise are inherently judgemental. Careful consideration needs to be given as to how they are estimated and subsequently accounted for. The Group is also involved in various legal proceedings, including actual or threatened litigation and regulatory investigations. The Group discloses such risks as contingent liabilities where it is unable to make a reliable estimate of potential exposures or where it believes a possible obligation is not probable. If the Group is unable to defend against such claims, these risks could give rise to a future liability.	For litigation provisions, we read the summary of major litigation matters provided by management and held discussions with the Group's general counsel. For a sample of matters, we obtained and reviewed correspondence with external legal counsel with respect to matters included in the summary. We have circularised external legal counsel to independently assess legal exposures and expected outcome for material cases across the Group. We reviewed board minutes and made inquiries of management to address the risk of undisclosed claims and uncertainties. We performed audit procedures to identify any third party legal counsel used by management and as appropriate included them in our circularisation. We have assessed the underlying assumptions underpinning product liability claims by considering past history in settlement of such claims as evidence of likely settlement of open matters. We applied professional scepticism in auditing both the likely outcome and quantification of claims, including performing audit procedures over claims management determined to be immaterial and requesting management provide further support. We have assessed the level of provisioning and contingent liability disclosures, where relevant, in response to known claims. Based on the procedures outlined, we are satisfied that management's provisioning estimates were adequately supported and appropriate disclosures have been provided.
Taxation accounting	
Refer to the Significant issues considered by the Audit Committee on page 127 and to the Accounting Policies in the financial statements The Group holds tax provisions of £102 million (2018: £86 million). The Group operates in a number of international jurisdictions, and as a result there is risk of uncertain tax exposures around the Group and heightened risk around estimates in determining the tax effect of cross border transactions including transfer pricing arrangements. Where the precise impact of the tax laws and regulations on taxes payable on profit arising in those jurisdictions is unclear, the Group seeks to make reasonable estimates to determine the tax charges that may arise.	We engaged our tax specialists in support of our audit of tax and obtained an understanding of the Group's tax strategy and risks. We recalculated the Group's tax provisions and determined whether the treatments adopted were in line with the Group's tax policies and had been applied consistently. We evaluated the key underlying assumptions and judgements, including considering the status of tax authority audits and enquiries through examining the latest correspondence and enquiring of management. We considered the basis and support in particular for provisions not subject to tax audit in comparison with our experience for similar situations. We evaluated the consistency of management's approach to identifying triggering events to reassess or record a provision for an exposure. We also evaluated the consistency of management's approach to establishing or changing prior provision estimates and validated that changes in prior provisions reflected a change in facts and circumstances. Our in-scope components performed audit work on the local tax expense and completeness of the corresponding liability or asset position and we performed analytical procedures at a Group level on any large markets that were out of scope. We also considered the adequacy of the Group's disclosures in respect of tax and uncertain tax positions. We are satisfied that management's provisions with respect to uncertain tax matters have been prepared on a reasonable basis that represent management's current best estimate of the most likely outcome. We consider management's disclosures with respect to tax matters to be appropriate.

Refinery metal accounting

Key audit matter

Refer to the Significant issues considered by the Audit Committee on page 126 and to the Accounting Policies in the financial statements

The Group refines a significant amount of metal. Complex estimates are applied in determining the year-end inventory balances including:

(i) Estimation of the level of metal contained in the carrier material entering the refining process, and the refined metal that leaves the refining process;

(ii) Estimates of the metal at the refineries at the time of stock takes, and the subsequent sampling and assaying to assess the precious metal content on stock take date;

(iii) Estimates of the process losses of precious metals that may be lost during the refining and fabrication process, and the adequacy of these provisions at year-end; and

(iv) Estimates of the net realisable value of unhedged metal held at year-end.

As part of its refining activities, the Group processes material on behalf of third parties, whereby the Group must return pre-agreed recoverable quantities of refined metal to those parties at an agreed date. As such, the Group's year-end metal inventory is reduced or increased dependent on its ability to recover metal as part of its refining operations.

The majority of metal processed at refineries is owned by customers and is not held on the financial balance sheet of Group. As such, the Group performs a metal balance sheet reconciliation to ensure quantities of precious metals held at year-end are appropriately understood, classified and reconciled. This ensures that only the Group owned inventory is recorded on the balance sheet, and that the price allocated to this owned inventory is at the lower of cost and net realisable value.

The refining process and its associated estimates are deemed a significant risk, as a small variation in underlying estimates or classification could result in a material change to the quantity or valuation of inventory.

How our audit addressed the key audit matter

We evaluated the design and operation of key controls at the main refining locations over stock takes, and metal assaying procedures.

We tested that the metal balance sheet was prepared and reviewed on a monthly basis.

We tested the classification of precious metals at year-end on the metal balance sheet, to determine if metal was owned by the Group or the customer. Our procedures included sending confirmations to customers, and testing the customer metal that was in the refining process, but not contractually due.

We assessed management's policy for recognising stock take gains and losses arising from the stock takes that occurred during the year. We performed site visits and attended physical stock counts at sites to verify existence of stock and adherence to the Group's stock take processes, and the reasonableness of stock take gains and losses that have been recorded.

We assessed provisions for inventory process loss compared to historical trends and stock take results to assess the likelihood and quantum of processing loss (if any) of metal between the date of the stock take and the year-end date.

We tested that all unhedged metal was being held at the lower of cost and net realisable value, on an individual metal by metal methodology, with reference to external metal price data.

We considered the adequacy of the Group's disclosures about the degree of estimation involved in arriving at the measured inventory.

We are satisfied with the quantity and valuation of inventory, and that such balances were adequately supported and in line with relevant Group accounting policies.

Precious metals management – accounting for hedged metal

Key audit matter

Refer to the Significant issues considered by the Audit Committee on page 126 and note 39 in the financial statements

The Group operates a Precious Metals Management ("PMM") division that is responsible for sourcing precious metal and managing price exposures and inventory levels of the significant quantities of precious metals that are processed and converted into manufactured goods.

Whilst PMM sources metal on the Group's account and sells this to customers, it also obtains metal by entering into metal leasing contracts with financial institutions and manages significant quantities of customer owned metal. To execute its strategy and comply with the Group's risk management policies, PMM operates a number of trading desks that enter into spot, forward and swap transactions with customers, suppliers and financial institutions. PMM is not mandated to enter into speculative trades for the purpose of making a profit.

The accounting for these transactions is complex and as part of the Group's adoption of IFRS 15 – Revenue from Contracts with Customers ("IFRS 15") together with management we have performed a detailed review of the activities of PMM and reassessed the required accounting for these transactions, under both IAS 18 – Revenue ("IAS 18") and IFRS 15. This review has concluded that certain commodity contracts (principally swaps and sale and repurchase agreements) should not be included within revenue in the current year or the prior year.

The prior year financial statements have therefore been restated, and the impact of both the adoption of IFRS 15 and other prior year items requiring restatement have been separately disclosed.

How our audit addressed the key audit matter

As PMM uses a number of different commodity contracts we gained an understanding of each type and evaluated how these were accounted for, including consideration of:

- the application of the 'own use' exemption for valuing financial instruments, and how metal inventory was recorded and valued at year-end; and
- how 'sale and repurchase' and 'swap' transactions are accounted for under the Group's accounting policies, IAS 18 and IFRS 15.

We reviewed management's exercise to disaggregate the commodity contracts and identify whether or not such transactions should be included within revenue in both the current and prior year.

We agreed a sample of trades to external evidence to provide support that the trades had occurred, were accurately recorded and were correctly classified.

We considered management's allocation of adjustments between those arising from the implementation of IFRS 15 and from other restatements, and the associated disclosures made in the financial statements. We believe the allocation of the adjustments and associated disclosures is appropriate.

Independent auditor's report continued

to the members of Johnson Matthey Plc

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 parent company, the accounting processes and controls, and the industry in which they operate.

The Group is structured across four sectors, Clean Air, Efficient Natural Resources, Health, and New Markets, as well as the Corporate central unit. The financial statements are a consolidation of approximately 315 Business Units. We have identified each individual Business Unit as a component, or a series of Business Units where they map to one legal statutory entity. These components comprise the Group's operating businesses and holding companies across the four sectors and Corporate.

Based on our risk and materiality assessments, we determined which components required an audit of their complete financial information having considered the relative significance of each entity to the Group, locations with significant inherent risks and the overall coverage obtained over each material line item in the consolidated financial statements. We identified one component which, in our view, required an audit of its complete financial information, due to its size or its risk characteristics. We performed audits of complete financial information at a further 60 components.

