Johnson Matthey: the catalyst for a sustainable planet

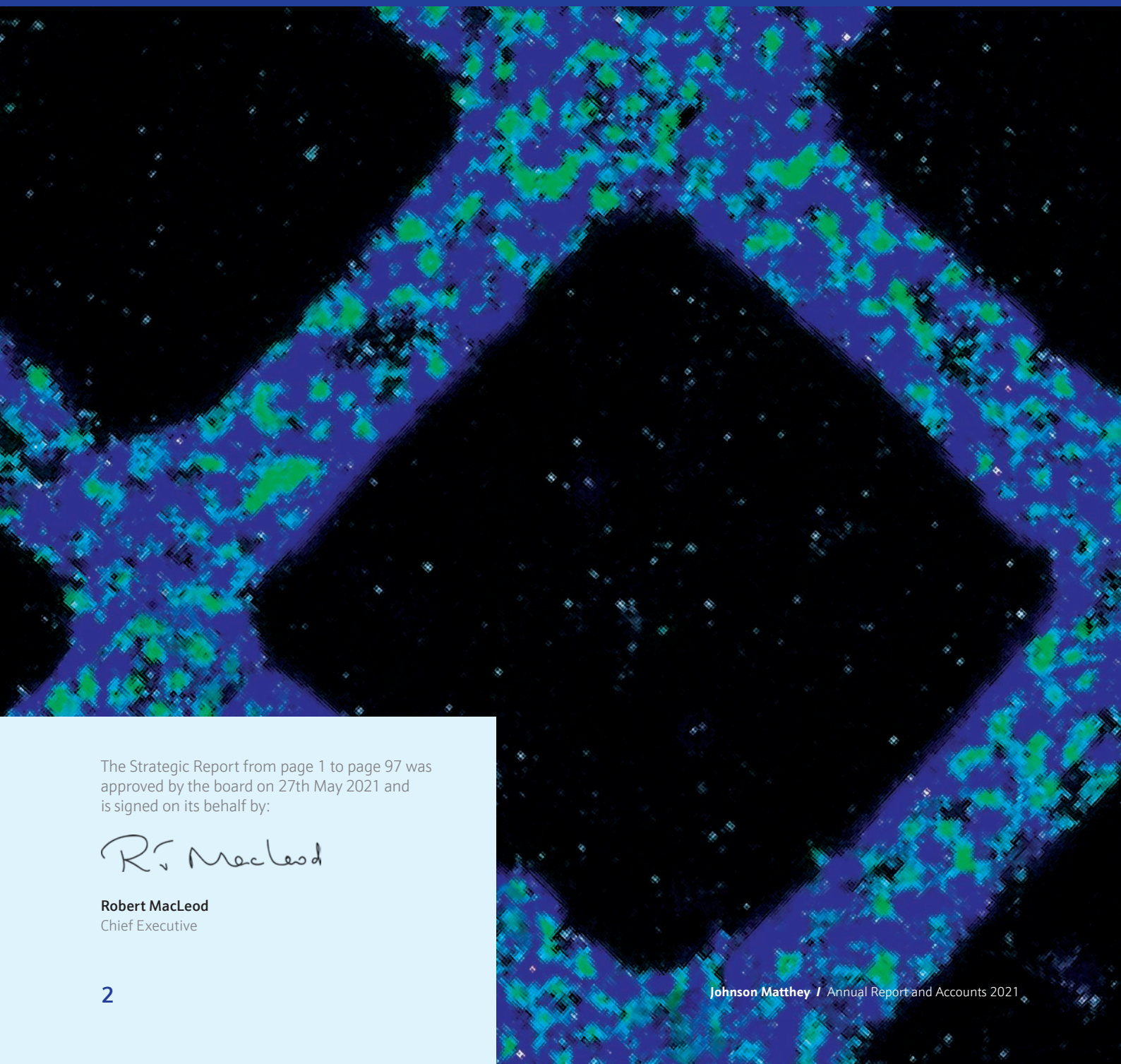
Have you ever wondered how our planet can sustain modern, healthy lifestyles for a growing population? Have you thought about how the way we travel, heat our homes and use natural resources will have to change to meet the ambitious net zero carbon emissions targets that so many governments and companies are making? Or how we might create a fairer society for all in a post-COVID-19 world – a world in which businesses use their skills and scale to 'build back better'?

We have. Johnson Matthey's vision is for a world that's cleaner and healthier, today and for future generations. And so we are making it our business to help address the four essential transitions the world needs for a sustainable future: transport, energy, decarbonising chemicals production and a circular economy.

How? By drawing on our deep expertise in the transformative power of metals chemistry.

Expertise that we've developed and used for more than 200 years to address some of society's biggest challenges. And it's more important now than ever, as we help our customers and our own business adapt processes and products to reach the sustainability goals that our planet and society are depending on.

Strategic Report



The Strategic Report from page 1 to page 97 was approved by the board on 27th May 2021 and is signed on its behalf by:

Robert MacLeod
Chief Executive

Contents

Case study

Cleaning the air we breathe

According to the World Health Organisation, 4.2 million people die every year as a result of exposure to outdoor air pollution, while 91% of the world's population lives in places where air quality exceeds safe limits.

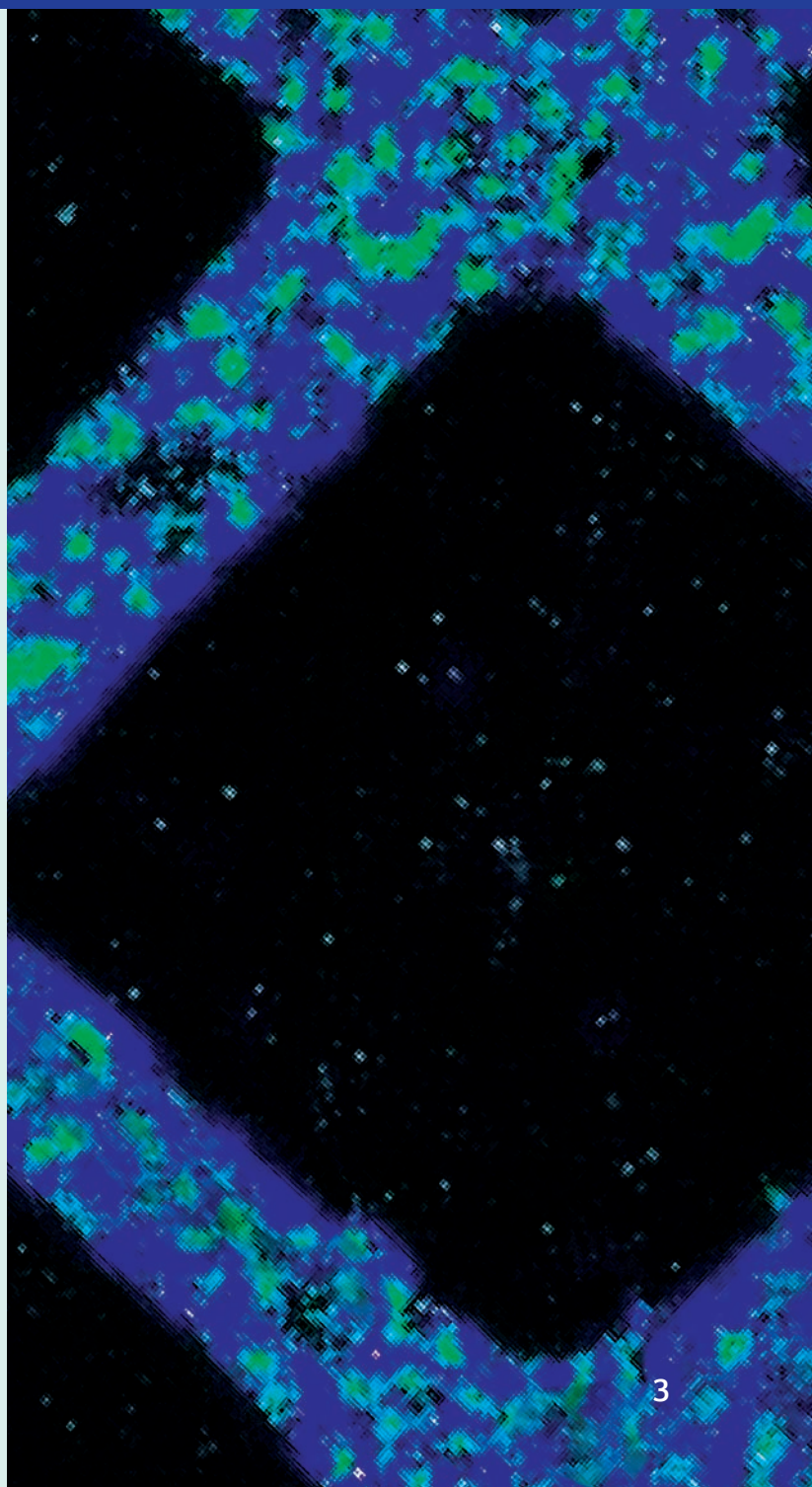
We've been at the forefront of the fight against air pollution for decades, producing our first commercial autocatalyst in the 1970s. Controls on how much a new car can emit have been tightening ever since. And they continue to get tighter. Both in the EU and here in China, for example, are anticipating new emissions standard soon, bringing in the strictest regulations for vehicle emissions yet.

Our R&D teams are already developing the next generation of catalysts that will help our customers meet these regulations.

It's exciting work. And it's important since the internal combustion engine isn't going to disappear overnight. This is particularly true for large, heavy duty vehicles like trucks, which are harder to decarbonise. And with the number of people living in cities expected to keep rising, catalysts to control the emissions from our vehicles are more vital than ever.

It's great to know that one in every three new cars on the road is fitted with a JM catalyst, working constantly to clean the air we breathe.

Zhou Shang
Scientist



Technologies to drive down transport emissions

Our global transport system is going through its biggest transition in decades.

Climate change and increasingly stringent air quality regulations are pushing the automotive industry to build cleaner engines and use new fuel sources, such as batteries and hydrogen fuel cells.

That's where we come in.

Cleaner air for all

Today, our emission control technologies are used in hundreds of millions of cars, buses and trucks around the world, helping to remove millions of tonnes of harmful pollutants, like nitrogen oxides and particulates, produced by gasoline and diesel engines. The end result is fewer harmful emissions from vehicles and cleaner air for everyone.

Despite a growing number of government deadlines to phase out petrol and diesel vehicles, we're not going to see the traditional combustion engine disappear any time soon. So, we'll continue to innovate and improve these technologies to keep people moving in the cleanest way possible while the transition towards battery and fuel cell vehicles takes place.

New technology to enable the transition

Our technology is central to this transition. Because we understand the part metals play in complex reactions and electrochemistry inside batteries, we're designing the next generation of battery cathode materials that will help drive the mass adoption of electric vehicles (EVs) in the next decade. These nickel-rich, advanced technologies – that we call eLNO® – can help increase the amount of energy a battery holds allowing a car to travel further on a single charge. And because every customer's needs and challenges are unique to them, we can tailor our cathode material products to their precise technical requirements.

Creating sustainable value chains

But we also have a responsibility to use our planet's resources wisely and lower the impact of our own operations. That's why the new battery materials factories we're building in Poland and Finland will be powered by electricity from renewable sources as soon as they start production, and we've committed to make the production of our eLNO products climate neutral by 2035. We've also signed up to the Global Battery Alliance's ten guiding principles to help establish a sustainable battery value chain.

Batteries are just one of the ways in which we can power a more sustainable transport network, though. For decades we've been using our knowledge of metals chemistry and electrochemistry to design and make the specialist catalyst coated membranes used inside fuel cells. Our very first fuel cell technologies even helped power the US space programme in the 1960s. Today, our focus is firmly back on Earth and our fuel cell technologies help vehicles that are less suited to batteries, such as long range trucks, and high use vehicles like buses, fork-lift trucks and some cars, run on the clean power of hydrogen.

There are many scientific, financial and policy challenges to overcome in both battery and fuel cell technology. But we're working with our customers today to tackle those challenges and help make the transport revolution a reality.

Our impact

1 in 3
new cars carries one of our emission control catalysts

2.5m tonnes
pollutants prevented from getting into the air by our catalysts every year

211k tonnes
CO_2 equivalent avoided by our battery materials and fuel cell technology in 2020/21

Our market

~1,800kT
demand for automotive high energy cathode materials expected by 2030[1]

5%
of world's trucks will be powered by fuel cells by 2030[2]

1 IHS and Johnson Matthey estimates.

2 LMC, KGP and Johnson Matthey assumptions which equate to ~0.4 million trucks.

Case study

Decarbonising heavy duty transport

Heavy duty transport is essential for keeping goods and people moving. But it's also a major source of carbon emissions. In the EU alone, lorries, buses and coaches represent around one quarter of all road transport emissions.

Fuel cells have the potential to help decarbonise this part of our transport system. They're ideal for heavy duty or high usage applications, such as trucks and buses, because of their longer range, low relative weight and fast refuelling times compared to battery alternatives. They use clean or low carbon fuels, such as hydrogen, to generate power without producing harmful emissions, since water is the only byproduct.

This is a growing market, with 5% of trucks globally expected to be powered by fuel cells by 2030, rising to one third by 2040.

We're now scaling up our business to meet demand. For example, we've built a new facility in Shanghai, China, where the market for our catalyst coated membranes is expected to grow to more than £1 billion a year by 2030. Our broader expansion programme is now complete to double manufacturing capacity for products that will enable 2GW a year of power generation from fuel cells.

We also announced a multi-million pound deal and joint development agreement with SFC Energy, a global leader in hydrogen and direct methanol fuel cells, to supply at least 400,000 membrane electrode assemblies.

Commercialising low carbon power to transform our energy systems

If the transport transition is all about moving people and goods while lowering emissions, the energy transition is about finding sustainable ways to power our world.

Hydrogen has a huge role to play – in fact, reaching net zero is not possible without it. As well as being used in fuel cells for vehicles and as a method to store and move power, hydrogen can replace natural gas as a fuel source for big industrial turbines. That's why more and more industries are looking at hydrogen technologies to help them decarbonise.

Hydrogen – the wonder element

And no wonder. When burned as a fuel, hydrogen's only byproduct is water. It's the most abundant element in the universe, but it only exists in compounds, so, to be useful, it must be separated from other elements – think of the H in H_2O (water) or CH_4 (methane). So how that hydrogen is made – and the impact the process has on the planet – matters too.

Today, most hydrogen is made using fossil fuels, which comes with associated carbon dioxide (CO_2) emissions – this is known as grey hydrogen, and JM is a leading producer of the catalysts used to make grey hydrogen, with 40% of market share globally.

But it is also possible to make lower carbon 'blue' and 'green' hydrogen.

Leading in low carbon hydrogen

'Blue' hydrogen is made from natural gas with the associated CO_2 emissions captured and stored away. Here too, we have leading technology to produce low carbon hydrogen that uses less natural gas, allows more than 95% of the CO_2 to be captured, and costs less than the other options. The technology won us a prestigious IChemE Energy Award in 2020. We are now commercialising that technology at scale and using it in the UK's two flagship clean hydrogen projects – HyNet and Acorn.

Building towards the green revolution

'Green' hydrogen, meanwhile, is made using renewable energy, such as solar or wind, and water electrolysis. While this method is not as mature, it has the potential to help some of our biggest, hard-to-decarbonise industries reach their net zero targets.