In addition to those full scope components, we performed specified procedures at 16 components over specific financial statement line items including revenue, trade and other receivables and deferred income, cash, intangibles, inventory, metal inventory, accruals, fixed assets and depreciation, cost of sales and operating expenses. This ensured that appropriate audit procedures were performed to achieve sufficient coverage over these financial statement line items.

The total 77 in-scope components are located in numerous countries around the world. We used local teams in these countries to perform the relevant audit procedures. Of these, one component has been determined to be financially significant based on its contribution to the Group. This financially significant component is located in the UK.

The Group consolidation, financial statement disclosures and corporate functions were audited by the Group audit team. This included our work over consolidation, litigation provisions, taxation, goodwill, post-retirement benefits, earnings per share and treasury related balances.

This scope of work, together with additional procedures performed at the Group level, accounted for 84% of Group revenue and 80% of Group profit before taxation. This provided the evidence we needed for our opinion on the consolidated financial statements taken as a whole. This was before considering the contribution to our audit evidence from performing audit work at the Group level, including disaggregated analytical review procedures, which covers certain of the Group's smaller and lower risk components that were not directly included in our Group audit scope.

We issued formal written instructions to all component auditors setting out the audit work to be performed by each of them. The Group audit team visited reporting units in the UK, US, and China during the course of the year in order to attend local management meetings. Throughout the year, the Group audit team held regular meetings with all reporting units at all stages of the audit to direct and supervise the work of these local teams and to ensure that we had a full and comprehensive understanding of the results of their work – particularly insofar as it related to the identified areas of focus. The Group engagement team also reviewed selected audit working papers for certain component teams.

Independent auditor's report continued

to the members of Johnson Matthey Plc

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:

	Group financial statements	Parent company financial statements
Overall materiality	£25 million	£15 million
How we determined it	5% of profit before tax, adjusted for loss on disposal of businesses, loss on significant legal proceedings and major impairment and restructuring charges.	1% of total assets but materiality level is capped based on an allocated Group component materiality.
Rationale for benchmark applied	Adjusted (underlying) profit before tax is used as the materiality benchmark excluding amortisation of acquired intangibles. Management uses this measure as it believes that it reflects the underlying performance of the Group and this is how the directors are measured on their performance. We did not adjust profit before tax to add back amortisation of acquired intangibles as in our view this is a recurring item.	We considered total assets to be an appropriate benchmark for the parent company given that, whilst it does have trading businesses it is the ultimate holding company, holds material investments in subsidiary undertakings, incurs corporate costs and enters into financing on behalf of the Group. The materiality level was capped at £15 million given the overall Group materiality level.

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 between £1 million and £15 million. Certain components were audited to a local statutory audit materiality that was also less than our overall Group materiality.

We agreed with the Audit Committee that we would report to them misstatements identified during our audit above £1.26 million, for both the Group and parent company audits, as well as misstatements below those amounts that, in our view, warranted reporting for qualitative reasons.

Going concern

In accordance with ISAs (UK) we report as follows:

Reporting obligation	Outcome
We are required to report if we have anything material to add or draw attention to in respect of the directors' statement in the financial statements about whether the directors considered it appropriate to adopt the going concern basis of accounting in preparing the financial statements and the directors' identification of any material uncertainties to the Group's and the parent company's ability to continue as a going concern over a period of at least twelve months from the date of approval of the financial statements.	We have nothing material to add or to draw attention to. However, because not all future events or conditions can be predicted, this statement is not a guarantee as to the Group's and the parent company's ability to continue as a going concern. For example, the terms on which the United Kingdom may withdraw from the European Union are not clear, and it is difficult to evaluate all of the potential implications on the Group's and the parent company's trade, customers, suppliers and the wider economy.
We are required to report if the directors' statement relating to Going Concern in accordance with Listing Rule 9.8.6R(3) is materially inconsistent with our knowledge obtained in the audit.	We have nothing to 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.

Independent auditor's report continued

to the members of Johnson Matthey Plc

Reporting on other information (continued)

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 the responsibilities described above and our work undertaken in the course of the audit, the Companies Act 2006 (CA06), ISAs (UK) and the Listing Rules of the Financial Conduct Authority (FCA) require us also to report certain opinions and matters as described below (required by ISAs (UK) unless otherwise stated).

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 March 2019 is consistent with the financial statements and has been prepared in accordance with applicable legal requirements. (CA06)

In light of the knowledge and understanding of the Group and parent 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. (CA06)

The directors' assessment of the prospects of the Group and of the principal risks that would threaten the solvency or liquidity of the Group

We have nothing material to add or draw attention to regarding:

- The directors' confirmation on page 91 of the Annual Report that they have carried out a robust assessment of the principal risks facing the Group, including those that would threaten its business model, future performance, solvency or liquidity.
- The disclosures in the Annual Report that describe those risks and explain how they are being managed or mitigated.
- The directors' explanation on page 97 of the Annual Report as to how they have assessed the prospects of the Group, over what period they have done so and why they consider that period to be appropriate, and their statement as to whether 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 period of their assessment, including any related disclosures drawing attention to any necessary qualifications or assumptions.

We have nothing to report having performed a review of the directors' statement that they have carried out a robust assessment of the principal risks facing the Group and statement in relation to the longer-term viability of the Group. Our review was substantially less in scope than an audit and only consisted of making inquiries and considering the directors' process supporting their statements; checking that the statements are in alignment with the relevant provisions of the UK Corporate Governance Code (the "Code"); and considering whether the statements are consistent with the knowledge and understanding of the Group and parent company and their environment obtained in the course of the audit. (Listing Rules)

Other Code Provisions

We have nothing to report in respect of our responsibility to report when:

- The statement given by the directors, on page 115, that they consider the Annual Report taken as a whole to be fair, balanced and understandable, and provides the information necessary for the members to assess the Group's and parent company's position and performance, business model and strategy is materially inconsistent with our knowledge of the Group and parent company obtained in the course of performing our audit.
- The section of the Annual Report on pages 123 to 131 describing the work of the Audit Committee does not appropriately address matters communicated by us to the Audit Committee.
- The directors' statement relating to the parent 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.

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. (CA06)

Responsibilities for the financial statements and the audit

Responsibilities of the directors for the financial statements

As explained more fully in the Responsibility of Directors, 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 parent 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 parent 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.

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 parent 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 received all the information and explanations we require for our audit; or
- adequate accounting records have not been kept by the parent 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 parent company financial statements and the part of the Directors' Remuneration Report to be audited are not in agreement with the accounting records and returns.

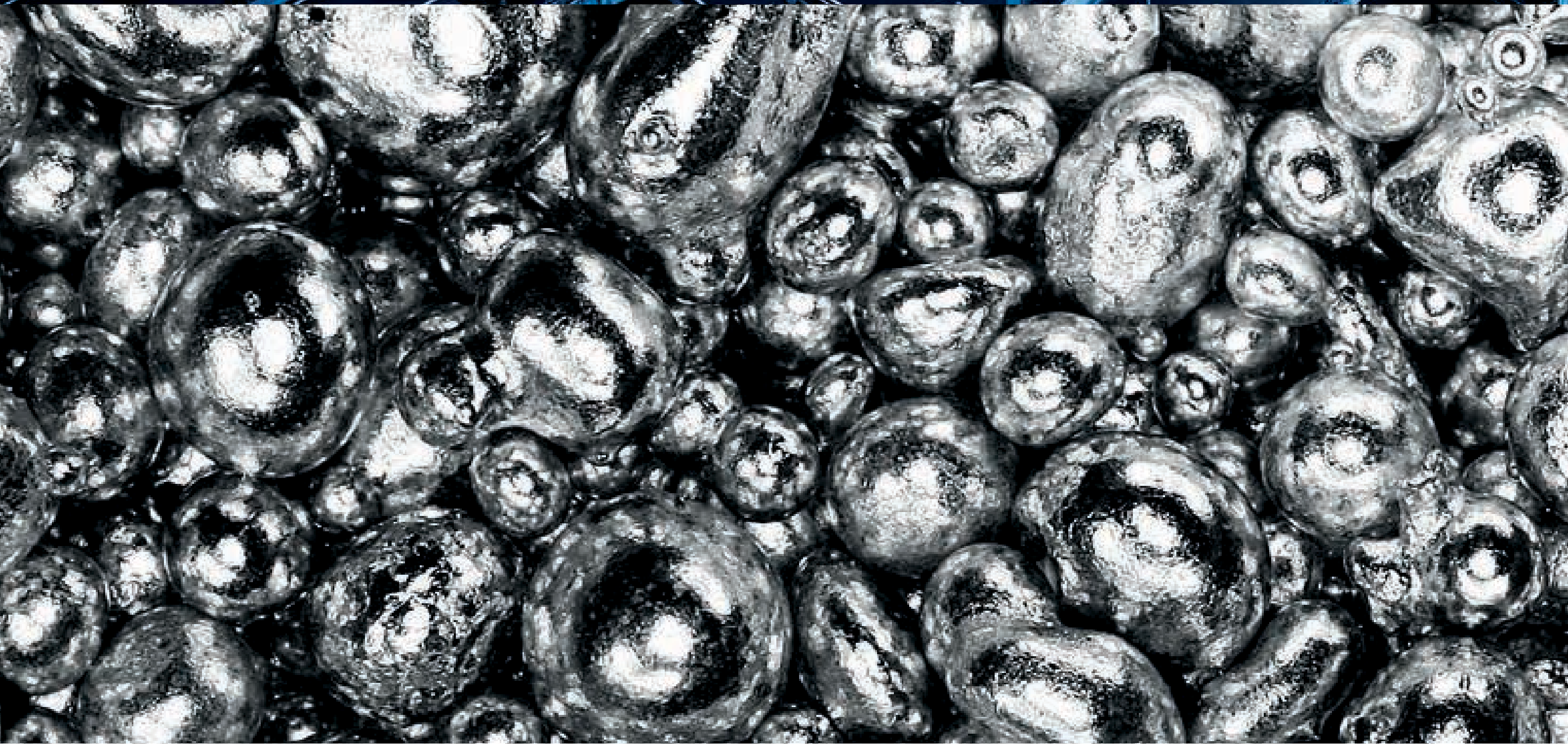
We have no exceptions to report arising from this responsibility.

Appointment

Following the recommendation of the Audit Committee, we were appointed by the directors on 26 July 2018 to audit the financial statements for the year-ended 31 March 2019 and subsequent financial periods. This is therefore our first year of uninterrupted engagement.

Mark Gill (Senior Statutory Auditor)
for and on behalf of PricewaterhouseCoopers LLP
Chartered Accountants and Statutory Auditors
London

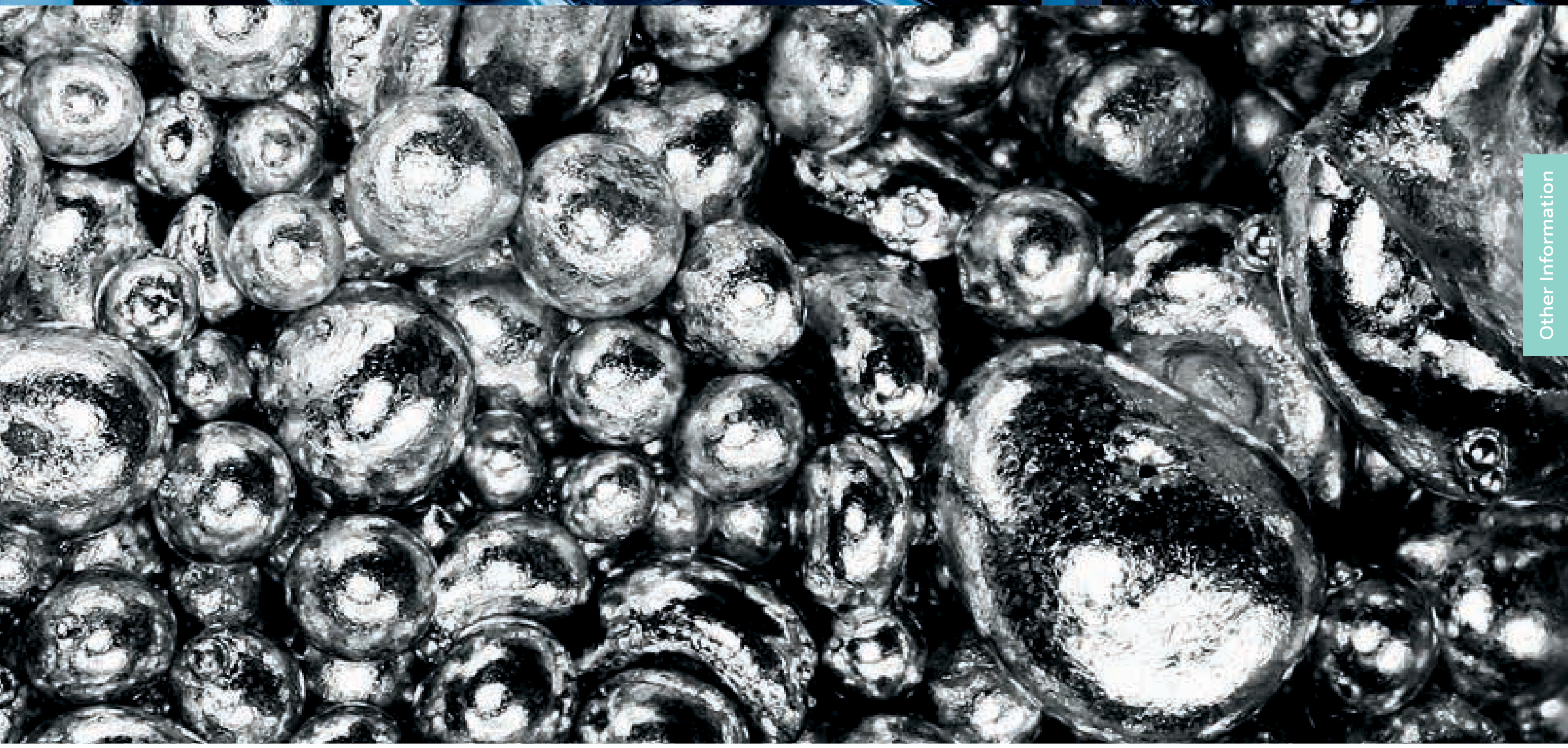
30 May 2019



Other information

Our basis of non-financial reporting and information for shareholders.

Also includes a summary of our Global Reporting Initiative disclosures, a glossary and an index.



Contents

234 Basis of reporting – non-financial data
238 Our framework and our six sustainable business goals
239 Verification of non-financial data
240 GRI Standard Content Index
242 Shareholder information
244 Glossary of terms
245 Index
246 Financial calendar 2019/20
247 Company details

Basis of reporting – non-financial data

This report has been prepared in accordance with the GRI Standards: Core option. It covers the period from 1st April 2018 to 31st March 2019. Our last annual report was published in June 2018.

Johnson Matthey compiles, assesses and discloses non-financial information for a number of reasons:

- where there is a legal obligation (UK Companies Act, mandatory carbon reporting, UK Modern Slavery Act);
- to help drive improved business performance;
- to demonstrate to institutional investors that Johnson Matthey's business approach is responsible, ethical, sustainable and offers a sound value proposition;
- to demonstrate to our customers that Johnson Matthey's business conduct meets or exceeds all of the required standards and expectations;
- to demonstrate to other stakeholders that Johnson Matthey conducts its business in an ethical, responsible and sustainable manner; and
- to benchmark our corporate performance against peer group companies.

This report has been developed to incorporate the group's significant economic, environmental and social impacts and is set within the context of the United Nations Brundtland definition of sustainability (1987) and our own sustainable business goals to 2025. The principles of inclusivity, materiality and responsiveness help to shape the structure of the report and in setting priorities for reporting. The report also explains how we are continuing to build sustainability into our business planning and decision making processes and how, through our governance processes, we manage social, environmental and ethical matters across the group.

Performance data covers all sites which are under the financial control of the group, including all manufacturing, research and warehousing operations of the parent company and its subsidiaries.

For the purposes of reporting, separate business units resident at the same location are counted as separate sites. Data from 70 sites was included in this report, 57 of which are manufacturing sites.

Data from new facilities is included from the point at which the facility becomes owned by the company and operational. All non-financial performance data is reported on a financial year basis unless otherwise stated.

Baseline year data has been restated, where necessary, to account for changes in best practice methodologies for reporting. The processes in place to internally and externally verify the reported non-financial data are described on page 239. Certain employee data is included in the financial accounts and is also subject to separate external audit.

Calculation methodologies for KPIs relating to six sustainable business goals to 2025

Definition of employees and contractors

A standard definition of employees and contractors has been implemented in 2017/18 across the group for all reporting of people-related goals. These definitions are using in goals 1 and 2, and the "People" section on pages 60 to 75 of this report.