Electrolysis and fuel cells share a lot of similar technologies, so we're using our metals and catalysis expertise to develop the next generation of electrolyser catalyst coated membranes and help commercialise the production of green hydrogen.

Case study

Our impact

600k tonnes

per annum of CO_2 captured by the HyNet project, equivalent to taking 250,000 cars off the road – it will produce 80kT of hydrogen per year

10s of MW

green hydrogen capacity enabled by our products – enough to power several thousand homes

Our market

2.5-fold

increase in global hydrogen production by 2030[1]

18%

of energy per annum derived from hydrogen sources by 2050, preventing 6 gigatonnes of CO_2 entering the atmosphere

[1] Source: International Energy Agency.

Enabling the transition to the hydrogen economy

Whether it's blue or green, hydrogen will play a pivotal role in decarbonising our societies. By 2050 we'll need eight times more hydrogen than we produce today.

JM's experience in grey hydrogen production, methanol process technology and fuel cells mean we're perfectly positioned to lead in both.

This year we made leaps in the commercialisation of our green hydrogen solutions. We appointed Eugene McKenna as our first Managing Director of green hydrogen. He moves from his role leading business development, strategy and innovation within JM's Efficient Natural Resources Sector, where he focused on a pipeline of innovative low carbon technologies including those for clean hydrogen.

We also announced new green hydrogen capacity for the production of catalyst coated membranes. This capacity is co-located with JM's cutting edge plant in Swindon, UK, where high performance fuel cell components including membrane electrode assemblies, catalyst coated membranes, and fuel processor catalysts are produced at scale. The development will enable tens of megawatts of green hydrogen production, with the ability to scale up to multi-gigawatt production with market growth.

Adapting our knowhow to help decarbonise the way chemicals are produced

Our world relies on chemicals – they are in everything from our clothes to cleaning products, food packaging to medicine.

But like transport, the industry was built on fossil fuels and will need to change if society is to reach its net zero goals.

Chemical manufacturers know how to turn raw materials like oil and gas into the chemical building blocks that are used to make the case for your smartphone or the plastic pipes that deliver clean water to your home. So finding ways to decarbonise chemical manufacturing is essential if the lifestyles that many of us enjoy are to remain sustainable. That doesn't just mean switching to more renewable forms of power (such as hydrogen) to run chemical plants – although that is important. It also means using more sustainable materials to replace fossil fuels as the 'feedstocks' that make the chemicals in the first place.

Pivoting to greener feedstocks

Our catalysis technology and process design expertise can help. Broadly speaking, our catalysts don't care about feedstocks – with the right knowhow, chemical reactions can be triggered in anything from natural gas to sugarcane to household waste.

But catalysis is just one part of a very large, complex system that has been built over decades. That means this transition isn't going to happen overnight. It will take time and investment to build new infrastructure and secure commercial levels of alternative feedstocks. In the first instance, the industry will likely combine fossil fuels with carbon capture and storage. But in the longer term, as governments continue to introduce environmental regulation, carbon taxes and deadlines, we expect to see a dramatic shift.

The future of chemicals, today

And we'll be ready when it happens. We are already working with others to commercialise a process to convert renewable feedstocks into the chemical, bio-paraxylene which is a key raw material for producing renewable polyester. And our catalysts and technology have been chosen for the world's first wind to methanol plant in Chile.

Our impact

900k litres

climate neutral methanol to be produced each year using JM technology in the new Haru Oni wind to methanol plant in Chile

Our market

90%

of chemical processes use catalysts

Case study

World first wind to methanol plant

Methanol is an important chemical found in a wide variety of end products, from fuels to solvents to antifreeze. But today most of it is made from fossil fuels, which create carbon dioxide (CO_2) emissions.

Using our expertise in catalysis and process design, plus our flexible catalysts, which can be used with different feedstocks, we're helping the chemicals industry find ways to reduce those emissions.

For example, we're now part of the Haru Oni project in Patagonia, Chile, being led by Siemens Energy. The project will be the world's first integrated large scale plant to produce methanol from wind power, instead of a more carbon intensive feedstock such as coal.

To do that, we are licensing our methanol technology and supplying the engineering, catalysts and equipment needed to make around 900,000 litres a year of low carbon methanol as early as 2022. All of that using only green hydrogen made from wind power and CO_2 from the air.

The project will demonstrate the potential for innovation and collaboration to help decarbonise chemicals production.

Recycling to create a truly circular economy

We all know it's important to recycle to reduce waste, prevent pollution and protect our planet's precious, finite resources.

But, if we are to sustain a growing population with modern lifestyles, we must go a lot further in building a truly circular economy.

That means a system where everything is designed, produced and made for use and reuse, over and over again.

This is particularly important for the energy and transport transitions, where the products we make, like catalytic converters, battery materials and fuel cells, rely on scarce metals, such as palladium, platinum and cobalt. Not only does an ounce of recycled platinum group metal (pgm) contain around 50 times less embedded carbon than newly mined pgm, but the more we can recycle and reuse, the less we need to mine in the first place, which itself has associated social and environmental impacts.

The world's first circular economy

JM helped create one of the world's first circular economies in platinum group metals, and today we're the world's largest recycler of pgms. Our pgm extraction and separation processes are so advanced that we can recycle platinum, for example, to a minimum purity of 99.95%. And all our metal-containing catalysts are designed to accelerate chemical reactions using the minimum amount of metal.

Applying our expertise to develop new recycling solutions

To create a truly circular economy, however, we need to think about how we recycle new products before we've even made them. That's why we're working hard to take what we already know about pgm recycling and apply it to our battery, fuel cell and green hydrogen technologies. For example, in April 2021 we announced that we're partnering with Stena Recycling Group on technologies to recycle and reuse the scarce metals from used electric vehicle batteries in new battery materials.

Our impact

99.95% purity

when recycling platinum using our advanced processes

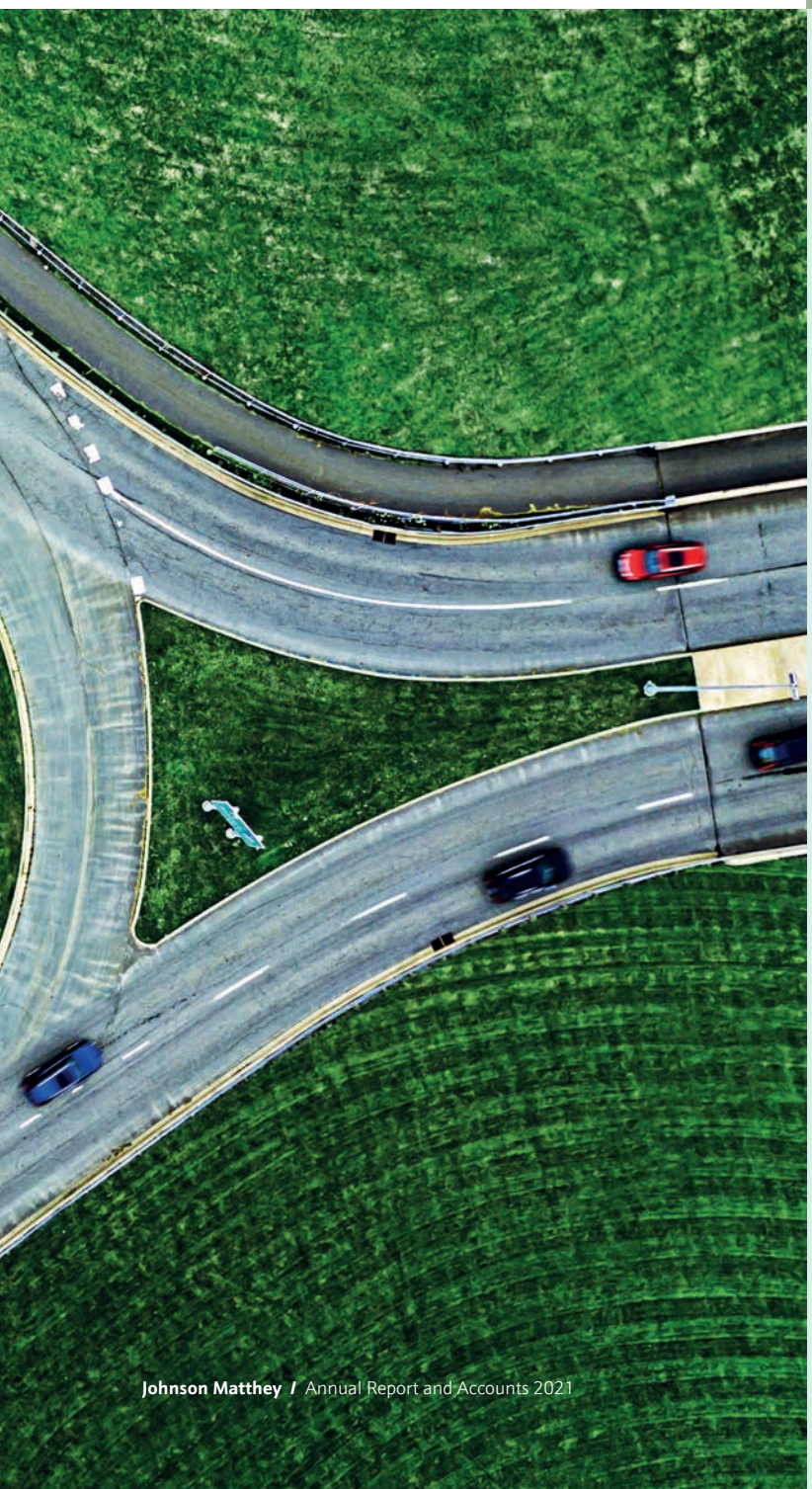
~40% reduction

in platinum used per kW in our fuel cell technologies in ten years

Our market

~10-fold

estimated increase in quantity of lithium-ion batteries used in vehicles and power storage by 2030, leading to exponential increase in demand for recycling



Case study

Creating a sustainable battery supply chain

Demand for electric vehicles (EVs) is expected to grow rapidly in the next decade. That means demand for the materials that go into EV batteries will rise too. For example, the quantity of lithium-ion batteries used in vehicles and power storage is expected to increase nearly ten-fold in the next decade.

To help conserve these scarce resources, the world needs to find more sustainable ways to make, use and recycle battery materials.

That's why we're taking several important steps to help create a more sustainable battery supply chain. For example, we're working with Stena Recycling Group, a leading recycler of industrial waste and end of life products, to develop an efficient European value chain for recycling lithium-ion batteries and cell manufacturing materials.

We're also developing additional steps to produce fully refined materials that are suitable for the lithium-ion battery manufacturing process to help increase the recycled content of new batteries. And we continue to work with RCS Global to improve visibility in our own supply chain so that we can ethically secure the materials our business needs.

Meanwhile, we're finding ways to make our operations more sustainable too. For example, for our new battery materials plant in Finland we are developing a unique system to capture and treat effluent waste. The plant will also use 100% renewable energy from the day it begins production.

At the heart of sustainability: the transformative power of metals chemistry

Metals are extraordinary, and it's their properties that make everything we do at JM a possibility.

Their make-up at an atomic level has made a huge difference to the world around us.

The way some metals are structured helps reduce the amount of energy needed to create a chemical reaction, while unique shapes on the surface of metals create the conditions for specific reactions to occur in the first place. It is a complex, yet remarkably efficient, process.

From tiny changes to huge effects

We believe our team of brilliant scientists and engineers understands better than anyone how scarce metals work at both an atomic level and as part of a bigger system, whether that's in a car exhaust, a chemical reactor or even the human body. We know how they behave and how they interact so that reactions happen quickly, efficiently and with the minimum amount of energy used and waste produced. We use this knowledge to design and customise products and solutions for our customers that use precise amounts of these scarce metals. This protects our planet's precious resources and lowers the cost of the key technologies that have the potential to revolutionise the way we move, use power and do more with less.

Our expertise helps us to make catalysts that remove pollution from cars, trucks and buses. It helps us develop new catalytic technologies that turn renewable energy sources into clean burning hydrogen and make clever new materials for batteries in electric vehicles. It helps us design highly efficient catalysts, chemicals plants and manufacturing processes for our customers. And it helps us recycle and reuse critical metals so that we can keep more of these scarce resources in the ground. Our technology is even helping to turn household waste into jet fuel.

Creating a cleaner, healthier world, for everyone

JM has spent two centuries understanding how metals work to develop and commercialise the products, technologies and processes our customers need to solve the problems of the times. But creating a cleaner, healthier world isn't just about strong science, effectively commercialised.

It's also about embedding sustainability into every aspect of our business – from promoting ethical supply chains and reducing greenhouse gas (GHG) emissions in our own operations, to keeping our people safe at work while building a diverse and inclusive team that reflects the society in which we operate. It's about recognising that we are part of a wider ecosystem and that we have the skills and knowhow to help the world build back better. And so, in 2021, we announced our goal to be net zero by 2040 together with a set of ambitious new sustainability commitments and targets.

The transitions we're facing will be our most challenging yet. But they also represent an opportunity to create a fairer, more sustainable future for all. With our smart people, financial strength and unique technology based on metals chemistry, Johnson Matthey can be the catalyst that enables these shifts, making this sustainable future a reality for all.

Our impact

84.7%

of sales today from products that contribute positively to our four priority UN Sustainable Development Goals; target to increase to more than 95% by 2030

Our impact

Net zero by 2040

with science based targets to reduce our greenhouse gas emissions by 2030

Case study

Tapping into innovation ecosystems

JM is a company with science and innovation right at its core. It's been part of our DNA for more than 200 years, allowing us to lead the way first in metallurgy, then to areas of real benefit to society like reducing pollution, relieving pain and making the most efficient use of the planet's natural resources.

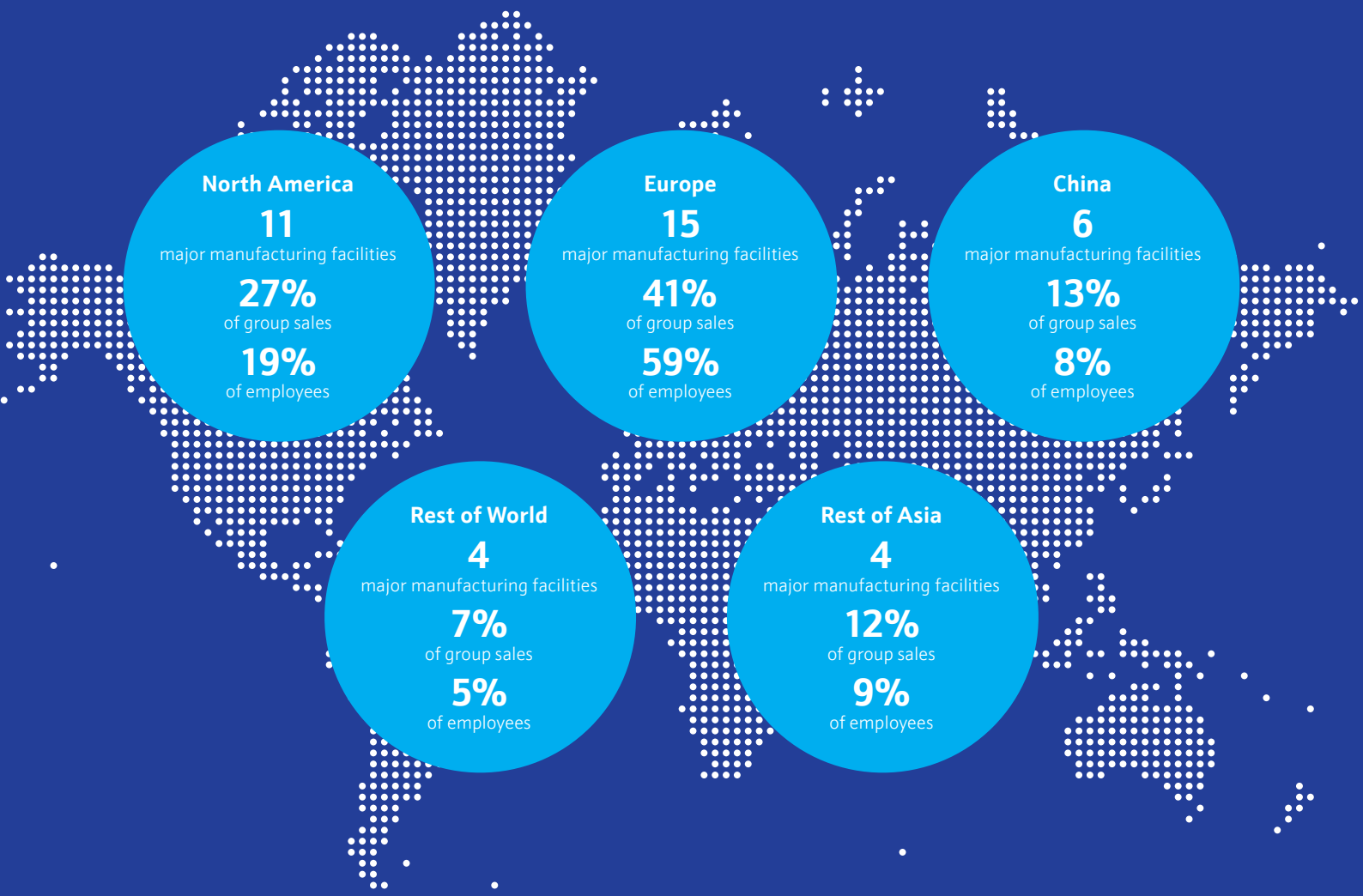
Now as we lean into tackling the challenges of climate change and enabling the big transitions, we must innovate even faster than before. But we know innovation doesn't happen in a vacuum. Achieving our vision means collaboration and cooperation both inside JM and outside, with partners across our value chains including customers, industry partners, start-ups and universities.

This year we announced our partnership with the Environmental Sustainability Innovation Lab (ESIL). Based in Israel, ESIL will provide a platform for establishing breakthrough sustainable innovation solutions and disruptive solutions to environmental problems. It will enable a dynamic ecosystem delivering economically viable technology solutions that support a socially just transition to a net zero world.

Last year we joined Greentown Labs, the largest cleantech start-up incubator in North America as its newest Gigawatt partner. And we have also been playing a leadership role in building new ecosystems like the Carbon-to-Value (C2V) initiative, sponsored by New York State Energy Research and Development Authority and the Canadian Government. As a member of the leadership council, in addition to building a start-up ecosystem in CO_2 capture and conversion technologies, we have also been able to develop our network with key stakeholders from industry and government from the US and Canada.

As both the pace and breadth of clean technology development continue to increase, we'll continue to tap into a growing number of globally leading innovation ecosystems to help us move at pace and to help shape long term strategies in sustainability.

Our global footprint



We have ~14,580 people working in our 30+ locations around the world.

2020/21 in numbers

Robust performance and growth opportunities driven by sustainable solutions.

Revenue
£15.7bn
+8%
2019/20: £14.6bn

Sales[1,2]
£3,922m
-5%[3]
2019/20: £4,170m

Operating profit
£323m
-17%
2019/20: £388m

Underlying operating profit
£504m
-5%[3]
2019/20: £539m

Earnings per share
106.5p
-20%
2019/20: 132.3p

Underlying earnings per share[1,4]
182.0p
-9%
2019/20: 199.2p

Ordinary dividend per share
70.00p
2019/20: 55.625p

Cash inflow[1,5]
£305m
2019/20: £52m

Our sustainability framework

We've set ourselves new ambitious sustainability goals and targets for 2030 to accelerate a cleaner, healthier world.

Read more about our framework, goals and targets on pages 60 to 85

Products and services

Sales contributing to four priority UN SDGs[6]
84.7%
2019/20: 83.6%

Gross R&D spend contributing to four priority UN SDGs[7]
87.3%
2019/20: 86.2%

Operations

Scope 1 and 2 GHG emissions[8]
388,904 tonnes CO_2 equivalent
2019/20: 391,459 tonnes CO_2 equivalent

Upstream Scope 3 GHG emissions[9] (purchased goods and services)
3.1 million tonnes CO_2 equivalent
2019/20: 3.9 million tonnes CO_2 equivalent

People

Total recordable injury and illness rate[10]
0.56
2019/20: 0.79

Employee engagement[11]
65%
2019/20: 63%

1 The group uses various non-GAAP measures which are not defined by generally accepted accounting principles (GAAP) as we believe these provide valuable additional information in understanding the group's performance. For further details, see note 38 on pages 243 to 246.
2 Sales excluding precious metals. For definition see pages 243 and 244.
3 At constant rates (see note 2 on page 36).
4 For definition see pages 243 to 246.
5 For definition see pages 243 to 246.
6 For definition see page 261.
7 For definition see page 261.
8 For definition see pages 261 and 262.
9 For definition see page 262.
10 For definition see page 264.
11 For definition see page 264.

Chair's statement

Patrick Thomas Chair

The team has delivered an outstanding set of results given all the challenges of COVID-19.

When I wrote my statement last year, we were some months into the COVID-19 pandemic and already witnessing the virus's enormous impact on our lives and businesses.

Despite the economic uncertainty, I spoke of my confidence in our diverse business and talented employees, knowing that you often see what a company and its people are made of during a crisis. What I have witnessed over the past 12 months more than confirmed my opinion.

So I am delighted to see such a strong set of financial results, despite the difficult economic climate we found ourselves in. The nature of our portfolio, with its range of end markets and geographies, has helped us retain our financial strength and weather the COVID-19 storm. Our results represent a huge achievement for the whole team.

It has also been an extraordinarily exciting year for Johnson Matthey, not least the board level conversations about our strategic direction.

A board uniquely equipped to guide and challenge strategy

The way our board develops strategy is, in my experience, unique, because of the incredible depth of talent our directors have in the industry. The executive team brings strategic plans to the board multiple times before we approve them – I often describe this process as like baking a cake, with board meetings providing some extra cooking time. This level of scrutiny and co-development is an integral part of our culture and has helped us anticipate and adapt to big market changes over our 200 year history. And I firmly believe it's what will successfully guide us through the next four massive societal transitions – in transport, energy, decarbonising chemicals production and the circular economy.

Of course, these transitions were already happening, but COVID-19 has shone new light on the fragility of our planet and humanity's place in its complex ecosystem. Climate change, environmental stewardship and social justice have all moved up the agenda. As a result, governments and companies are setting tough sustainability targets, including net zero, to help the world 'build back greener'.

Our purpose places us at the centre of the sustainability transitions

All of which sits right at the heart of Johnson Matthey's vision for a cleaner, healthier world, today and for future generations. Johnson Matthey has an exciting opportunity to help our customers deliver the four transitions needed for a more sustainable future. It's no coincidence that 87% of our R&D investment and 85% of the products we sell are aligned with the four UN Sustainable Development Goals we have prioritised. These are statistics to be proud of and they show that what we do today matters.

So we know we can use our expertise in metals chemistry to act as a literal catalyst through the transitions, providing customers with the products and solutions to help them achieve their sustainability goals.

The key to success lies in investing and building at the right speed, which brings me back to the way that the board works with Robert and his team. This year, we have spent considerable time challenging the management team on our key strategic priorities, such as growth in our battery materials and hydrogen businesses. We also supported the team in carrying out the business transformation programme to ensure that our established businesses are organised in the best way to provide the cash for investing at pace.

Understanding risk is an essential part of a board's job. But one of our great strengths as a company is how we address challenges as opportunities, and we are in an exciting position because the opportunities offered by the transitions far outweigh the risks. But if we are to enable those transitions, we must do everything we can to be a sustainable business ourselves. So this year we set new, ambitious sustainability targets, including a target to reach net zero by 2040, and in May 2021 we established a new board committee, the Societal Value Committee, to oversee progress.

Continuing to listen to our people's views

Our success in reaching those targets will rely heavily on the talents and expertise of our people. Indeed, Johnson Matthey wouldn't be the company it is today without them. That's why the board has always made it a priority to talk to as many employees as possible. We continued to do that through our country level engagement forums – albeit virtually – and I know I speak for all my colleagues in saying what useful discussions we had on important issues like diversity and inclusion. I am also thrilled to see that many of the scores in our annual employee engagement survey rose this year.

> We are in a unique position to help the world tread a more sustainable path. Our customers see us as part of the solution and are asking for our help. Thanks to the work we have done, and continue to do, it is a request we are more than ready to answer."

Ensuring good governance throughout the pandemic

A key role for the board is ensuring good governance, and I'm pleased that, through creative ways, we succeeded in doing so despite the pandemic. It's never as easy to have group discussions on complex subjects virtually, so we adjusted our approach to board meetings, setting up virtual one-to-one sessions between the non-executives and those presenting papers, so that people were fully briefed ahead of time. This allowed for a much richer discussion round the table, but it also meant considerable extra work and I would like to thank my colleagues for taking that time.

We also found creative ways to adapt our assurance measures, including live, encrypted, certified video links to assess stock levels. And the board has spent more one-to-one time with our Audit Committee Chair, Doug Webb. Doug has spent a lot of his time this year supporting risk management work in our battery materials supply chains.

In some ways, though, the pandemic has made certain activities more efficient. While travel restrictions have forced us to meet stakeholders online, it has meant that I've had the chance to talk individually to nearly half of all our major shareholders this year – far more than I usually would during a normal year.

Welcoming new colleagues to the board

And a pandemic hasn't stopped us hiring some excellent new directors. I am delighted to welcome Stephen Oxley as our new Chief Financial Officer. Stephen brings enormous experience from his almost 30 years at KPMG. He takes over from Karen Hayzen-Smith, who has done an outstanding job as our interim CFO for the past six months, and now takes up the role of Director of Group Finance. I'd like to thank Anna Manz, our previous CFO who left us in November, for her contribution to Johnson Matthey over almost four years. She played an important role across the company and her leadership helped secure our financial strength through these unprecedented times. I'd also like to reiterate my thanks of last year to Alan Ferguson, who retired from the board in July, for his contribution, and to thank both Doug Webb, our new Audit Committee Chair and John O'Higgins, our new Senior Independent Director, for stepping up their non-executive roles.

Dividend update

The board will propose a final ordinary dividend for the year of 50.0 pence per share at the upcoming AGM. Together with the interim dividend of 20.0 pence, this gives a total ordinary dividend of 70.0 pence representing a 26% increase on the prior year. The board anticipates restoring future dividend payments to levels seen prior to the COVID-19 pandemic when circumstances permit.

A chance to shine in a low carbon future

The world is not out of the COVID-19 woods yet. And the pandemic has shown that the world must accelerate the sustainability agenda to preserve the planet for future generations. With the work we have done this year in transforming the business, I am confident that we can.

Patrick Thomas
Chair

Ramping up our sustainability agenda

- Commitment to net zero by 2040.
- Supported by new ambitious sustainability framework and targets, including science based GHG emission targets.
- Establishment of Societal Value Committee of the board to oversee progress.

Chief Executive's statement

Robert MacLeod Chief Executive

COVID-19 tested us all last year, but we surpassed even our own expectations of what we're capable of.

Twelve months ago we were tightening our belts and adjusting our priorities as the COVID-19 pandemic swept across the globe.

We knew we faced unprecedented economic uncertainty as the virus hit different geographies at different times. We also knew that we had a resilient, diverse portfolio that would help us navigate that uncertainty.

What we didn't know was that we would end with a strong set of results in a pandemic year. While underlying operating profit at constant currency was down 5% on 2019/20, I am delighted to report that overall we outperformed market expectations, finishing the year at £504 million. This result is testament to the dedication of the entire Johnson Matthey team and I would like to take this opportunity to thank everyone for their commitment under difficult circumstances.

That dedication can also be seen in a good set of safety results, with our lost time injury and illness rate falling to 0.28 and our total recordable injury and illness rate falling to 0.56, already below our 2025 target of 0.60. Living and working through a pandemic undoubtedly brought additional worries and concerns for some of our people, and I am pleased at how we have kept the focus on health and safety through these more difficult times.

Robust results despite the economic challenges

It's fair to say that our Clean Air business bore the initial brunt of the pandemic, with widespread lockdowns bringing the automotive industry to a standstill. But despite the disruption, we saw a strong recovery across all regions – particularly Asia – in the second half of the year. This, coupled with early benefits from its major transformation programme, helped bring Clean Air's full year underlying operating performance at 8% under 2019/20. That is a great achievement given the circumstances, and the transformation programme will set the business up for the future, enabling us to drive strong cash flow and navigate the inevitable market volatility as the world transitions away from the internal combustion engine.

Our Efficient Natural Resources business, by contrast, continued operating throughout the pandemic, delivering a full year underlying operating performance ahead of 2019/20 and very strong cash generation. That isn't to say it wasn't affected by COVID-19, in both positive and negative ways.

While Catalyst Technologies was hit by weaker pandemic-related demand, performance in our PGM Services refinery and trading businesses was exceptionally strong, driven by market volatility and the benefit of higher average precious metal prices. Market forces aside, Efficient Natural Resources' success this year is also testament to the team's work to improve efficiency, particularly in our refinery processes. We made excellent progress in reducing our refinery backlogs to end the year at historically low levels, reflecting a significant improvement in the management of our precious metal working capital.

And despite the pandemic, the team continued to win new business, including in Chile to supply advanced technologies, equipment and advisory services to the world's first wind powered methanol plant (see case study on page 9) and ten new catalyst licences.

Our full year underlying operating performance in Health finished significantly higher than the previous year. This reflects good progress in new customer contracts for our active pharmaceutical ingredients used in generic treatments for opioid addiction, and our work with innovator customers. For example, Gilead is now using our drug linker in an innovative new treatment for patients with metastatic triple negative breast cancer. We are incredibly proud of our Health business and it is absolutely in line with our vision for a cleaner, healthier world. But that world is changing rapidly and it is essential that we focus our portfolio on the most attractive growth areas – those with the greatest connections to the rest of our group and opportunities for us to add value. So, in April 2021, we announced that we had started a strategic review of Health.

Our New Markets businesses also collectively ended the year higher than 2019/20. In Battery Materials, work to commercialise our eLNO® portfolio remains on track despite the pandemic. In Fuel Cells, we continued to see rapid growth, with sales up more than 20% for the full year. Most recently, we have signed a development agreement and a long term supply agreement commencing in 2022 with a major German automotive supplier for the supply of next generation catalyst coated membranes into the global automotive market. We also made good progress in our 'green' hydrogen business, including introducing new manufacturing capacity for our proton exchange membrane technology at our facility in Swindon, UK, where our fuel cell experts are based. This new capacity will allow us to scale our business at pace as the market grows and we expect to see our first commercial sales in 2022.

"These are exciting times for Johnson Matthey. While our products are essential in helping the world achieve its net zero ambitions, we're also setting our own tough new sustainability targets."