Reported as "Employees"			Reported as "Contractors"		
Permanent employees	**Temporary employees**	**Agency employees**	**Outsourced function**	**Specialist service**	**Projects**
Continuously site based.	Continuously site based.	Continuously site based.	Continuously or regularly site based.	One-off project or regularly based on site.	One-off project.
Contract signed directly between JM and individual and paid regular salary and other benefits by JM.	Fixed term contract signed directly between JM and individual. Paid regular salary and other benefits by JM.	Person employed by an agency performing tasks that would normally be expected to be undertaken by a JM employee.	Facility management – catering, cleaning or grounds maintenance; IT and occupational health, if outsourced.	Small scale building or ground works; repairing specialist plant or equipment; low level maintenance; small scale repairs to offices or other buildings; stack monitoring.	Construction work, capital project work, major maintenance activities.
Work is directly supervised by JM.	Work is directly supervised by JM.	Work is directly supervised by JM.	Work is supervised by contractor and monitored by JM.	Work is supervised by contractor and monitored by JM.	Work is supervised by contractor and monitored by JM.

Health and safety
1

Goal 1: Health and safety:

Aspire to zero harm

Lost time injury and illness rate (LTIIR) is defined as the number of lost workday cases per 200,000 hours worked in a rolling year.

A lost workday case is defined as an incident where an employee or contractor is unable to work for more than one scheduled working day as a result of a work related injury or illness.

Total recordable injury and illness rate (TRIIR) is defined as the number of recordable cases per 200,000 hours worked in a rolling year.

A recordable case (as defined under the US Occupational Safety and Health Administration (OSHA) Regulations) is defined as a work related accident or illness that results in one or more of the following: absence of more than one day; medical treatment beyond first aid; death; loss of consciousness and restricted work or transfer to another job.

The OSHA severity rate is a calculation that gives a company an average of the number of lost days per recordable incident.

OSHA severity rate = ([total lost days in the year x 200,000] ÷ total hours worked during the year).

Occupational illness incidence rate is the number of new occupational illnesses diagnosed in the year per 200,000 hours worked in a rolling year.

200,000 hours represents 100 full time equivalent workers working 40 hours per week for 50 weeks per year.

LTIIR by event type definitions

- A slip injury occurs where there is too little friction or traction between an individual's footwear and the walking surface.
- A trip injury occurs when the foot hits an object causing a person to lose balance.
- A fall injury is recorded when someone falls from an elevated surface (e.g. roof), object or temporary work platform (e.g. ladder) or into an opening in a floor or a hole in the ground.
- Struck against is an injury occurring as a result of coming into contact with a surface or object in which the action was initiated by the person (e.g. when a screwdriver slips).

Process safety rate definition

Johnson Matthey has adopted International Council of Chemical Association's (ICCA) process safety metric. The metric first requires a determination that the event is to be included in the process safety event severity rate (PSESR) calculation and then determining the severity using the severity table.

In determining this rate, 1 point is assigned for each Level 4 incident attribute, 3 points for each Level 3 attribute, 9 points for each Level 2 attribute, and 27 points for each Level 1 attribute. The PSESR is recorded as a 12 month rolling number. Total worker hours include employees, temporary employees and contractors.

Process safety performance indicator (PSPI) 2 =

Process safety event severity rate (PSESR) Level 1 to 4

$$= \frac{\text{(Total severity score for all events x 200,000)}}{\text{(Total worker hours)}}$$

Theoretically, a process safety event could be assigned a minimum of 1 point (i.e. the incident meets the attributes of a Level 4 incident in only one category) or a maximum of 135 points (i.e. the incident meets the attributes of a Level 1 incident in each of the five categories).

Our people
2

Goal 2: Our people:

Employee engagement and enablement

Johnson Matthey invites all its permanent and fixed term contract employees to voluntarily complete its employee survey once every two years to determine the wellbeing of its staff using a standard methodology defined and audited by the Korn Ferry Hay Group. All responses are submitted confidentially to a third party and results are independently analysed and reported back to JM management. Through the survey we measure attributes on a scale of 0 to 100%:

- employee engagement = how committed and motivated employees are to give their best to Johnson Matthey; and
- employee enablement = how well employees' jobs and work environment support peak performance in Johnson Matthey.

Diversity and inclusion (D&I) progress

A detailed roadmap of activities to be completed on JM's journey to D&I excellence out to 2025 has been approved. To measure our progress we have introduced a target based upon the Refinitiv Diversity & Inclusion Index. This internationally-recognised standard is very comprehensive and helps us benchmark against the full range of activities within our D&I agenda. Their scoring methodology can be downloaded at:

https://www.refinitiv.com/en/financial-data/indices/diversity-and-inclusion-index

Low carbon operations
3

Goal 3: Low carbon operations:

Operational carbon footprint reduction

Our operational carbon footprint, reported in tonnes of carbon dioxide (CO_2) equivalent, includes Scope 1 and Scope 2 emissions.

We report Scope 1 greenhouse gas (GHG) emissions from processes and energy use and convert the total group energy use to tonnes CO_2 equivalent using conversion factors for each emissions source as published by Defra in July 2018. We include carbon dioxide (CO_2), nitrous oxide (N_2O), refrigerant and methane (CH_4) process emissions to air in our Scope 1 calculations.

Our Scope 2 emissions are calculated using the 'dual reporting' methodology outlined in the GHG Protocol corporate standard 2015 revision, www.ghgprotocol.org. For the location based method of Scope 2 accounting, for all facilities outside of the US, we use national carbon intensity factors related to the consumption of grid electricity in 2016 made available in the 2018 edition of the world CO_2 emissions database of the International Energy Agency. They were purchased under licence in November 2018 for sole use in company reporting. For US facilities we use regional carbon factors published by the Environmental Protection Agency in January 2017, eGRID data 2016. For the market based method of Scope 2 accounting, we have applied the hierarchy of sources for determination of appropriate carbon intensity factors, as outlined in Table 6.3 on page 48 of the GHG Protocol 2015 edition guidance. We have successfully obtained carbon intensity factors directly from our grid electricity suppliers in the EU, USA and Australia. However, it has not been possible to obtain this from suppliers in China, India, South Africa and non-OECD Europe.

Basis of reporting – non-financial data continued

Our total operational carbon footprint is based on:

- Scope 1 emissions – generated by the direct burning of fuel (predominantly natural gas) and process derived greenhouse gas emissions (CO_2, N_2O, CH_4 and refrigerants).
- Scope 2 emissions – generated from grid electricity and steam use at our facilities.

Under the UK mandatory GHG reporting requirements, we are required to ensure that the quantification of GHG emissions and data reliability are sufficient to meet our obligation under the UK Companies Act 2006 (Strategic and Directors' Reports) Regulations 2013. The data we have presented for our carbon footprint in this report contains all Johnson Matthey's material GHG emissions and therefore meets the requirements of this legislation. We have included a mandatory GHG report in the table on page 57.

Since 2016/17 we have used a carbon intensity target, normalising our carbon emissions based on production output. The denominator is defined as 'tonnes of manufactured product sold externally'. Only sold products manufactured on JM premises are included. For sales of precious metal containing solutions from our Pgm Services business, only the weight of the precious metal is included in the calculation. For all other products, the total shipped weight of product is included.

$$\text{Carbon intensity of JM operations} = \frac{\text{total JM group Scope 1 + Scope 2 GHG emissions}}{\text{Tonnes of manufactured products sold externally by JM}}$$

Responsible sourcing

4

Goal 4: Responsible sourcing:

Sustainable supplier assessment and compliance

Our ambition is to ensure all our Tier 1 strategic suppliers understand, accept and comply with the terms of JM's Supplier Code of Conduct, which can be found on our website in a variety of languages at matthey.com/supplier-code-of-conduct.

We use a risk-based approach to determine what level of assessment and audit is required to monitor a supplier's performance. All suppliers counted under this target are required to complete a bespoke self-assessment questionnaire and return key certificates and policy documents to demonstrate their adherence. This questionnaire is scored by JM using our in-house methodology. Selected suppliers may then be subject to onsite audit, by JM in-house auditors, to verify the responses received within the self-assessment questionnaire.

A strategic supplier is defined using JM in-house criteria.

Sustainable products

5

Goal 5: Sustainable products:

Sustainability impacts of our products

We have established two streams by which we measure and track the positive impact of our products towards a cleaner, healthier world:

(a) We use a sales lens to quantify product impacts. We measure the correlation and classification of annualised sales of JM's products, services and technologies against the United Nations Sustainable Development Goals (UN SDGs). Sales are excluding precious metals and reflect external sales only. By increasing the absolute and percentage of JM's sales that contribute to the UN SDGs, we will be increasing our global impact.