Designing the circular economy into our products

We're also working to lead the transition to a circular economy. In fact, circularity is at the heart of everything we do. While we're always aiming to get more from the materials used in our technologies, we also design end of life recycling options for our products and look for ways to increase the amount of material that can be recycled. For example, in battery materials, we're exploring technologies that separate nickel and cobalt from other components and we're starting to look at recycling options for fuel cell and electrolyser components too.

And, since society's tolerance for waste is falling rapidly, we're also working to transform it into useful products. Through collaborations with external partners we've developed a process by which gasified household waste can be converted into hydrocarbons suitable for making diesel and jet fuels. These fuels are cleaner than conventional fuels derived from crude oil, and offer significant environmental and operational benefits. We're now working to commercialise this process.

Living our values as we responded to the pandemic

Everything that we achieved this year is testament to the quality of our people. They adapted quickly to the challenges of the pandemic, including strict new safety measures in our facilities and the new world of homeworking. However, we surprised ourselves by just what we were able to do despite the restrictions.

I've certainly learned a lot and discovered the benefits and difficulties of working from home. While our digital communications have helped many of us make the switch to homeworking, the lack of face to face interaction makes it harder to connect at a personal level. Luckily, Johnson Matthey people have always been very generous with their time and we were able to ramp up the amount of communication with our employees, which included holding JM-wide global town halls online. On the other hand, customer meetings continued and were more frequent, thanks to virtual communications, and this is certainly something we will continue to make use of as the world opens up.

As a company, I am proud of the way that we protected jobs through the height of the pandemic and that we used neither the furlough nor the grant scheme offered by the UK government. But we went beyond that, by setting up a £1 million fund to improve access to good education in science, technology, engineering and maths. In summary, the practical choices we made this year demonstrate just what our values mean to us.

Setting our strategic direction for a low carbon future

Our year was, however, about far more than responding to the immediate economic challenges of COVID-19.

Our vision drives our strategy and mirrors society's need to manage the four transitions – in transport, energy, decarbonising chemicals production and the circular economy – that will help us achieve a more sustainable future. We are in a unique position to enable a world that needs to change, and change quickly.

And so we spent much of the year as a board and Group Management Committee (GMC) assessing and finessing our strategic direction. Key in our minds were the questions our stakeholders, particularly our shareholders, have. These centre on our technology choices and the speed of change required, specifically how fast the market will change around the move from the combustion engine, which is at the heart of our Clean Air business, to electrification, decarbonisation and renewable energy, which are at the heart of our future. We were helped greatly in these discussions by the two new members of the GMC who joined during the year, Ron Gerrard in operations and Nick Cooper in legal, and, after the year end, by our new Chief Financial Officer, Stephen Oxley. I look forward to working even more closely with them all in the coming year.

The progress we've made this year gives me enormous confidence that we are not just on the right track, but on a trajectory that will see Johnson Matthey play an instrumental role in those four essential transitions over the next decade and beyond.

Customer feedback shows we are on the right track

Customer confidence is growing too, with our customer satisfaction scores rising by 3% during the year. As Patrick notes in his statement, more and more customers are asking for our help and the feedback they are giving us on our technologies is incredibly positive. For example, some of the world's leading fuel cell manufacturers tell us that our catalyst coated membrane technologies – a key component used in fuel cells – are among the best they're working with, while feedback from customers during tests on our battery materials has been very encouraging. There's continued confidence in our Clean Air business too. The world's transport systems are not going to decarbonise overnight and our emission control systems will continue to improve air quality from internal combustion engines for at least the next ten years, especially as governments continue to introduce strict new regulations.

Chief Executive's statement continued

So we've continued to plan and invest for the future, despite the pandemic, and we're laying the groundwork to deliver on our three key strategic objectives:

- Invest in growth areas targeted at climate change and circularity.
- Manage our established businesses to support growth.
- Promote a fast paced, efficient business and high performance culture.

1. Invest in growth areas targeted at climate change and circularity

Our growth businesses are the clearest expression of this first aim. Battery Materials represents an important new area of growth for us, one that builds on our long history of using metals chemistry to solve complex problems. But, if we are to realise our ambition to become a significant player in this market, we must invest at scale and speed.

As I mentioned, we continue to see considerable interest in our eLNO battery materials portfolio from new customers and we are moving into more advanced stages of testing with existing customers. The construction of our first commercial plant in Poland is progressing well and plans for a second plant in Finland are now under way. And because we want to set new standards in sustainability, both plants will run entirely on renewable electricity from the moment they start production. Meanwhile, in Finland, we're also partnering with Finnish Minerals Group on an innovative waste management system and have signed two supply agreements for critical raw materials, helping us secure long term, sustainable resources for the plant. More broadly, we continue to evaluate a range of scale up models for our Battery Materials business, including strategic partnerships.

We're also developing our hydrogen technologies. Fuel cells (which use hydrogen) is an industry that we know very well. But the conversation has accelerated in the past five years and we now have supply contracts with numerous fuel cell players including Doosan and SFC Energy. Fuel cells have massive potential to help decarbonise our transport, especially long distance trucks. To that end, we've doubled our manufacturing capacity in the UK and China giving an overall capacity of 2GW and we are already working on the next set of major expansion plans.

And hydrogen more broadly has a crucial role to play not only in fuel cells but in decarbonising our energy systems alongside big, hard-to-abate industries like chemicals. Indeed, without hydrogen it will be impossible for the world to reach net zero.

Johnson Matthey has a key role to play here. Already a market leader in 'grey' hydrogen production (from fossil fuels) technology, we're now commercialising at scale 'blue' hydrogen technology that uses less natural gas and can reduce carbon dioxide emissions by over 95%.

And we're advancing new 'green' hydrogen production (made via water electrolysis using renewable energy). It's early days and there are many challenges to overcome, but electrolysis and fuel cells share a lot of similar technologies. So we're using this to design the next generation of catalysts and membranes for new, cheaper types of electrolysis.

We also play a major role in the sustainability agenda as the world's largest recycler of platinum group metals. We are going to need more of these skills if we are to bring about a circular economy.

The progress that we have already made – and will continue to make – would not be possible without R&D. It is this team that designs and scales up the technologies and solutions our customers need to address their most complex challenges. While we continue to invest in R&D, we've reshaped our portfolio around some key areas to help us work in a more agile way, accelerate innovation and commercialise at speed.

2. Manage our established businesses to support growth

For more than 40 years, our Clean Air business has helped prevent harmful emissions reaching the atmosphere. It has been an extraordinary era of growth, with around one third of the cars on today's roads fitted with our emission control technology. And, since emissions legislation is continuing to tighten and our transport system isn't going to change overnight, it will remain an essential, valuable business for many years to come.

But change will come and we've done a lot to prepare the business for the next phase of the transport transition. That includes investing in new highly efficient plants in Europe and Asia and embarking on a major transformation programme to drive greater efficiency, new technology and lower costs, and turn Clean Air into the cash engine that will enable us to invest in our new growth businesses. We're already seeing the early benefits of this work, but there's plenty more to do.

This is a market we understand very well and we know how to respond – to tighter legislation and to whatever the future holds for the internal combustion engine. Clean Air is a catalyst for growth for our other businesses too, thanks to the relationships we have developed with our automotive customers over many decades.

3. Promote a fast paced, efficient business and high performance culture

The faster the world changes, the more it will need our skills. But if we are to take advantage of that pace, we must ensure we are sufficiently agile.

We already have the financial basics in place – with a resilient, diverse portfolio, multiple markets and highly flexible cost base and access to liquidity of around £1.5 billion. And, thanks to our continued strong management of working capital and our focus on an efficient balance sheet, at 31st March 2021 our leverage ratio of 1.2 times was slightly below our target range of 1.5 to 2.0 times, with net debt falling by £319 million to £775 million at the end of the year.

But we also need to simplify our business and become much more efficient in our operations and functions. So we continued to make good progress in our transformation programme, for example with the creation of centres of functional expertise to streamline the way we allocate specialist skills. During the year, we delivered £37 million of savings as part of our target of £110 million of annualised savings by 2023/24. We also completed our previous efficiency programmes which delivered £145 million of total savings, including £29 million in 2020/21.

And we are evolving our culture to become more fast paced and responsive. As I've mentioned, we're already changing some of our operating models to simplify the way we work. But we're also accelerating our people strategy.

In 2020, we introduced a new leadership framework aligned with our culture ambition that sets out the behaviours we need to successfully deliver our business strategy. And we're putting processes in place to ensure that our team reflects the communities in which we work and to enhance employee recognition and wellbeing so that people feel like Johnson Matthey is a place to build a long term career.

Setting our own targets for a sustainable future

So we have a strong balance sheet and a strategic direction that will see our products continue to add enormous value to society for decades to come. Indeed, this has always been part of our DNA. But we also have a responsibility to ensure that the way we operate contributes to that value. This is why our ambition is to become a leader in sustainability in our own operations as well as through the impact our products have on the world.

Everything we have done in the past few years has been about preparing for the future – be it upgrading existing facilities, building new infrastructure and developing skills, or redesigning our processes to create more opportunities for recycling.

Now we're taking the next step, with exciting new sustainability commitments, including our own plans to reach net zero by 2040. These commitments are underpinned by a series of 2030 targets, including:

- Increasing the percentage of our product sales that make a positive contribution to four priority UN Sustainable Development Goals to more than 95%.
- Increasing the quantity of greenhouse gases that are avoided using our technologies.
- Increasing the proportion of our products that are sold with an end of life recycling solution.

These targets are ambitious and they are necessary. Many people are talking about 'building back' after COVID-19. For Johnson Matthey, however, these targets are not just about building back, but rather continuing to build on what we have already done, and taking the next big step in our own sustainability journey.

Perfectly positioned to create a cleaner, healthier world

The precise details of how we will achieve our targets will evolve over the coming months and years. Exactly how society will recover from the pandemic remains uncertain and the world faces some tough technological, financial and policy hurdles that must be overcome if we are to achieve a low carbon future. Timing and technological choices will be key to that success and I believe the work we've done and are doing sets us on the right path for both. We'll need our talented people to help us overcome those hurdles, as well as a new generation of scientists and engineers in the coming years, and I don't underestimate the competition we face in attracting that talent.

But if I can leave you with one message it is this. We stand on the cusp of enormous changes, changes that have the potential to create a cleaner, healthier, more sustainable society for everyone. Johnson Matthey is perfectly positioned to enable those changes, something that is increasingly recognised by our customers across all the industries we serve.

I am enormously proud of everything our team has accomplished this year, and this tells me that we have what it takes to achieve our ambitions and help our customers achieve theirs.

Robert MacLeod
Chief Executive

Outlook

for the year ending 31st March 2022

The current year has started well with a continuation of the strength seen in the second half of 2020/21.

However, end market demand remains uncertain and subject to COVID-19 developments around the world, with the potential for supply chain disruption for some of our automotive customers.

- *In 2021/22, assuming our end markets remain robust, we expect low to mid teens growth in underlying operating performance at constant precious metal prices[1] and constant currency. This largely reflects strength in Clean Air with improving auto production volumes, tightening legislation in Asia and higher order intakes within heavy duty diesel in the US. In addition, we expect an improved performance from Catalyst Technologies and continued progress in Health. We expect to see benefits from our efficiency initiatives across the group, although these will be partly offset by investing for growth in new technology areas such as battery materials and hydrogen.*
- *At current foreign exchange rates, translational foreign exchange movements for the year ending 31st March 2022 are expected to adversely impact underlying operating profit by circa £25 million.*
- *If precious metal prices remain at their current high level for the whole of the year (especially for rhodium and palladium), we would expect a further net benefit of up to £120 million[2]. Continued strong metal prices may also result in higher working capital therefore impacting free cash flow in the short term.*
- *We continue to invest into strategic growth projects and capital expenditure is expected to be up to £600 million for the year. This reflects increased investment as planned into battery materials, which is on track and in line with previous expectations, investment in our pgm refineries to increase the resilience and capacity of these assets and investment in our hydrogen activities.*

[1] Based on actual precious metal prices in 2020/21.

[2] Based on current precious metal prices as at 25th May 2021.

Our business model

Our fundamental understanding of the transformative power of metals chemistry, combined with our technical and commercial expertise in how and where to use it, create the technologies that make our customers' products work in many industries to deliver a cleaner, healthier world.

Our unique strengths... how we use them...

1. **Expertise in metals chemistry, its potential and practical applications**

   Our scientists and engineers understand deeply how to use the extraordinary properties of critical metals in the service and synthesis of products that will enable a sustainable future.

2. **Smart people who believe in what they do**

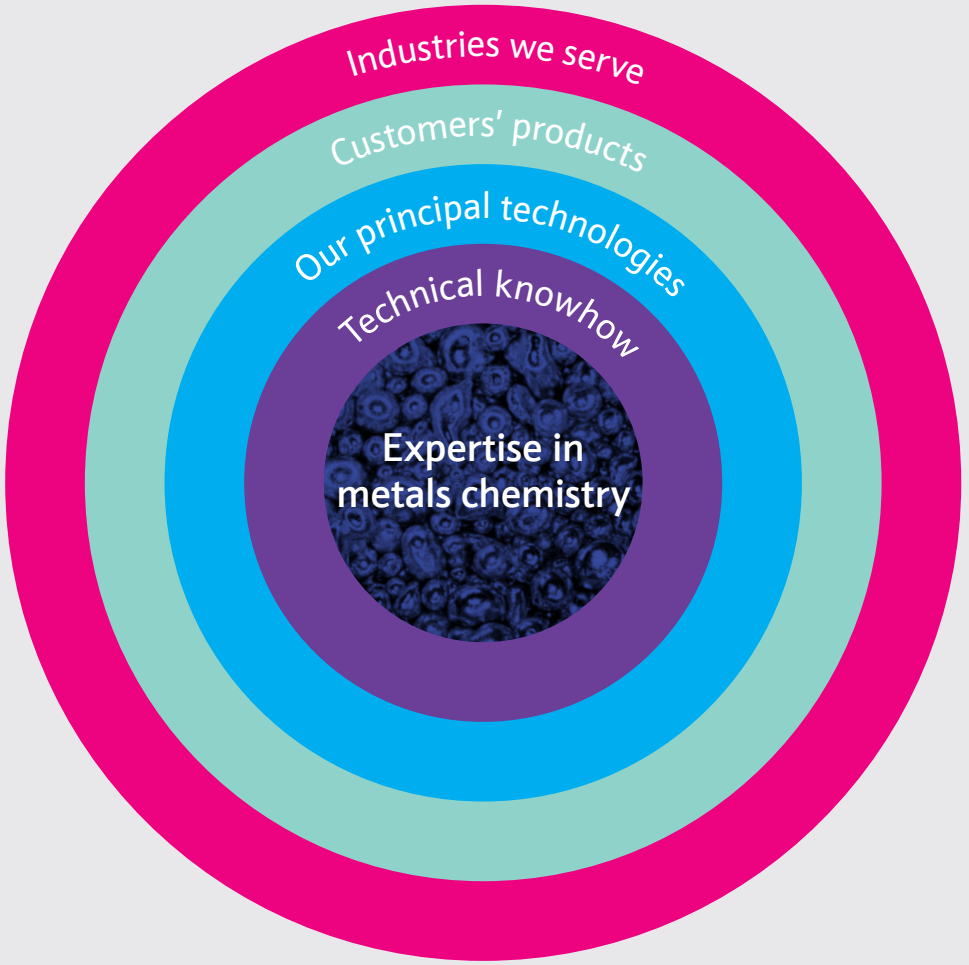
   We employ many of the world's brightest and best, not only in R&D but across the whole business, who are united by a shared commitment to our vision.