A judgement is made as to whether the products or services within each of JM's business units contribute to the UN SDGs either directly, or by enabling another product to contribute. This is done by considering their attributes and intended purpose, and cross-referencing these against the 169 target descriptors of the 17 UN SDGs. Where appropriate, consideration is also given to the 232 indicators that have been released to accompany the UN SDG targets.

(b) We have set four quantitative key performance indicators (KPIs) that capture the sustainability benefits our products bring to society when used by our customers. These are aligned with JM's vision and strategy, and focus on the UN SDGs that are most material to our stakeholders or most relevant to our business impact. The KPIs include:

- The tonnes of pollutants (oxides of nitrogen, carbon monoxide, hydrocarbons and particulate matter) removed using our products and services. This includes pollutants removed by both our automotive and stationary emission control technologies, as sold and used in a given year. The calculation is based on the efficacy of our products to remove pollutants in order to meet legislative requirements. This KPI contributes to both UN SDG 3 – Good Health and Wellbeing and UN SDG 11 – Sustainable Cities and Communities.
- The number of lives positively impacted by innovation in JM's pharmaceutical products. This includes chronic and non-chronic illnesses treated by our pharmaceutical products, as sold and used in a given year. The calculation is based on our market share of various therapies by volume and considers products we have launched since April 2015. This KPI contributes to UN SDG 3 – Good Health and Wellbeing.
- The tonnes of greenhouse gases removed using our products and services, expressed as tonnes of carbon dioxide equivalent ($CO_{2\,eq}$). This includes $CO_{2\,eq}$ removed by Johnson Matthey's installations of nitrous oxide abatement catalyst in nitric acid plants, as operating in a given year. Calculations are made using the ACM0019 Case 2 methodology of the Clean Development Mechanism, United Nations Framework Convention on Climate Change (UNFCCC). This KPI contributes to UN SDG 13 – Climate Action.

- The tonnes of greenhouse gases avoided using our products and services, expressed as tonnes of carbon dioxide equivalent ($CO_{2\,eq}$). This includes $CO_{2\,eq}$ avoided from the use of JM's battery materials and fuel cell components in key applications. The calculation is based on emission savings compared to conventional technologies used in their respective applications and considers any CO_2 associated with fuelling the products. This KPI contributes to UN SDG 13 – Climate Action.

Both (a) and (b) are calculated using Johnson Matthey's in-house methodology.

Community engagement
6

Goal 6: Community engagement:

Employee volunteering

This KPI is an annual record of the total number of employee volunteering days undertaken by permanent employees within their local communities, in accordance with JM's global Employee Volunteering Policy.

The volunteering is recorded in periods of half days. Shorter periods of volunteering are not included in the data. The recorded volunteering days may have been completed either on company time or on paid company leave. Volunteering done on unpaid leave, or outside normal working hours, is not included in the reported numbers.

The length of a standard day varies slightly from location to location, between seven and eight hours.

In determining the in-kind contribution of employees' volunteering we take the number of volunteering days reported in the year and multiply it by the group average cost of one day of employee time.

$$\text{Average cost of one day of employee time} = \frac{\text{total employee benefits expense in year}}{\text{Number of working days in year}}$$

Number of working days in a year is five days per week for 50 weeks per year.

Other Information

Our framework and our six sustainable business goals

Our sustainable business framework is aligned to our brand, vision and strategy. It continues our sustainability commitment but is more outward looking – towards our customers, communities and supply chains. It drives sustainable business practices for internal and external stakeholders, throughout JM's value chain.

The framework comprises six goals and our progress towards them is summarised in the table below.

	Sustainable business goal	Sustainable business KPIs	Baseline measure	Baseline	2018/19	2025 target
Health and safety 1	For health and safety, aspire to zero harm	Annual TRIIR	TRIIR in 2016/17	1.00	0.97	0.6
		Annual LTIIR	LTIIR in 2016/17	0.48	0.53	0.2
		Annual OSHA severity rate	Rate in 2016/17	18.5[1]	27.9	6.0
Our people 2	Ensure JM is truly inclusive, fostering employee engagement and development within a diverse global workforce	Employee engagement index score (%)	2016/17	62%	59%	73%
		Employee enablement index score (%)	2016/17	63%	63%	72%
		Diversity and inclusion plan implementation (%)	Refinitiv Diversity & Inclusion score in 2018	45%	45%	78%
Low carbon operations 3	Reduce our greenhouse gas (GHG) emissions per unit of production output by 25%	Annual GHG emissions (Scope 1+2) / tonnes manufactured product sold	$CO_{2\,eq}$ emissions intensity for 2016/17	3.8	2.9	2.8
Responsible sourcing 4	Improve sustainable business practices in our supply chains	Tier 1 strategic suppliers assessed and compliant with Supplier Code of Conduct	% of Tier 1 strategic suppliers assessed in 2017/18	11%	17%	100%
			% of these compliant with the code	73%	76%	100%
Sustainable products 5	Double the positive impact that JM's products make on a cleaner, healthier world	Annual sales giving contribution to UN SDGs	2017/18 sales data against UN SDG indicators (% of group sales)	86.9[2]	87.3	>90%
		Annual aggregation of product sustainability benefits in key areas	2017/18 data relating to: Tonnes of pollutants removed	3.54m[2]	3.43m	7.08m[2]
			Number of lives positively impacted	138,000	181,000	920,000
			Tonnes of GHGs removed ($CO_{2\,eq}$)	10.6m	10.1m	21.2m
			Tonnes of GHGs avoided ($CO_{2\,eq}$)	213,000	216,000	426,000
Community engagement 6	Increase our volunteer work within our local communities	Cumulative number of volunteer days across JM	Number of employee volunteer days across JM in 2017/18	678	1,794 (cumulative total)	50,000

[1] Restated due to injuries and illnesses that were reported or reclassified after the year end.

[2] Restated to reflect updated methodology as described on pages 235 to 237.

Verification of non-financial data

The board reviews corporate social responsibility (CSR) and broader sustainability issues as part of its risk management process.

All data is reviewed by internal sustainability experts and at appropriate levels of management up to and including the Group Management Committee. Health and safety data is reviewed by group health and safety experts and as part of a formal group environment, health and safety (EHS) internal audit programme.

Certain human resources data forms part of Johnson Matthey's accounts and are subject to limited audit.

Johnson Matthey also uses external specialists to review specific sustainability issues. Over the past year this has included external audits or reviews of people management systems, health and safety (OHSAS 18001) and environmental management systems (such as ISO 14001, ISO 50001 and RC 4001).

Independent greenhouse gas and health and safety assurance statement

Independent assurance

In 2018/19 we appointed consultancy Carbon Smart to provide independent external assurance of both our 2018/19 emissions and our key metrics quantifying our environmental, health and safety performance. Carbon Smart has provided the following summary assurance statement:

"Carbon Smart confirms that Johnson Matthey's global reported Scope 1, 2 and 3 greenhouse gas (GHG) emissions, total energy, total waste (solid and hazardous), water consumption and specified health and safety indicators have received limited assurance engagement in accordance with the requirements of the ISAE 3000 (revised) standard including the specificities of ISAE 3410 for assuring GHG emissions data, and key health and safety definitions from the OHSA Regulations."

Objectives and methodology

The objectives of this engagement were to ensure that the Johnson Matthey values in scope were free of material misstatements within an acceptable, agreed materiality threshold and to provide the relevant, material information required by stakeholders for the purpose of decision making.

Johnson Matthey's GHG inventory and quantification of environmental performance indicators has been completed in accordance with the WRI / WBCSD GHG Corporate Accounting and Reporting Standard (revised) best practice reporting principles of relevance, completeness, consistency, transparency, accuracy. The subject matter also adheres to the ISAE 3410 principles related to both the quantification of emissions and presentation of disclosures.

Carbon Smart has been independently appointed by Johnson Matthey and no member of the assurance team has a business reason for bias with regards to the limited assurance engagement. Carbon Smart applies quality control and management approaches equivalent to ISO 9001 International Standard as encompassed its Quality and Ethics Policies.