3. **Stewardship and recycling of scarce metals**

   We are the world's largest recycler of the scarce platinum group metals (pgms) that are so essential for the transformations the world needs, and we are responsible stewards of the raw materials we source that must still be extracted from the ground.

4. **Financial strength**

   Through ongoing careful management, especially of the high value pgms through our operations, we are focused on maintaining a strong balance sheet with low leverage, to fund growth.



Supported by our values

Protecting people and the planet	Acting with integrity	Working together

and our risk management framework

Read more: Risks and uncertainties on pages 88 to 96

...to deliver value

Technical knowhow

- Process design
- Catalysis (thermo and bio)
- Surface chemistry and coatings
- Electrochemistry
- Synthesis of advanced materials
- Chemical synthesis
- Pgm chemistry and metallurgy
- Product formulation
- Characterisation and modelling
- Materials engineering and design

Our principal technologies

- Emission control catalysts
- Industrial catalysts and process designs
- Hydrogen production technologies
- High energy battery cathode materials
- Fuel cell components and catalysts
- Fine chemical catalysts
- Biocatalysts
- Pgm refining and recycling
- Specialist products made from pgms
- Active pharmaceutical ingredients
- Medical device components

Customers' products

- Emission control systems for vehicles
- Cleaner, efficient chemical production
- Sustainable chemicals and fuels
- Clean hydrogen
- Battery cells and electric vehicles
- Fuel cell units and vehicles
- Closed loop recycling
- Targeted therapeutics

Industries we serve

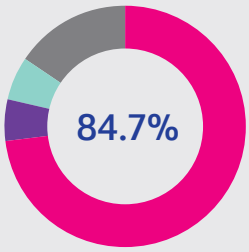
- Automotive
- Chemicals
- Energy generation and storage
- Oil and gas
- Agrochemicals and fertilisers
- Pharmaceutical and medical
- Other industrial

Innovating and improving

Owning what we do

For our planet and society

Percentage of sales from products that support our priority UN Sustainable Development Goals (UN SDGs) and enable the transition to a cleaner, healthier world.



- UN SDG 3: 73.1%
- UN SDG 7: 0.1%
- UN SDG 12: 5.5%
- UN SDG 13: 6.0%
- Not related to the four UN SDGs: 15.3%

For governments

Helping governments meet their greenhouse gas emissions targets.

Global GDP represented by nations with 2050 net zero targets

~60%[1]

For customers

Designing and making the technologies that power our customers' products.

Customer satisfaction score

8.1 (out of 10)

For our own people and communities

A rewarding place to work for talented people who support their own communities too.

Employee engagement score

65%

For our shareholders

An opportunity to invest in the world's sustainable, net zero future, with solid, reliable returns.

Total dividends paid in 2020/21

£99 million

[1] Source: IMF and EU Commission

Our strategy

Our strategy for growth mirrors society's need to decarbonise and create a more circular economy while managing the transitions needed to reach net zero. And it's an approach we apply to our own business: we want to lead in sustainability.

Throughout our more than 200 year history, we have anticipated change and used our expertise in the transformative power of metals chemistry to help our customers enable human progress through technology. Today we have a unique opportunity, at possibly the most decisive moment in modern history, to bring all our skills, expertise and resources to bear to help the world make the complex, technically challenging transition to net zero. We will do this by delivering sustainable products, services and technologies to our customers, while ensuring the way we operate and manage our business contributes to a sustainable, net zero future too.

COVID-19, rather than distracting us from this strategy, has only made it more urgent. The pandemic has raised awareness everywhere of humanity's interconnectedness, including with the natural world. Our vision for a cleaner, healthier world for today and for future generations has never been more relevant.

Our strategic objectives

- Invest in growth areas targeted at climate change and circularity.
- Manage our established businesses to support growth.
- Promote a fast paced, efficient business and high performance culture.

For details of how we've pursued our strategic objectives this year, see the Chief Executive's review on pages 18 to 21.

Invest in growth areas targeted at climate change and circularity

Our focus today is on disciplined investment in the right opportunities to support four essential transitions the world needs to reach net zero: transport, energy, decarbonising chemicals production and a circular economy.

In **transport**, we are investing in the fuel cells technology and battery materials that will enable electrification, while continuing to provide the emission control technologies for the traditional combustion engine as that transition takes place.

For the **energy** transition, hydrogen from low carbon sources will be essential. We are already a leader in some hydrogen technologies and are investing in these and in hydrogen made from renewable energy sources.

Decarbonising chemicals production requires clean carbon sources for feedstocks, fuels and materials, and the ability to convert those feedstocks cleanly and efficiently into chemical products. Here we are already a leading provider of catalyst and process technology to the chemical sector in key segments including methanol, ammonia and hydrogen, and we are working alongside our customers in the shift to a low carbon chemical industry.

Ultimately, for a net zero world to be an ongoing reality we need a **circular economy**. This is particularly important for the energy and transport transitions, where the necessary technologies rely on scarce metals, such as palladium, platinum and cobalt. Recycling – with its significantly lower carbon footprint – therefore has a critical part to play both now and in the future, and we are in a strong position as the world's largest recycler of platinum group metals (pgms).

Manage our established businesses to support growth

We generate cash from producing emission control catalysts that help the automotive and energy industries reduce emissions in vehicles. When the energy and transport transitions are complete, there will no longer be a need for such systems, but in the meantime, these catalysts continue to be essential as emissions legislation gets tighter. Meanwhile we are progressing with our transformation programme to enable us generate significant cash to invest in our growth businesses. We also use our long established relationships with automotive customers to open doors for our newer technologies, such as battery materials and fuel cells.

Like every organisation, we continually review our portfolio to make sure we are alive to the ever-changing business environment, and that everything we do remains in line with our strategy, thus maximising value for our shareholders. As part of this, we are undertaking a strategic review of our Health business.

Promote a fast paced, efficient business and high performance culture

Our greatest risk is also our greatest opportunity. The faster the world changes, the more it will need our technologies. But we must be sufficiently focused, agile and responsive to take advantage of the pace of change. We have therefore invested in a transformation programme to simplify our business and make our emission control catalyst manufacturing operations more efficient, which will deliver a total of £110 million in annualised savings by 2023/24. We are also evolving our culture to become more fast paced and responsive. This isn't about wholesale change – we are retaining the best of Johnson Matthey, our integrity and our commitment to our vision – but adding an injection of speed and ambition, in everything from delivery of our major capital projects, to the commercialisation of new technologies. The additional challenges of COVID-19 have helped us in some ways, because they've required us to adapt quickly, devolving decision making and accountability.

Our sustainability strategy, and targeting net zero

To achieve our vision, we must carry out our commitment to acting with integrity in everything we do. And, while our products and services will have the most impact in helping the world reach its net zero target, we must achieve the same ambition in our own business. So this year we also set new, ambitious sustainability targets for 2030 across our value chain, along with a target to reach net zero by 2040.

Read more: Sustainable business pages 60 to 85

Link to KPIs

Our vision

A cleaner healthier world today and for future generations

Our strategy 1 2

We will use our deep knowledge of metals chemistry to help our customers address the complex technical challenges of the four transitions – transport, energy, decarbonising chemicals production and a circular economy – by delivering sustainable products, services and technologies

Our strategic objectives 3

Invest in growth areas targeted at climate change and circularity	• Battery materials • Hydrogen • Fuel cells • Low carbon technologies • Recycling of pgms, battery materials and fuel cell products
Manage our established businesses to support growth	• Generating cash from emission control catalysts for reinvestment • Health – strategic review to maximise value
Promote a fast paced, efficient business and high performance culture	• Enhance productivity and efficiency • Deliver capital projects on time and on budget • Evolve our culture and drive faster and more flexible ways of working

Our ethos: sustainable business 4

For people	• Our employees • Our suppliers • Our communities
For our operations	• Low carbon operations • Resource efficiency

Read more: on our KPIs on pages 26 to 30

Key performance indicators

Our key performance indicators (KPIs) measure progress against our financial aims, our strategy and our 2030 sustainability targets.

Changes in 2020/21

This year we have introduced KPIs to measure the progress of our strategic objectives. We are currently developing KPIs for the strategic progress of our Clean Air business (relating to its cash generation) and the growth in revenues in new business areas targeting climate change and circularity. We will report on these in 2021/22. We have also updated our KPIs relating to our product and services, operations and people to bring them in line with how we are measuring progress towards our new 2030 sustainability targets.

Overall strategy – Products and services for a cleaner, healthier world 1

We track progress towards our vision for a cleaner, healthier world by measuring the percentage of our sales that come from products that contribute to our four priority UN Sustainable Development Goals (UN SDGs). A detailed definition of this KPI is provided on page 261.

84.7%

% sales from products contributing to our four priority UN SDGs

Performance in 2020/21

The percentage of sales from products that positively contributed to the four priority UN SDGs was 84.7%. Our sustainable business target is to increase this to more than 95% by 2030.

Read more: Sustainable business on pages 60 to 85

R **Future growth risk** on page 92

R **Competitive advantage risk** on page 93

Financial performance 2

Growth in sales excluding precious metals* (sales)

Monitoring sales growth at constant currency is a measure of the growth of our 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 and the impact of foreign exchange.

* Non-GAAP measures. See note 38 on page 243 for more details.

£3,922m

Performance in 2020/21

Sales at constant currency fell 5% to £3.9 billion (2019/20: fell 2%). The fall was due to the impact of COVID-19 on Clean Air where disruption, including customer shutdowns, led to reduced sales in the first half.

Read more: Financial and sector reviews on pages 34 to 57

R **Future growth risk** on page 92

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 and effectiveness, and as we introduce new products through innovation to serve our customers' changing needs.

* Non-GAAP measures. See note 38 on page 243 for more details.

12.9%

Performance in 2020/21

In 2020/21, underlying operating margin was unchanged at 12.9% (2019/20: 12.9%) reflecting continued progress in driving efficiency and the benefits of higher precious metal prices, despite lower demand in a number of our businesses. In our largest business, Clean Air, strong cost control and early benefits from our transformation programme offset the impact of lower production due to COVID-19. Efficient Natural Resources benefited from more volatile and higher average precious metal prices.

Read more: Financial and sector reviews on pages 34 to 57

R **Future growth risk** on page 92

Financial performance continued

2

Underlying earnings per share*

Underlying earnings per share is the principal measure used to assess the overall profitability of the group. Certain items are excluded as they do not allow for a consistent comparison of performance between financial years. These items, together with a detailed definition of this KPI, are given in note 38 on page 243.

* Non-GAAP measures. See note 38 on page 243 for more details.

182.0p

Performance in 2020/21

Underlying earnings per share fell 9% to 182.0 pence reflecting lower underlying operating profit. A reconciliation from underlying profit for the year to profit for the year is given on page 244.

Read more: Financial and sector reviews on pages 34 to 57

Future growth risk on page 92

Average working capital days (excluding precious metals)*

Average working capital days (as defined on page 243) 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.

* Non-GAAP measures. See note 38 on page 243 for more details.

57 days

Performance in 2020/21

Our average working capital days (excluding precious metals) decreased by 6 days to 57 days. Our target range for average non-precious metal working capital days is between 50 and 60 days over the medium term.

Read more: Financial review on page 39

Existing market outlook risk on page 92

Strategic objectives – Invest in growth areas targeted at climate change and circularity

3

Gross research and development expenditure

To maintain our competitive advantage and enable future growth, we invest in research and development to deliver sustainable products, services and technologies.

£194m

Performance in 2020/21

We invested £194 million in R&D in the year which included £22 million of capitalised R&D. This was around 5% of sales and broadly flat on the prior year. We continue to invest in next generation technologies in Clean Air, the efficiency and resilience of our refineries in Efficient Natural Resources, our Health API product pipeline, our eLNO® cathode materials and hydrogen technologies.

Read more: Science and innovation on pages 58 to 59

Future growth risk on page 92

Competitive advantage risk on page 93

Intellectual property management risk on page 94

Key performance indicators continued

Strategic objectives continued – Manage our established businesses to support growth

3

Clean Air cash flow

As we invest in new growth businesses targeting climate change and circularity, we are managing our more established businesses, particularly Clean Air, to generate more cash to support those investments. We also continue to review our portfolio to focus on areas of greatest opportunity to maximise value for our shareholders.

To be reported from 2021/22

Performance in 2020/21

We progressed the transformation of Clean Air to make the business more agile and efficient, enabling it to generate more cash to invest in our new growth opportunities. We will continue to consolidate our operations into our most efficient plants as needed, manage our costs in line with the size of the business, and drive down working capital to ensure the business generates robust cash flow to support investment in our new growth opportunities. Clean Air is expected to generate attractive sustainable cash flow of at least £4 billion in the coming ten years.

We have also begun a strategic review of our Health business.

Strategic objectives – Promote a fast paced, efficient business and high performance culture

3

Annualised cost savings from transformation programme

In order to be focused, agile and responsive to the pace of change in our markets, we have invested in a transformation programme to simplify the business and make our manufacturing operations more efficient. The programme, which we announced in June 2020, includes the consolidation of our Clean Air manufacturing footprint and implementation of the new group operating model. We originally targeted savings of £80 million by 2022/23 and we are now targeting £110 million by 2023/24.

£37m

Performance in 2020/21

During the year we delivered £37 million of savings against our target of £110 million of annualised savings by the end of 2023/24.

Total costs associated with this programme amount to £311 million of which £140 million was recognised in prior periods, and £171 million during this year of which £80 million was cash (2019/20: nil). Further details on costs are set out on pages 37 and 38.

During the year we also completed our historic cost savings programmes which delivered £145 million of savings in total, of which £29 million was delivered in the year. Total costs associated with these programmes of around £70 million (of which £40 million was cash) were taken outside of underlying operating profit in prior years.

R **Business transition risk** on page 95

Customer satisfaction

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 use the insight and feedback on how our customers view our offer and the strength of our relationships to agree and implement changes.

8.1/10

(2019/20: 8.0/10)

Performance in 2020/21

This year we engaged with more of our customers across all four sectors, representing around 80% of group sales. Given the challenges of COVID-19 and a larger survey group, our increased score of 8.1 underlines the hard work across the group to serve our customers better. We also continued to score ahead of the industry norm of 7.7.

R **Competitive advantage risk** on page 93

Our ethos: Sustainable business – People 4

Health and safety – Total recordable injury and illness rate (TRIIR) of employees

We place huge emphasis on health and safety, promoting the right behaviours through our values and through health and safety programmes across the group. We apply rigorous health and safety systems across all facilities and we actively manage our safety performance through monitoring the incidence and causes of accidents that result in lost time.

TRIIR 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 264.

0.56

Performance in 2020/21

Our employee TRIIR reduced from 0.79 to 0.56 which is ahead of the target of 0.6 that we set ourselves to exceed by 2025. This improvement reflects our continued efforts to promote a strong behavioural safety culture and relentless focus, despite the challenges of COVID-19 this last year. Our leading indicators of performance have also continued to improve.

Reflecting our progress and continued emphasis on health and safety, we have set a new target to reduce TRIIR for both employees and contractors to less than 0.25 by 2030.

Read more: Occupational health and safety on pages 78 to 81

Environment, health and safety risk on page 93

Employee engagement

An engaged workforce is a key driver of performance. Our global yourSay survey, carried out in full every two years and as a shorter 'pulse' survey more regularly, looks at the key drivers of employee engagement.

A detailed definition of this KPI is provided on page 264.

65%

* Score from our survey in November 2016. We did not carry out a survey in the 2017/18 financial year.

Performance in 2020/21

Our employee engagement score in 2020/21 was 65% (2019/20: 63%) as we delivered the action plans put in place last year. This is a remarkable achievement in a year where our people had to adapt to new COVID-19 regulations and organisational change as part of our transformation programmes. To keep pushing ourselves, we have set a new target to score more than 75% by 2030, which would put us in line with the highest performing companies.

People risk on page 94

Diversity and inclusion (D&I) – female representation in management

People will always be at their best when they feel like they can be themselves at work. As a global company we also have a responsibility to ensure that our teams reflect the communities in which we work, which means recruiting, developing and recognising employees from all backgrounds. We measure female representation across management levels as one aspect of our wider diversity and inclusion ambition.

27%

Performance in 2020/21

We have set a new target to achieve more than 40% of female representation across management levels by 2030. We began measuring this KPI as part of our new 2030 sustainability goals with the baseline year being 2019/20. Women in management reduced to 27% in 2020/21, from 30% in 2019/20, although the proportion of women in our senior leadership group increased.

We have high aspirations for D&I and ultimately aim to have gender balance across all levels of our organisation. Our target of more than 40% women in management by 2030 is an important milestone on this journey.

Key performance indicators continued

Our ethos: Sustainable business continued – Operations 4

Scope 1 and 2 greenhouse gas (GHG) emissions

A major part of our strategy is to develop solutions to help our customers and society decarbonise in order to address climate change. At the same time, we are committed to reducing GHG emissions in our own operations. Our GHG footprint, reported in tonnes of carbon dioxide equivalent (CO_2 eq), includes Scope 1 and Scope 2 emissions.

A detailed definition of this KPI is provided on pages 261 to 262.

388,904

tonnes CO_2 eq

Performance in 2020/21

Our Scope 1 and Scope 2 GHG footprint decreased by 1% from 391,459 tonnes to 388,904 tonnes CO_2 eq, although our production volumes fell by 8% meaning that our overall carbon efficiency decreased.

This was largely because we used a greater proportion of purchased gas versus renewable electricity at one site in the UK, where we have a combined heat and power (CHP) plant to generate heat for our processes. This CHP plant was under maintenance in 2019/20 but started up again in 2020/21 which affected our carbon efficiency relative to last year.

We have recently set a new science based target to reduce our Scope 1 and 2 GHG emissions by 33% by 2030.

Read more: Operations on pages 66 to 68

Environment, health and safety risk on page 93

Upstream Scope 3 GHG emissions (purchased goods and services)

Upstream Scope 3 GHG emissions represent over half of our total GHG footprint and by far the largest component of this is the raw materials we buy. Reducing this is an important measure of our commitment to sustainability leadership and our vision for a cleaner, healthier world.

A detailed definition of this KPI is provided on page 262.

3.1m

tonnes CO_2 eq

Performance in 2020/21

As part of our new sustainability targets, we have set a new science based target to reduce our Upstream Scope 3 GHG emissions in this category by 20% by 2030 with our baseline being 2019/20.

Our Upstream Scope 3 GHG emissions were 3.1 million tonnes CO_2 eq this year (2019/20: 3.9 million tonnes CO_2 eq.

Read more: Operations on pages 66 to 68

Non-financial information statement

JM has a range of different policies and standards in place to manage our principal risks, 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	Read more
Business model	• Our business model is supported by the policies and standards illustrated in the table below. Information on our business model and the value created for our stakeholders can be found in the Strategic Report	1 2 3 4 5 6 7 8 9 10 11 12 13 14	22-23
Environmental matters	• Task Force on Climate-related Financial Disclosures (TCFD) statement • Environment, Health and Safety Policy* • Ethical and Sustainable Procurement Policy* • Supplier Code of Conduct* • Sustainability strategy	4 5 10	86-87 78-82 83 83 62-63
Employees	• Code of Ethics* • Equal Opportunities and Training and Development of People Policies* • Global Flexible Working Policy • Board Diversity Policy* • Speak up process • Environment, Health and Safety Policy* • Eight lifesaving policies • Working Together Policy • Mental wellbeing commitment • Investigations Policy • Corporate Governance Framework	4 6 10	77 73 75 125 77 78 78 78 76 77 107
Social matters	• Employee Volunteering Policy	6	85
Respect for human rights	• Modern Slavery Statement* • Code of Ethics* • Data Protection Policy and Employee Privacy Notice • Ethical and Sustainable Procurement Policy* • Supplier Code of Conduct* • Doing Business in Higher Risk Jurisdictions Policy • Conflict Minerals Policy	5 10	84 77 77 83 83 84 85
Anti-corruption and anti-bribery matters	• Anti-Bribery and Corruption Policy • Code of Ethics* • Trade and Export Controls Policy • Investigations Policy • Financial Crime Policy • Tax strategy • Conflict of Interests Policy • Competition Law Policy	10	77 77 77 77 77 38 77 77
Non-financial key performance indicators	–	2 3 4 5 6 10	28-30 260-263
Description of principal risks	–		92-96

* Available on our website.

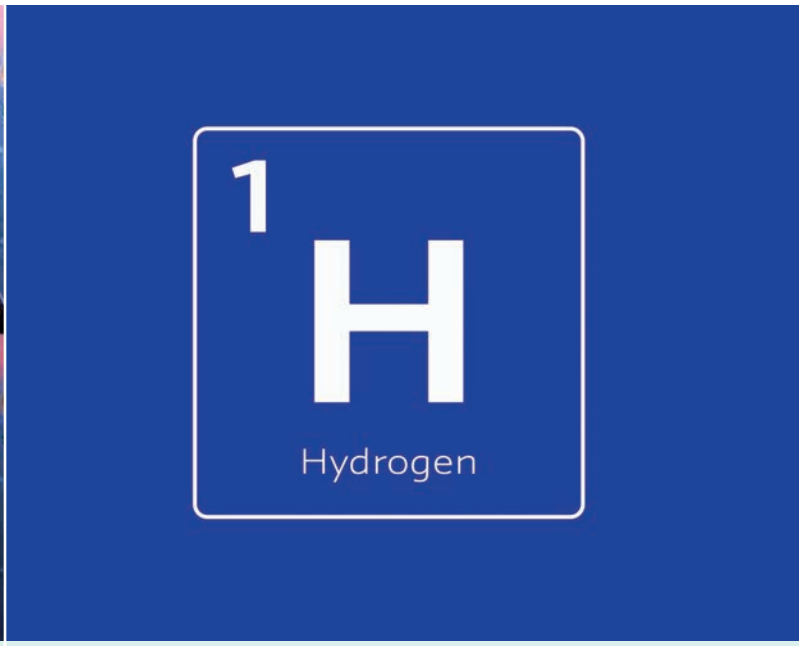
Section 172(1) statement and stakeholder engagement

Our Section 172(1) statement is on pages 110 to 113 of the Governance Report. It describes how the directors have had regard to stakeholders' interests when discharging directors' duties set out in Section 172 of the Companies Act 2006. Our stakeholder engagement activities and the impact of these are set out on page 110.

Review of the year

The COVID-19 pandemic has challenged everyone over the past 12 months. While our team worked tirelessly to keep each other safe and navigate uncertainty, they also accomplished a lot and ended the year with a very strong set of results. Here are a few of our highlights.

April 2020 | May | June | July | August | September



April – June

In May we celebrated the best of the best at our annual JM Awards ceremony. And like most things this year, we went 'virtual' to recognise the work of individuals and teams around the world.

Our other highlights

- Donated ventilator components and space for ventilator assembly, as well as 3D-printing visor parts for the UK's National Health Service.
- Launched our 2020 PGM Market Report reviewing supply and demand for platinum group metals.
- Agreed our first licence with a customer in China for our new, more sustainable process technology for making isononyl alcohol.

July – September

In September we hosted an investor event to discuss hydrogen's role in tackling climate change. We also shared details of our hydrogen business, its competitive position and growth opportunities.

Our other highlights

- Held our 129th AGM. Financially, first quarter sales fell because of COVID-19, but we saw an improving trend over the three months.
- Included in the FTSE4Good Index and received the London Stock Exchange's Green Economy Mark for our contribution to the global green economy.
- Won Procurement Team of the Year – Large Organisation and named overall winner at the 2020 CIPS Awards.

October | November | December | January 2021 | February | March

October – December

In November, we won the Best Process Award at the ICIS Innovation Awards with our technology partner Dow Global Technologies for our joint LP Oxo℠ process to produce isononyl alcohol.

Our other highlights

- Included for the first time in the annual Dow Jones Sustainability Index for companies in Europe.
- Won awards for our low carbon hydrogen process and high pressure formaldehyde technologies.
- Signed an open letter with other businesses demanding immediate action for #blacklivesmatter.
- Completed our £7.5 million fuel cell component facility in Shanghai as part of our expansion into China.

January – March

In January we announced that our new battery cathode materials plant in Konin, Poland, will be powered solely by electricity made from renewable energy as soon as it opens for production.

Our other highlights

- Accredited as a UK Living Wage Employer and set a voluntary minimum hourly wage.
- Strategic partnership with precious metals mining group Sibanye-Stillwater to identify and develop solutions to drive decarbonisation and use critical metals more efficiently.
- Announced new UK manufacturing capacity to make catalyst coated membranes for 'green' hydrogen technologies.
- Won a three year, multi million pound agreement to provide 400,000 direct methanol MEA fuel cell components to SFC Energy AG.

Financial review

Stephen Oxley Chief Financial Officer

Our new Chief Financial Officer, Stephen Oxley, shares his thoughts on joining Johnson Matthey, the financial year just gone and his excitement about the future.

Although new to the Johnson Matthey team, it's a business I know well.

Having worked with Johnson Matthey in the past while I was at KPMG, I got to know the pedigree of JM's people, its technology and knowhow. So I was really excited to take up my new role as Chief Financial Officer in April 2021.

Johnson Matthey has always fundamentally been a sustainability business. For decades, our products have helped clean the air and reduce emissions, and we're the world's biggest recycler of platinum group metals. Now we have this extraordinary opportunity to provide the solutions to help the world meet its commitments to net zero. I know from my own experience that there are very few companies who can say that and mean it.

Reflecting on a robust performance despite COVID-19

Of course, I've joined the company at the end of what has been a particularly challenging year due to the pandemic. Talking to my colleagues, I know how quickly everyone adapted to the rapid changes in our key markets. So, it's a privilege to be able to report such solid financial results.

Following a challenging first half, we recovered strongly in the second half. We've seen some of our key markets bounce back from COVID-19 more strongly than first expected. We have also benefited from higher platinum group metal (pgm) prices, particularly of rhodium and palladium. To that end, our revenue was up 8% to £15.7 billion while sales excluding the value of precious metals fell 5% at constant currency to £3.9 billion. Underlying operating profit of £504 million was 5% lower (constant currency) and this affected underlying earnings per share which fell 9% to 182.0 pence.

These results reflect a great deal of hard work. We've significantly reduced our net debt and working capital, despite the higher metal prices. And that is thanks to the work in Efficient Natural Resources to limit backlogs in our pgm refineries, and in Clean Air to reduce working capital. We delivered good free cash flow of £305 million, up from £52 million the year before, and our balance sheet remains strong with significant headroom in our funding facilities.

I also want to highlight how the team kept JM's broader business transformation progressing despite the pandemic. We've begun to move production to our most efficient Clean Air plants, started to roll out a new operating model and introduced more automation into our processes. All of which has helped drive greater efficiency across the business, delivering £37 million of benefits during the year, ahead of our targeted £30 million. And, through accelerating the programme, we've unlocked additional future savings as well. Crucially, we've continued to invest £358 million of capital expenditure in the year in our businesses.

All this would have been a huge amount of work and progress in a normal year, but in a pandemic it is outstanding. Our results are testament to that.

A strong position from which to grow

So what a position to inherit. Ending a difficult year well gives us continued confidence to invest in our future. COVID-19 has clearly accelerated the pace of change, particularly around sustainability. And there's a growing expectation that the world must not bounce back to its pre-pandemic ways. Which brings me back to that extraordinary opportunity I mentioned at the start. What JM does puts the company right at the heart of the four big transitions in transport, energy, decarbonising chemicals production and the circular economy. We have the skills and knowhow to meet our own new sustainability ambitions, but our products and processes give us the unique opportunity to help our customers achieve theirs. This is how we will help the world reach net zero and ensure a more sustainable future.

Commercialising at speed

That opportunity, however, comes with challenge. I have spent time talking to Johnson Matthey shareholders, our people and directors, and there is a clear message – JM's a great company with great science. But commercialising that science is more important than ever. And we must do it at speed with financial discipline.

Everything we do must be aligned to our strategy. That means absolute clarity in our portfolio decisions and it is why we've begun a strategic review of our Health business. We need to forge new relationships with partners, suppliers, customers and value chains across the group. In our new markets we need to progress our capital projects quickly to complete our battery materials factories and build an ecosystem of partners and suppliers, while securing new customer contracts. And, we need to develop and commercialise our fuel cell and hydrogen businesses. At the same time, we will need to build sustainability into every aspect of our decision making.

"This is a great company with great science. But commercialising that science is more important than ever. And we must do it at speed and with financial discipline."

Supporting growth with disciplined execution

Discipline and rigour in our execution is key. And JM's track record on execution, if we're honest, is mixed.

We need to continue to improve our systems, processes and controls, and build on the progress we have already made with our forecasting and working capital management. And we must deliver on what we have promised.

In Clean Air, disciplined execution means continuing to drive efficiency, value and cash generation from our largest and most successful sector to invest in our growth businesses. The rate of transition from the combustion engine to fully electric vehicles, be they battery or hydrogen powered, is accelerating but we have great confidence that Clean Air will continue to create value for many years to come, especially in limiting emissions from heavy duty vehicles including trucks and buses.

Investing in our people

Finally, we must also continue to invest in our people. In my direct areas of finance and IT, and right across JM, we have made great strides in strengthening our organisation. We will continue to do so, developing our talented and experienced people and bringing in new people where necessary.

None of our achievements would be possible without our people, so I was delighted to see that our new sustainability ambitions include diversity and inclusion commitments – a priority that is very important to me. And I am looking forward to playing my part in supporting a 'one JM' culture.

There are some big challenges ahead of us, but I would not have joined Johnson Matthey if I didn't believe we could rise to them. After all, we've done it before. Johnson Matthey led the development of emission control systems to reduce vehicle pollution back in the 1970s. There is no reason why we can't do it again to help the world's transition to a more sustainable future – and every reason that we can.