Assurance conclusion

Based on the assurance procedures followed by Carbon Smart on the scope of Johnson Matthey's data across the 2018/19 reporting period, we have found no material evidence to suggest that the data is not:

- Prepared in accordance with the WRI / WBCSD GHG Corporate Accounting and Reporting Standard (revised) and OHSA Regulations as relevant.
- Prepared in accordance with Johnson Matthey's relevant internal health and safety and environmental data collection guidelines.
- Materially correct and a fair representation of their GHG emissions, specified environmental impacts and health and safety incident rates.
- Worthy of the award of limited assurance

This conclusion should be read with Carbon Smart's full assurance statement available at matthey.com/non-fin-assurance-2019.

carbon smart

GRI Standard Content Index

This report has been prepared in accordance with GRI Standard: Core Option

General disclosures in accordance with GR1 102

Disclosure	GRI code	Page
Organisational profile		
Name of the organisation	102-1	247
Activities, brands, products and services	102-2	4-5; 41-43
Location of headquarters	102-3	247
Location of operations	102-4	5
Ownership and legal form	102-5	151-154
Markets served	102-6	41-42
Scale of the organisation	102-7	4-5; 148; 175-178; 242-243
Information on employees and other workers	102-8	63-65; 181
Supply chain	102-9	49-51
Significant changes to the organisation and its supply chain	102-10	none
Precautionary principle or approach	102-11	not disclosed
External initiatives	102-12	50, 55
Membership of associations	102-13	73
Strategy		
Statement from senior decision maker	102-14	6-12
Key impacts, risks and opportunities	102-15	24-29; 91-96
Ethics and integrity		
Values, principles, standards and norms of behaviour	102-16	61; 65; 68;112
Mechanisms for advice and concerns about ethics	102-17	68-69
Governance		
Governance structure	102-18	91; 108-109
Delegating authority	102-19	108-109
Executive level responsibility for economic, environmental and social topics	102-20	109-111
Consulting stakeholders on economic, environmental and social topics	102-21	27-29
Composition of the highest governance body and its committees	102-22	100-103; 108-109
Chair of the highest governance body	102-23	100
Nominating and selecting the highest governance body	102-24	112-113; 119-122
Conflicts of interest	102-25	113
Role of highest governance body in setting purpose, values and strategy	102-26	108-112
Collective knowledge of highest governance body	102-27	100-103
Evaluating the highest governance body’s performance	102-28	114-115
Identifying and managing economic, environmental and social impacts	102-29	109-111
Effectiveness of risk management processes	102-30	116
Review of economic, environmental and social topics	102-31	110-111
Highest governance body’s role in sustainability reporting	102-32	2; 239
Communicating critical concerns	102-33	68; 109; 117
Nature and total number of critical concerns	102-34	68
Remuneration policies	102-35	132-138
Process for determining remuneration	102-36	132-133; 142-143
Stakeholders’ involvement in remuneration	102-37	150
Annual total compensation ratio	102-38	not disclosed
Percentage increase in annual total compensation ratio	102-39	not disclosed
Stakeholder engagement		
List of stakeholder groups	102-40	28-29; 117
Collective bargaining agreements	102-41	66
Identifying and selecting stakeholders	102-42	not disclosed
Approach to stakeholder engagement	102-43	28-29; 73; 117-118
Key topics and concerns raised	102-44	27
Reporting practice		
Entities included in the consolidated financial statements	102-45	216-218
Defining report content and topic boundaries	102-46	234-237
List of material topics	102-47	27
Restatements of information	102-48	73; 238
Changes in reporting	102-49	none
Reporting period	102-50	1
Date of most recent report	102-51	1
Reporting cycle	102-52	246
Contact point for questions regarding the report	102-53	247
Claims of reporting in accordance with the GRI Standards	102-54	1; 240
GRI content index	102-55	240-241
External assurance	102-56	229-231; 239

Specific GRI disclosures for Johnson Matthey's material topics

	GRI code	Page
Sustainability leadership		
GRI-103 Management approach 2016	103	6; 14-27; 30-33; 239
GRI-102 General disclosures 2016	102-14; 102-29	6-12; 109-111
Financial sustainability		
GRI-103 Management approach 2016	103	86-90; 123-131; 223-231
GRI-201 Economic performance 2016	201-3	195-203
Health and safety		
GRI-103 Management approach 2016	103	32; 61; 69-73; 234-235; 238-239
GRI-403 Occupational health and safety 2016	403-1; 403-2; 403-4	70; 72-73; 238
Greenhouse gas emissions		
GRI-103 Management approach 2016	103	31; 52-53; 57; 234-236; 238-239
GRI-302 Energy 2016	302-1; 302-3; 302-4	52; 56-57
GRI-305 Emissions 2016	305-1; 305-2; 305-3; 305-4	31; 56-57
Air quality		
GRI-103 Management approach 2016	103	44; 57-58; 236; 238
Climate change risk		
GRI-103 Management approach 2016	103	45-47; 55
GRI-201 Economic performance 2016	201-2	CDP disclosure
Modern slavery and child labour		
GRI-103 Management approach 2016	103	50-51
GRI-408 Child labour 2016	408-1	50
GRI-409 Forced or compulsory labour 2016	409-1	50
Products lifecycle management		
GRI-103 Management approach 2016	103	53-55; 239
GRI-416 Customer health and safety 2016	416-1; 416-2	53-55
GRI-417 Marketing and labeling 2016	417-1; 417-2	55
GRI-301 Materials 2016	301-3	not disclosed
GRI-306 Effluents and waste 2016	306-2; 306-3; 306-4	56; 58-59
Water use		
GRI-103 Management approach 2016	103	55; 58-59; 234; 239
GRI-303 Water 2016	303-1; 303-3	58-59
GRI-306 Effluents and waste 2016	306-1	59
Ethical business practices and compliance		
GRI-103 Management approach 2016	103	61; 68-69; 96; 109-111
GRI-205 Anti-corruption 2016	205-1; 205-2; 205-3	68
GRI-206 Anti-competitive behaviour 2016	206-1	not disclosed
GRI-415 Public policy 2016	415-1	153
GRI-419 Socioeconomic compliance 2016	419-1	55; 59
Resource scarcity		
GRI-103 Management approach 2016	103	94
GRI-301 Materials 2016	301-2	not disclosed
Employee recruitment and retention		
GRI-103 Management approach 2016	103	32; 62-65; 74-75; 234-235; 238
GRI-102 General disclosures 2016	102-8	63-65; 181
GRI-401 Employment 2016	401-1	62-63
GRI-404 Training and education 2016	404-2; 404-3	64-65
Responsible sourcing		
GRI-103 Management approach 2016	103	32;49-51; 236; 238
GRI-308 Supplier environmental assessment 2016	308-1; 308-2	50
GRI-414 Supplier social assessment 2016	414-1; 414-2	50
GRI-407 Freedom of association and collective bargaining 2016	407-1	50
Diversity and inclusion		
GRI-103 Management approach 2016	103	65-66; 235; 238
GRI-405 Diversity and equal opportunity 2016	405-1; 405-2	64-65
GRI-406 Non-discrimination 2016	406-1	50; 68
Community engagement		
GRI-103 Management approach 2016	103	33; 67; 237-238
GRI-413 Local communities 2016	413-1	not disclosed

matthey.com/gri-2018-19

Other Information

Shareholder information

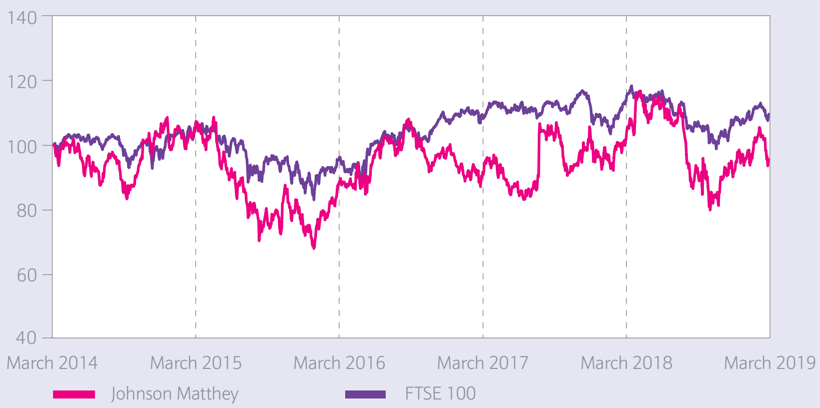
Johnson Matthey share price as at 31st March	2014	2015	2016	2017	2018	2019
	3,271p	3,386p	2,744p	3,080p	3,042p	3,142p

By location	Number of shares	Percentage
UK and Eire	101,861,528	51.2
USA and Canada	45,859,596	23.1
Continental Europe	25,432,034	12.8
Asia Pacific	5,282,639	2.6
Rest of World	1,259,570	0.6
Unidentified	19,245,239	9.7
Total	198,940,606	100.0

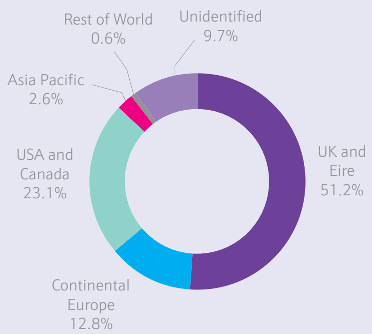
By category	Number of shares	Percentage
Investment and unit trusts	85,394,241	42.9
Pension funds	29,476,617	14.8
Individuals	12,816,752	6.5
Custodians	4,822,183	2.4
Insurance companies	6,946,853	3.5
Treasury shares and employee share schemes	7,474,649	3.8
Sovereign wealth funds	6,401,014	3.2
Charities	1,055,536	0.5
Other	44,552,761	22.4
Total	198,940,606	100.0

By size of holding	Number of holdings	Percentage	Number of shares	Percentage
1 – 1,000	5,116	73.3	1,538,629	0.8
1,001 – 10,000	1,255	18.0	3,468,914	1.7
10,001 – 100,000	376	5.4	12,727,092	6.4
100,001 – 1,000,000	194	2.8	58,223,768	29.3
1,000,001 – 5,000,000	28	0.4	49,135,163	24.7
5,000,001 and over	8	0.1	73,847,040	37.1
Total	6,977	100.0	198,940,606	100.0

Johnson Matthey share price five year performance versus FTSE 100
Rebased to 100 at 1st April 2014



By Location



Share dealing services

A telephone and internet dealing service for UK shareholders is provided by the company's registrars, Equiniti. For further information, including Equiniti's terms and conditions and details of their fees, log on to www.shareview.co.uk/dealing or call 03456 037 037* (in the UK); +44 121 415 7560 (outside the UK).

Dividend – pence per share

	2015	2016	2017	2018	2019
Interim	18.5	19.5	20.5	21.75	23.25
Final	49.5	52.0	54.5	58.25	62.25
Total ordinary	68.0	71.5	75.0	80.0	85.5
Special	–	150.0	–	–	–

Johnson Matthey has a progressive dividend. The board is proposing a final dividend for 2018/19 of 62.25 pence to take the total for the year to 85.5 pence, which is 7% up reflecting our strong performance, continued delivery against our strategy and confidence in the group's future growth prospects.

Dividend payments and DRIP

Dividends can be paid directly into shareholders' bank or building society accounts. Shareholders wishing to take advantage of this facility should contact the company's registrars, Equiniti, or complete the dividend mandate form attached to their dividend cheque. A Dividend Reinvestment Plan (DRIP) is also available which allows shareholders to purchase additional shares in the company. Further information can be obtained from Equiniti, Aspect House, Spencer Road, Lancing, West Sussex BN99 6DA. Telephone 0371 384 2268* (in the UK); +44 121 415 7047 (outside the UK). They can also be contacted via their website at www.shareview.co.uk.

American Depositary Receipts

Johnson Matthey has a sponsored Level 1 American Depositary Receipt (ADR) programme which BNY Mellon administers and for which it acts as Depositary. Each ADR represents two Johnson Matthey ordinary shares. The ADRs trade on the US over-the-counter (OTC) market under the symbol JMPLY. When dividends are paid to shareholders, the Depositary converts such dividends into US dollars, net of fees and expenses, and distributes the net amount to ADR holders.

For enquiries, BNY Mellon can be contacted on 1-888-BNY-ADRS (1-888-269-2377) toll free if you are calling from within the US. Alternatively, they can be contacted by e-mail at shrrelations@cpushareownerservices.com or via their website at www.adrbnymellon.com.

Share price and group information

Information on the company's current share price together with copies of the group's annual and half-yearly reports and major presentations to analysts and institutional shareholders are available on the Johnson Matthey website: www.matthey.com.

The website's Investors section contains extensive information and a number of tools which will be of assistance to investors including historic share price information downloads and a share price charting facility.

For capital gains tax purposes the mid-market price of the company's ordinary shares on 31st March 1982 was 253 pence.

Enquiries

Shareholders who wish to contact Johnson Matthey Plc on any matter relating to their shareholding are invited to contact the company's registrars, Equiniti, Aspect House, Spencer Road, Lancing, West Sussex BN99 6DA. Telephone 0371 384 2344* (in the UK); +44 121 415 7047 (outside the UK) or via their website: www.shareview.co.uk.

Shareholders may also telephone the company on +44 20 7269 8400 or write to:

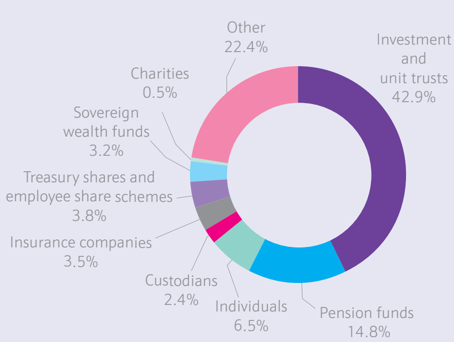
The Company Secretary
Johnson Matthey Plc
5th Floor
25 Farringdon Street
London, UK
EC4A 4AB

For other enquiries shareholders may contact the Investor Relations team at the above address and telephone number, by emailing jmir@matthey.com, or via www.matthey.com

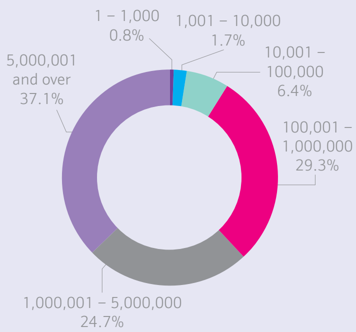
* Lines are open 8.30am to 5.30pm Monday to Friday excluding public holidays in England and Wales.

Other Information

By Category



By Size of holding



Glossary of terms

2006 Act	The Companies Act 2006
ADHD	Attention Deficit Hyperactivity Disorder
ADR	American Depositary Receipt
AGM	Annual general meeting
APB	Auditing Practices Board
API	Active pharmaceutical ingredient
BEV	Battery electric vehicle
CAGR	Compound annual growth rate
Capital expenditure to depreciation ratio	Capital expenditure divided by depreciation Depreciation is the depreciation charge of property, plant and equipment plus the amortisation charge of other intangible assets excluding amortisation of acquired intangibles
CCS	Carbon capture and storage
CDP	Carbon Disclosure Project
CEFIC	The Council of European Chemical Industry
CGU	Cash-generating unit
CH_4	Methane
CHP	Combined heat and power
CO	Carbon monoxide
CO_2	Carbon dioxide
COD	Chemical oxygen demand
CPI	Consumer price index
CSR	Corporate social responsibility
D&I	Diversity and inclusion
DRIP	Dividend Reinvestment Plan
EBITDA	Earnings before interest, tax, depreciation and amortisation
EHS	Environment, health and safety
EIB	European Investment Bank
eLNO®	JM's portfolio of next generation ultra high energy density battery material
EPS	Earnings per share
ESG	Environment, social and governance
ESOT	Employee Share Ownership Trust
EU	European Union
FCA	Financial Conduct Authority
FCEV	Fuel cell electric vehicle
FRC	Financial Reporting Council
Free cash flow	Net cash flow from operating activities, after net interest paid, net purchases of non-current assets and investments and dividends received from joint venture
Fuel cell	Technology which converts hydrogen or other fuels (methanol, natural gas) into clean electricity
GAAP	Generally accepted accounting principles
GHG	Greenhouse gas
GMC	Group Management Committee
GPF	Gasoline particulate filter
GRI	Global Reporting Initiative
GWP	Global warming potential
HDD	Heavy duty diesel
HDV	Heavy duty vehicle
HR	Human resources
HSRG	Health Science Research Group
IAS	International Accounting Standards
IASB	International Accounting Standards Board
ICE	Internal combustion engine
IFRIC	International Financial Reporting
IFRS	International Financial Reporting Standards
Incoterms®	The International Chamber of Commerce's International Commercial Terms
ISA	International Standards on Auditing
ISO 14000	Internationally recognised series of standards which specify the requirements for an environmental management system
ISO 19001	International standard giving guidelines for management systems auditing
ISO 50001	International standard giving guidelines on an energy management system
JM	Johnson Matthey
JMEPS	Johnson Matthey Employees Pension Scheme
KfW	KfW IPEX – Bank GmbH
KPI	Key performance indicator
LCH	Low carbon hydrogen
LDV	Light duty vehicle
LFP	Lithium iron phosphate, a cathode material
LTIIR	Lost time injury and illness rate
LTIP	Long term incentive plan
Margin	Underlying operating profit divided by sales excluding precious metals
MEA	Membrane electrode assembly
NOx	Oxides of nitrogen
NPI	New product introduction
OHSAS 18001	Internationally recognised standard on occupational health and safety management
OSHA	Occupational Safety and Health Administration
OTC	Over-the-counter
PARS	Prior Approval Required Substances
PBT	Profit before tax
Pgm	Platinum group metal
PILON	Payments in lieu of notice
PSP	Performance share plan
PSRM	Process safety risk management
R&D	Research and development
RC 14001	An internationally recognised standard, an expansion of ISO 14001
RDE	Real world driving emissions standards
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation EU chemical control legislation which came into force in June 2007
ROIC	Return on invested capital
RPI	Retail price index
RSP	Restricted share plan
SAICM	Strategic Approach to International Chemicals Management
Sales	Sales excluding the value of precious metals
SIC	Standing Interpretations Committee
SIP	Share incentive plan
SMR	Steam methane reforming
SOx	Oxides of sulphur
SPV	Special purpose vehicle
SVHC	Substance of very high concern
Terawatt hour	Billion kilowatt hours
The Code	The UK Corporate Governance Code, issued by the FRC
TPI	Third party intermediary
TRIIR	Total recordable injury and illness rate
TSCA	Toxic Substances Control Act
UN	United Nations
UN SDGs	United Nations Sustainable Development Goals
VOC	Volatile organic compound
Working capital days	Non-precious metal related inventories, trade and other receivables and trade and other payables (including any classified as held for sale) divided by sales excluding precious metals for the last three months multiplied by 90 days
ZEV	Zero emission vehicle