2020/21 financial headlines

Revenue

£15.7bn +8%

Sales excluding precious metals

£3.9bn -5%*

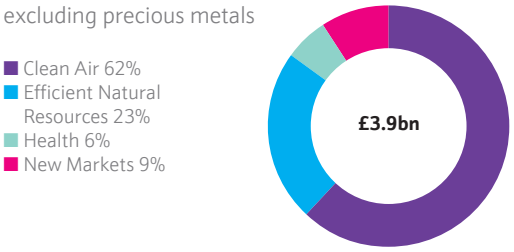
Underlying operating profit

£504m -5%*

* At constant currency

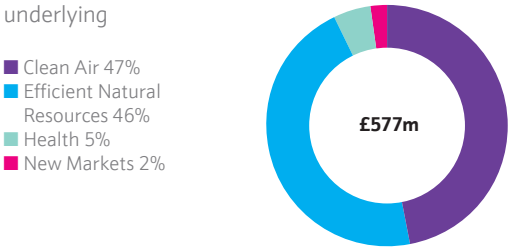
Sales by sector

excluding precious metals



Operating profit by sector excluding Corporate

underlying



Financial performance review

		Reported results			Underlying results[1]			
		Year ended 31st March			Year ended 31st March			% change, constant rates[2]
		2021	2020	% change	**2021**	2020	% change	
Revenue	£ million	**15,673**	14,577	+8				
Sales excl. precious metals[3]	£ million				**3,922**	4,170	-6	-5
Operating profit	£ million	**323**	388	-17	**504**	539	-6	-5
Profit before tax	£ million	**238**	305	-22				
Earnings per share	pence	**106.5**	132.3	-20	**182.0**	199.2	-9	
Ordinary dividend per share	pence	**70.00**	55.625	+26				

Reported results

- Reported revenue increased 8% driven by higher average precious metal prices.
- Reported operating profit declined 17% largely driven by higher administrative expenses, and major impairment and restructuring charges.
- Reported profit before tax declined 22% to £238 million as a result of lower reported operating profit which was impacted by higher administrative expenses and major impairment and restructuring charges.
- Reported EPS declined 20% reflecting lower reported operating profit.
- Cash inflow from operating activities increased by £171 million to £769 million driven by the strong management of working capital.

Underlying performance[1]

- Sales declined 5% (1H: -20% and 2H: +11% year-on-year) primarily driven by the impact of COVID-19 on our Clean Air sector although this business experienced a strong recovery through the second half.
- Underlying operating profit declined 5%, due to higher administrative expenses and the impact of lower sales, which was moderated by higher platinum group metal (pgm) prices primarily in Efficient Natural Resources.
- Underlying EPS declined 9% reflecting lower operating profit.
- Free cash flow of £305 million was a strong improvement on the prior year, driven by the strong management of working capital across the group, and the reduction of backlogs despite the significant increase in pgm prices.
- Balance sheet remains strong, with net debt of £775 million; net debt to EBITDA of 1.2 times.

Change to reporting segments

For the year ending 31st March 2022, we are making small changes to our reporting segments to reflect how we are managing our businesses. This will increase visibility of our new growth businesses, notably our hydrogen technologies. Our new structure is outlined below and further detail will be provided in due course:

- **Clean Air** – no change.
- **Efficient Natural Resources** – Catalyst Technologies, PGM Services as well as Life Science Technologies (formerly part of New Markets).
- **Health** – no change.
- **Other Markets** – (New Markets and Value Businesses).
  - New Markets includes our battery materials, fuel cells and green hydrogen businesses.
  - Value Businesses includes Battery Systems, Medical Device Components as well as Diagnostic Services and Advanced Glass Technologies (both formerly part of Efficient Natural Resources) that are non-core.

Notes:

[1] 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. For definitions and reconciliations of other non-GAAP measures, see note 38 on pages 243 to 246.

[2] 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 2019/20 results converted at 2020/21 average exchange rates. In 2020/21, the translation impact of exchange rates on group sales and underlying operating profit was negative circa £50 million and circa £6 million respectively.

[3] Revenue excluding sales of precious metals to customers and the precious metal content of products sold to customers.

Corporate

Corporate costs in the year were £73 million, an increase of £35 million from the prior year, largely due to higher bonus accruals, share based payments and legal costs.

Research and development (R&D)

We invested £194 million in R&D in the year which included £22 million of capitalised R&D. This was around 5% of sales and broadly flat on the prior year. We continue to invest in next generation technologies in Clean Air, the efficiency and resiliency of our refineries in Efficient Natural Resources, our Health API product pipeline, our eLNO cathode materials and hydrogen technologies.

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 76% of the non-sterling denominated underlying operating profit in the year ended 31st March 2021, were:

	Share of 2020/21 non-sterling denominated underlying operating profit	Average exchange rate Year ended 31st March		
		2021	2020	**% change**
US dollar	23%	**1.31**	1.27	+3
Euro	30%	**1.21**	1.14	+6
Chinese renminbi	23%	**8.85**	8.85	–

If current exchange rates (£:$ 1.39, £:€ 1.15, £:RMB 9.01) are maintained throughout the year ending 31st March 2022, foreign currency translation will have a negative impact of approximately £25 million on underlying operating profit. A one cent change in the average US dollar and euro exchange rates each have an impact of approximately £1 million and £2 million respectively 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.

Reconciliation of underlying operating profit to operating profit

(£ million)	Year ended 31st March **2021**	2020	% change
Underlying operating profit	**504**	539	-6
Profit on disposal of businesses	**–**	2	n/a
Amortisation of acquired intangibles	**(10)**	(13)	-23
Major impairment and restructuring charges[1]	**(171)**	(140)	+22
Operating profit	**323**	388	-17

[1] For further detail on these items please see note 2 on page 190 and note 6 on page 199.

Promote a fast paced, efficient business and high performance culture

Through our programme of active efficiency initiatives, we are transforming our organisation to create a more simple and efficient group, allowing us to act with greater agility and pace in a dynamic external environment. This includes the consolidation of our Clean Air manufacturing footprint and implementation of the new group operating model, which were targeted to save £80 million per annum by 2022/23. We have identified a further £30 million per annum of savings taking the total programme to £110 million per annum by 2023/24.

During the year we delivered £37 million of savings against our target of £110 million of annualised savings by the end of 2023/24. Total costs associated with this programme amount to £311 million of which £140 million was recognised in prior periods, and £171 million during this year of which £80 million is cash (2019/20: nil). For further details on costs, please see page 38.

Previous efficiency initiatives now complete

During the year, we completed our historic cost savings programmes which delivered £145 million of savings in total, of which £29 million was delivered in the year. Total costs associated with these programmes of circa £70 million (of which £40 million was cash) which were taken outside of underlying operating profit in prior years.

Financial review continued

Summary of benefits

Initiative £ million	Benefits delivered in 2020/21	Total benefits delivered to date	Future benefits by 2023/24	Total annualised benefits by 2023/24
Clean Air footprint	5	5	55	60
Group wide organisational efficiency	32	32	18	50
Active efficiency programmes	**37**	**37**	**73**	**110**
Previous efficiency programmes[1]	29	145	–	145
Total efficiency programmes	**66**	**182**	**73**	**255**

Summary of impairment and restructuring charges

Initiative £ million	Incurred in 2020/21	Total incurred to date
Clean Air footprint	(79)	(140)
Group wide organisational efficiency	(90)	(90)
Other[2]	(2)	(81)
Active efficiency programmes	**(171)**	**(311)**
Previous efficiency programmes	–	(71)
Total impairment and restructuring charges	**(171)**	**(382)**

Major impairment and restructuring charges

During the year we recognised impairment and restructuring charges of £171 million (31st March 2020: £140 million) associated with efficiency initiatives to transform our organisation into a more simple and efficient group. Of this charge, £80 million was cash. The remaining £91 million was a non cash impairment relating to the consolidation of our Clean Air manufacturing footprint (£49 million) and group wide organisation efficiencies (£42 million).

£ million	Impairment and restructuring charge
Clean Air footprint	79
Group wide organisational efficiency	90
Other[3]	2
Total	**171**

Finance charges

Net finance charges in the year amounted to £85 million, broadly in line with 2019/20. Finance costs on metal borrowings have decreased due to the focus across the group on reducing precious metal working capital. This was offset by higher average interest rates across the mix of our borrowings.

Taxation

The effective tax rate on reported profit for the year ended 31st March 2021 was 13.9%, down from 16.4% in the prior year.

The tax charge on underlying profit before tax for the year ended 31st March 2021 was £68 million, an effective underlying tax rate of 16.3%, slightly higher than 15.7% in the prior year primarily due to profit mix across different tax jurisdictions.

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 to tax 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:

- 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.

Notes:

1 £145 million of delivered efficiency programmes include a previous (2017) restructuring programme (£25 million), the optimisation of Health's manufacturing footprint (£20 million) and savings delivered through our group procurement function (£100 million).

2 Other includes Battery Materials LFP, Health product pipeline and other restructuring costs.

3 Site closure of Battery Materials LFP.

- 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. We have a zero tolerance approach to tax evasion and the facilitation of tax evasion.
- 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.

The board approves our tax strategy each year. This strategy relates to Johnson Matthey Plc and its global subsidiaries in respect of the financial year ended 31st March 2021 and satisfies the requirements of paragraph 16(2) Schedule 19 Finance Act 2016.

Post-employment benefits

IFRS – accounting basis

At 31st March 2021, 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 around £100 million.

The cost of providing post-employment benefits in the year was £65 million, up from £49 million last year. The prior year charge included a £20 million credit, compared to a £3 million credit this year.

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.

The next triennial actuarial valuation of the UK pension scheme is due as at 1st April 2021 with the results available towards the end of 2021.

The latest actuarial valuations of our two US pension schemes showed a surplus of £6.8 million at 1st July 2020, an improvement from a £1 million surplus at 1st July 2019.

Capital expenditure

Capital expenditure was £358 million in the year, 2.0 times depreciation and amortisation (excluding amortisation of acquired intangibles). Key projects included:

- Investment in the development and commercialisation of eLNO, our portfolio of leading nickel rich advanced cathode materials, including our first commercial plant in Konin, Poland
- Investment in our pgm refineries to increase the resilience and capacity of these assets
- Completion of Clean Air manufacturing plants in Europe and Asia
- Upgrading our core IT business systems
- Investment into Fuel Cells and Green Hydrogen
- Continued investment in our Health API product pipeline

Capital expenditure for 2021/22 is expected to be up to £600 million as our investment into strategic growth projects continues. Key projects include:

- Continued commercialisation of eLNO battery materials
- Investment in our pgm refineries to increase the resilience and capacity of these assets
- Upgrading our core IT business systems
- Investment into our hydrogen offerings

Depreciation and amortisation (excluding amortisation of acquired intangibles) was £180 million in the year. This is expected to increase to c.£225 million in 2021/22 due to the depreciation of our new Clean Air plants, the upgrade of our pgm refineries and amortisation of the upgrade to core IT systems.

Strong balance sheet

As part of our improved strong management of working capital and focus on balance sheet efficiency, net debt at 31st March 2021 was £775 million. This is a decrease of £103 million from 30th September 2020 and decrease of £319 million from 31st March 2020. Net debt is £40 million higher at £815 million when post tax pension deficits are included. The group's net debt (including post tax pension deficits) to EBITDA was 1.2 times (31st March 2020: 1.6 times), slightly below our target range of 1.5 to 2.0 times.

We use short term metal leases, which are outside the scope of IFRS 16 and off-balance sheet, as part of our mix of funding for working capital. Despite the significant increase in pgm prices, metal leases did not increase in value in the year. These amounted to £437 million at 31st March 2021 (31st March 2020: £451 million).

Free cash flow and working capital

Free cash flow was an inflow of £305 million, a strong improvement on the prior year. This reflects strong management of both non-precious metal and precious metal working capital across the whole group, which offset the significant rise in pgm prices experienced.

Average working capital days excluding precious metals decreased by 6 days to 57 days. Our target range for average non-precious metal working capital days is between 50 and 60 days over the medium term.

Dividend

The board will propose a final ordinary dividend for the year of 50.0 pence at the Annual General Meeting on 29th July 2021. Together with the interim dividend of 20.0 pence per share, this gives a total ordinary dividend of 70.0 pence representing a 26% increase on the prior year. The board anticipates restoring future dividend payments to levels seen prior to the COVID-19 pandemic when circumstances permit. Subject to approval by shareholders, the final dividend will be paid on 3rd August 2021, with an ex-dividend date of 10th June 2021.

Contingent liabilities

See note 35 on pages 238 and 239 of the accounts.

Going concern and treasury policies

Going concern

While COVID-19 brought unprecedented challenges to the market, particularly in the first half, the resilience of JM's business model has been demonstrated in its strong financial position in 2020/21. At 31st March 2021, the group had a strong balance sheet with almost £1.5 billion of available cash and undrawn committed facilities and no material maturities in the next 12 months. Leverage, measured by net debt (including post tax pension deficits) to EBITDA, was below our target range at 1.2 times. At 31st March 2021 the group also had metal lease facilities of £615 million, of which £437 million (31st March 2020: £451 million) was drawn. As these metal leases are for periods of less than 12 months they have been excluded from our going concern assessment, with the assumption that when these leases mature they are replaced with our other existing committed credit facilities.

Our review of going concern covers the period of twelve months following the publication of full year results, being to June 2022 and our assessment uses a base case and a severe but plausible downside case to stress test key assumptions, including the pace of end markets recovery from COVID-19. Under each of these scenarios we have assessed our headroom against committed facilities and key financial covenants and considered the sufficiency of liquidity across the group.

At a macro level we have used forecasts from a range of external parties together with our own insights into expected market volumes to derive the scenarios.

Clean Air

In our base case we are expecting strong growth as the light duty market in particular rebounds to pre-COVID levels which is broadly consistent with the IHS Markit outlook for light duty vehicle production. Europe and North America see strong growth in Light Duty vehicles while China is broadly flat. Within this we expect Europe to continue to transition away from diesel to gasoline (circa 27% diesel in 2021/22 per IHS). In Heavy Duty, LMC global vehicle production forecasts show a 5% decline in vehicle production with a softer market in China offsetting rebounds in Europe and the US. However, given the global legislative frameworks in place we expect good growth despite the decline in vehicle volumes in China. With this growth, some increase in working capital is expected but this is modest given a number of initiatives in place to mitigate this.

In our severe but plausible scenario, we test the impact of a much slower recovery and/or reoccurrence of local COVID-19 interruptions resulting in a 10% drop in Light Duty vehicle sales. At the same time we consider a greater shift from Light Duty diesel to gasoline in Europe and a greater share of battery electric vehicles (BEVs) (an increase of a third of the current base case BEV market share assumption). The impact of these changes would significantly impact sales although profitability would be partly sheltered by the impact of the recent transformation savings. At the same time working capital would reduce and whilst we have kept our assumptions for precious metal prices unchanged in this scenario, given the assumed reduction in volumes, they could reasonably be expected to decline, further benefiting working capital.

Efficient Natural Resources

The impact on our Efficient Natural Resources Sector varies by sub-sector. The Catalyst Technologies businesses have seen a significant impact from the COVID-19 slowdown and our base case forecasts a recovery to pre-COVID levels over the year in line with industry projections. The Platinum Group Metal Services (PGMS) business is assumed to grow strongly, driven by the demand for catalysts in the automotive market (see Clean Air above). In our base case we have used a lower precious metals price which moderates year-on-year profit growth. The recent structural improvement to backlogs in the refineries is maintained with the ongoing benefit to working capital.

The severe but plausible scenario again assumes a much slower recovery in end user market, with growth of less than 1% at the macro level in the catalyst technologies markets and a halving of growth from our base case scenario in our PGMS markets. This impacts profitability more significantly in PGMS as it has a relatively high proportion of fixed costs. Working capital is assumed to be relatively unaffected and the structural reduction of backlogs reduces the sensitivity of working capital to precious metal prices.

Health and New Markets

As demonstrated during the past year Health was relatively unaffected by COVID-19 and the resulting economic slowdown. Given the relative size of Health and New Markets we have not made significant changes to our base case in our going concern scenario testing.

In both the base case and severe but plausible scenario we have assumed that our strategic focus and investment in Battery Materials is maintained throughout the period. This includes a significant level of capital expenditure in the period.