Index

	Page
Accounting policies	163-172
Accounts	156-231
Amortisation of acquired intangibles (note 7)	179
Audit Committee Report	123-131
Audit fees (note 10)	180
Auditor's report	223-231
Balance Sheets	159
Basis of reporting – non-financial data	234-237
Board of Directors	100-102
Borrowings (note 24)	191
Business model	22-23
Capital expenditure (and note 1)	88-89, 173-175
Capital structure	89
Cash and cash equivalents (note 24)	191
Cash flow hedges transferred to income statement (note 31)	204
Cash Flow Statement	160
Chairman's letter	104
Chairman's statement	6-9
Changes in accounting policies and restatements	219-222
Changes in equity	161-162
Chief Executive's statement	10-12
Clean Air – performance review	80-81
Commitments (note 35)	215
Community investment and charitable programmes	67
Company details	247
Comprehensive income (and note 14)	158, 183
Contingent liabilities (and note 36)	89, 215
Corporate Governance Code	105
Corporate Governance Report	106-118
Customers	41-47
Deferred taxation (notes 13, 29)	182, 194-195
Depreciation and amortisation (note 9)	180
Directors' Report	151-154
Dividends (and note 31)	89, 151, 203
Earnings per ordinary share (note 15)	183
Effect of exchange rate changes (note 3)	178
Efficient Natural Resources – performance review	82-83
Employee numbers and costs (note 11)	181
Employee share ownership trust (ESOT) (note 31)	203
Environmental performance	56-59
Fair values (note 33)	211-212
Financial assets and liabilities (note 26)	192
Financial calendar	246
Financial review	86-89
Financial risk management (and note 32)	90, 206-210
Foreign exchange gains and losses (note 9)	180
Free cash flow	89
Global Reporting Initiative (GRI)	240-241
Glossary of terms	244
Going concern	90
Goodwill (note 17)	185-186
Governance	98-155
Grants	166
Group Management Committee	13
Group performance review	77
Guarantees (note 28)	193-194
Health – performance review	83-84
Health and safety	69-73
Human resources policies	62-67
Human rights	50-51
Income Statement	158
Intangible assets (note 18)	187
Inventories (notes 9, 22)	180, 189

	Page
Investments in joint venture and associate (note 20)	188
Investments through other comprehensive income (note 21)	188-189
JM in profile	4-5
Key management personnel (note 37)	216
Key performance indicators	30-33
Loss on disposal of businesses (and note 5)	87, 179
Loss on significant legal proceedings (note 6)	179
Major impairment and restructuring charges (and note 8)	87, 180
Materiality assessment	27
Modern slavery and child labour	51
Movements in assets and liabilities arising from financing activities (note 25)	192
Net debt (and note 24)	89, 191
New Markets – performance review	84-85
Net finance costs (note 12)	181
Nomination Committee Report	119-122
Non-controlling interests	161
Operating leases (notes 9, 35)	180, 215
Operating profit (note 9)	180
Operations	49-59
Other reserves (note 31)	203-206
Outlook	12
Payables (note 27)	193
People	61-75
Performance highlights	Intro pages
Post-employment benefits (and note 30)	88, 195-203
Product lifecycle regulatory compliance	55
Product stewardship	54
Property, plant and equipment (note 16)	184-185
Provisions (note 28)	193-194
Receivables (note 23)	190
Related parties (note 37)	216
Related undertakings (note 38)	216-218
Remuneration Report	132-150
Research and development (and note 9)	35-39, 180
Responsibility of Directors	155
Responsible sourcing	49-51
Return on invested capital (and note 31)	89, 205
Revenue (note 2)	176-178
Risks and uncertainties	91-96
Science	35-39
Sector performance review	78-85
Sector performance summary	78-79
Segmental information (note 1)	173-175
Share-based payments (note 34)	212-214
Share capital (and note 31)	118, 203-206
Shareholder information	242-243
Sources of estimation uncertainty	170
Stakeholder communications	73
Stakeholders	28-29
Strategic Report	2-97
Strategy	14-21
Structure	4-5
Subsidiaries (notes 19, 38)	188, 216-218
Sustainability framework	24-27
Sustainable business goals	24-25, 234-238
Taxation (and notes 13, 14, 29)	88, 182-183, 194-195
Trade and other payables (note 27)	193
Trade and other receivables (note 23)	190
Treasury policies	90
Underlying profit reconciliations (note 4)	179
Values	22-23, 61
Verification of non-financial data	239
Viability	97

Financial calendar 2019/20

2019

6th June
Ex dividend date

7th June
Final dividend record date

17th July
128th Annual General Meeting (AGM)

6th August
Payment of final dividend subject to declaration at the AGM

21st November
Announcement of results for the six months ending 30th September 2019

28th November
Ex dividend date

29th November
Interim dividend record date

2020 (provisional)

4th February
Payment of interim dividend

28th May
Announcement of results for year ending 31st March 2020

4th June
Ex dividend date

5th June
Final dividend record date

23rd July
129th AGM

4th August
Payment of final dividend subject to declaration at the AGM

Company details

Registered Office

Johnson Matthey Plc

5th Floor
25 Farringdon Street
London EC4A 4AB
Telephone: +44 (0)20 7269 8400
www.matthey.com
E-mail: jmpr@matthey.com

Johnson Matthey Plc is a Public Limited Company registered in England – Number 33774

Professional Advisers

Auditor

PricewaterhouseCoopers LLP
1 Embankment Place
London WC2N 6RH

Brokers

Citigroup Global Markets Limited
Citigroup Centre
33 Canada Square
London EC14 5LB

J. P. Morgan Cazenove
25 Bank Street
Canary Wharf
London E14 5JP

Lawyers

Herbert Smith Freehills LLP
Exchange House
Primrose Street
London EC2A 2EG

Registrar

Equiniti
Aspect House
Spencer Road
Lancing
West Sussex
BN99 6DA
Telephone: 0371 384 2344 (in the UK)*
+44 (0)121 415 7047 (outside the UK)
www.shareview.co.uk

* Lines are open 8.30am to 5.30pm Monday to Friday excluding public holidays in England and Wales.

Printed by Pureprint Group Limited, a Carbon Neutral Printing Company. Pureprint Group Limited is FSC certified and ISO 14001 certified showing that it is committed to all round excellence and improving environmental performance is an important part of this strategy. We aim to reduce at source the effect our operations have on the environment, and are committed to continual improvement, prevention of pollution and compliance with any legislation or industry standards.

FSC
www.fsc.org
MIX
Paper from responsible sources
FSC® C022913

Designed and produced by MAGEE
www.magee.co.uk

www.matthey.com/AR19

Johnson Matthey Plc
5th Floor
25 Farringdon Street
London EC4A 4AB
UK
Tel: +44 20 7269 8400

Johnson Matthey
Inspiring science, enhancing life