Conclusion

The group has a robust funding position and its business model was resilient during the recent COVID-19 pandemic. The future performance has been tested against both a base case and severe but plausible case. In both scenarios, we have significant headroom against committed facilities and key financial covenants in the going concern period (period to June 2022). In any more severe but plausible scenarios, the group has a range of levers which it could utilise to protect headroom including changing customer terms, reducing capital expenditure and reducing future dividend distributions. 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. This shows that the group has headroom against a further decline in profitability beyond the severe but plausible scenario or a significant increase in borrowings.

The directors are therefore of the opinion that the group has adequate resources to fund its operations for the period of 15 months following 31st March 2021 and so determine that it is appropriate to prepare the accounts on a going concern basis.

Treasury policies

Treasury policies and financial risk management

Group Treasury is a centralised function within JM with teams in the UK, US and China. 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.

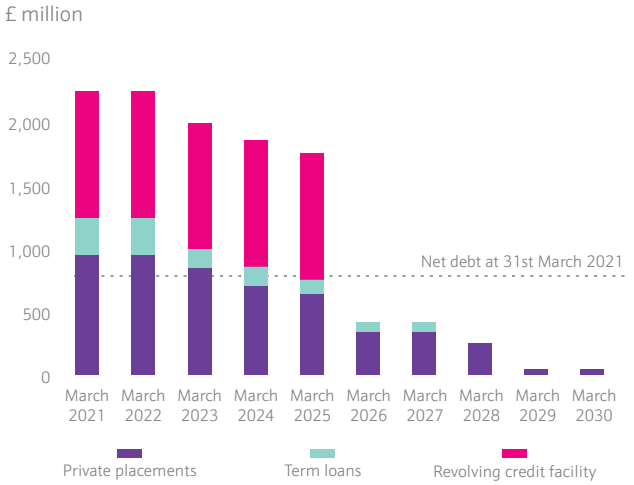
At 31st March 2021 the group had readily available cash investments of £462 million and £1 billion of undrawn committed bank facilities giving total available liquidity of almost £1.5 billion. The group also has a number of uncommitted facilities, including overdrafts and metal lease lines, at its disposal. The maturity dates of the group's debt and committed borrowing facilities as at 31st March 2020 are illustrated in the chart below.

The only significant maturity in the period to June 2022 is €165.6 million loan from the European Investment Bank maturing in June 2022.

The group recently extended its £1 billion sustainability linked revolving credit facility by a further year to March 2026. Our longer term funding comes from the US private placement market and other regional lenders including the European Investment Bank and KfW. During the year, JM's access to the Bank of England's COVID Corporate Financing Facility (CCFF) expired, having not been utilised at any time.

As a long time, highly rated issuer in the US private placement market, JM expects to be able to refinance or access additional funding in its existing markets should it need to. The group also has a number of additional sources of funding available including uncommitted lease facilities that can provide precious metal funding.

Maturity profile of term debt and committed facilities



At 31st March 2021 the group had metal lease facilities of £615 million, of which £437 million (31st March 2020: £451 million) was drawn. As these metal leases are for periods of less than 12 months and uncommitted they are excluded from our analysis of future headroom. However, the metal leasing market remains active and there is no indication that renewing these lease facilities when they mature will not be possible.

Foreign currency risk

JM's operations are situated in over 30 locations with significant assets and profit 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 2021 are shown on pages 210 and 231.

Interest rate risk

At 31st March 2021 the group had net borrowings of £775 million of which 107% (31st March 2020: 84%) was at fixed rates with an average interest rate of 3.5% (2019/20: 3.6%). 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 year would have a £0.5 million impact on the group's profit before tax (2019/20: £2 million).

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 price 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. As COVID-19 impacted we acted quickly to tightly manage our credit exposures and closely monitor our risks. Counterparties are assessed against the appropriate credit ratings, trading experience and market position to define credit limits. Our exposures are monitored frequently and mitigating actions taken where appropriate. In treasury and precious metal management, these exposures include the mark to market of outstanding transactions and potential settlement risks.

Read more: Our principal risks on pages 92 to 96

Sector review: Clean Air

"We are transforming Clean Air so that we can develop the expertise and provide the cash that Johnson Matthey needs to grow our newer, lower carbon businesses."

Joan Braca
Sector Chief Executive,
Clean Air

Sales

£2,412m -7%

Underlying operating profit

£269m -8%

Margin

11.2%

ROIC

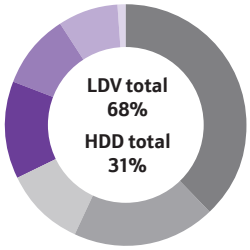
15.6%

Employees

6,289

Sales by business

- LDV Europe 38%
- LDV Asia 19%
- LDV Americas 11%
- HDD Americas 13%
- HDD Europe 10%
- HDD Asia 8%
- Other – stationary 1%



It's been an extraordinary year for every industry, not least for automotive.

Our industry is reliant on a global, just in time supply chain. When lockdowns first hit us in early 2020, we all needed to quickly flex our approach and ways of working. Our teams had to adapt at mind boggling speeds – adjusting capacity and production plans to match a volatile supply of raw materials while adapting to strict new safety practices at our plants and trying to get our customers everything they needed.

Phenomenal team effort in challenging circumstances

Given these challenges, what the team achieved was amazing. They have done a phenomenal job managing everything from our working capital to inventory levels to commercial relationships. The operational management of profit and loss was exemplary. And they did it while carrying out a major transformation programme that included reducing headcount, moving 16 business units into a single standardised global model, ramping up new efficient plants in Europe and Asia, achieving our lowest ever injury and illness rates, and a ten point rise in our European customer satisfaction scores. Our R&D teams kept pace too, developing new technology to tackle the next set of emissions regulations that will come in across Asia, Europe and the US in the latter part of the decade.

Streamlining our business and supporting growth

It's meant a lot of change and a lot of hard work in a very short period. But we now have a more streamlined, efficient business that is poised to tackle the future successfully. And it was that work, combined with strong recovery in demand across all our regions in the second half of the year, that meant we outperformed the market to end only moderately below the 2019/20 financial year and above our own expectations. I would like to thank the team for their dedication under such challenging circumstances.

While we had always planned to introduce this transformation programme, COVID-19 accelerated that decision. Clean Air is a successful, mature business facing rapidly changing market trends. If forecasts are correct, then the pandemic has only increased the clock speed on those trends. Light duty diesel engines look set to decline more rapidly, while battery electric vehicles are likely to take a greater market share sooner than anticipated. At the same time, we have tougher regulations coming later this decade, which will mean reductions in NOx emissions and tighter controls on particulates. Meeting them requires our technology, and our technical teams are working hard with our customers to make this happen.

The work we've done has helped future proof our business. We are set up to capture growth from the next round of regulations and to provide the cash Johnson Matthey needs as we grow our new low carbon businesses. And because we have worked with our automotive partners for so many years, we have an opportunity to share market insights with our newer businesses while acting as an ambassador for new conversations as the market adapts.

Delivering our vision through the transportation transition

And while market trends might be changing faster than we initially thought, Clean Air remains the flagbearer for Johnson Matthey's vision for a cleaner, healthier world. That is reflected in the quantity of harmful carbon monoxide, nitrogen oxides and particulates that we have removed over the past four decades. And we will continue to play a vital role – it will still take years to make the systemic changes needed in consumer behaviour, legislation, infrastructure, technology and economics that will enable a full scale transition in the world's transport systems.

Continued focus on efficiency to drive future success

If the last year has been about putting the building blocks in place, this year is about consolidating that work and using our transformation programme to keep driving operational efficiency and technology development. There are plenty of opportunities to do so and, as we demonstrated during the pandemic, we can do it at speed.

We asked a lot of our people during the year, so I am thrilled that our employee engagement scores stayed level and even grew in some instances. Sustaining that sense of teamwork and morale must be our priority. Clean Air is an exciting business, one with opportunities for our people to develop existing and new skills that will help to keep Johnson Matthey moving through these transitional years, while having a tremendous impact on improving air quality for society.

At a glance

Description

We make catalysts and catalyst systems that help the automotive industry reduce harmful emissions from all types of vehicles. We also make catalyst systems that lower emissions from industrial processes.

Our key customers

- Car and heavy duty truck manufacturers.
- Engine manufacturers.

Our products

- Emission control catalysts for gasoline, diesel and hybrid cars, vans, trucks and buses.
- Emission control catalysts for industrial processes.

15
manufacturing plants

2.5 million
tonnes harmful air pollutants removed in 2020/21

Sector review: Clean Air continued

Operating results: Clean Air

	Year ended 31st March			
	2021 £ million	2020 £ million	% change	% change, constant rates
Sales				
LDV Europe	**922**	1,046	-12	-11
LDV Asia	**453**	381	+19	+21
LDV Americas	**265**	315	-16	-14
Total Light Duty Vehicle Catalysts	**1,640**	1,742	-6	-5
HDD Americas	**305**	443	-31	-29
HDD Europe	**250**	277	-10	-11
HDD Asia	**186**	111	+68	+68
Total Heavy Duty Diesel Catalysts	**741**	831	-11	-10
Other – stationary	**31**	45	-31	-31
Total sales	**2,412**	2,618	-8	-7
Underlying operating profit	**269**	295	-9	-8
Margin	**11.2%**	11.3%		
Return on invested capital (ROIC)	**15.6%**	18.4%		
Reported operating profit	**165**	236		

Strong recovery in demand with second half margin approaching pre-COVID-19 levels

- Sales were down 7% and underlying operating profit declined 8% following disruption as a result of the pandemic in the first half. However, we saw a strong recovery in demand in the second half with sales and underlying operating profit up materially year-on-year, and 2H margins of 13.6% approaching pre-COVID-19 levels.
- Light duty sales were down 5%, outperforming global auto production, benefiting from an increased value per vehicle due to tightening legislation in Europe and Asia.
- In heavy duty, sales were down 10%. Americas and Europe were down materially, in line with the market, but we saw significant growth in China driven by a strong market and benefited from increased value per vehicle from tighter legislation.

Strong recovery in demand

In Clean Air, we provide catalysts for emission control after-treatment systems for light and heavy duty vehicles powered by internal combustion engines. Globally Clean Air sales declined 7% in the year. Our first half was materially lower, with sales down 27%, reflecting disruption caused by COVID-19, including customer shutdowns. In the second half, we saw a strong recovery in demand and sales were up 16% in comparison to the second half of the prior year.

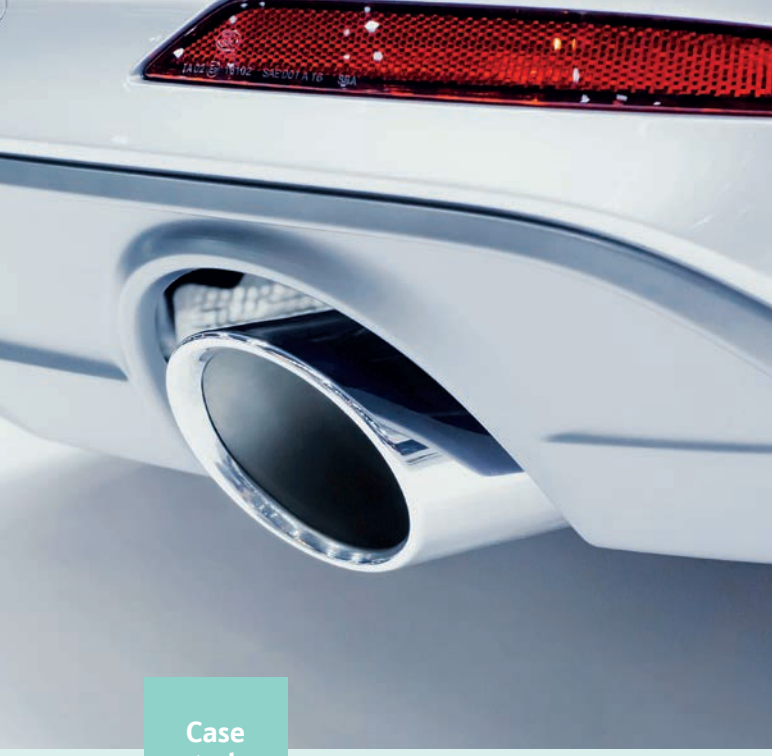
Light Duty Vehicle (LDV) catalysts

Sales were down 5% in the year. Following a weak first half where sales declined 23%, we saw a strong second half recovery with sales up 15% year-on-year. Over the year, Europe and the Americas saw double digit declines, which were partly offset by a strong performance in Asia.

European LDV declined 11% with differing performance between diesel and gasoline. Light duty diesel represents c.80% of sales in Europe and sales in this segment decreased 13%, which was ahead of a market that declined materially. This reflected a better platform mix as we saw some platforms moving to more complex systems to comply with tighter Euro 6d final legislation. In light duty gasoline, sales were only down 3%, which was well ahead of the market driven by increased value per vehicle on average.

Americas LDV sales were down 14%, although ahead of the market reflecting a more favourable platform mix, with a greater indexation to diesel. Whilst diesel sales were down, this market proved more resilient than gasoline in the year. Our gasoline sales declined, in line with the market.

Sales in Asia LDV grew strongly as we benefited from an uplift in value per vehicle due to tightening legislation, particularly in China and India and increased vehicle production. This was partly offset by some loss of gasoline share in China as previously reported.



Case study

A win-win solution for changing market conditions

We use the power of metals chemistry to turn harmful emissions from car engines into clean air. Which is why platinum group metals are a crucial ingredient in many of our emission control catalysts.

But these metals are valuable and scarce. So we are trying to find ways to minimise the quantities we use in our manufacturing processes. We are also on hand if our customers need us to help them manage an efficient supply and flow of those metals for their catalysts.

This became even more important during 2020, when we saw precious metal prices rise very quickly. This inevitably had a knock on effect on cash flows for JM, and for our suppliers and our customers.

Managing that impact called for collaborative working – across our teams in JM and with our customers and suppliers – to find new solutions that would help us all better navigate the changing market conditions.

I'm really proud of how bold and creative we have been as a JM team to understand the needs of each party and achieve a win-win outcome across the supply chain, as a result building stronger relationships with our partners.

Sunny Sun
Regional Accounts Director

Heavy Duty Diesel (HDD) catalysts

The heavy duty market (trucks, buses and non-road equipment) is expected to show greater longevity than light duty, with less of an impact in the short and medium term from electrification.

Global HDD sales were down 10%. Whilst first half sales were down 33%, we experienced a strong recovery in the second half with sales up 20% year on year as markets recovered. We saw significant growth in our HDD Asia business, although this was more than offset by the Americas and European regions which saw truck production materially impacted by COVID-19.

Our Americas HDD business declined 29%, in line with the market. Following the downturn in the Class 8 truck cycle, external data suggest the cycle has turned. We saw increased orders coming through at the end of our financial year and we expect to see further benefits in 2021/22.

Europe HDD declined 11%, ahead of the market. In Asia sales grew 68%, significantly ahead of a market that grew strongly. We also benefited from Chinese government incentives and tighter legislation in China and India.

Underlying operating profit

Underlying operating profit declined 8% as the disruption from the pandemic in the first half was partly offset by a strong cost control and early benefits from our transformation programme. Margin remained broadly flat over the year at 11.2%, with the second half margin of 13.6% approaching pre-COVID levels.

ROIC

ROIC declined 2.8% to 15.6% due to lower operating profit and higher working capital as business activity ramped back up.

Sector review: Efficient Natural Resources

"We sit in a sweet spot – with science and technology at our core, providing essential solutions today that will matter even more tomorrow."

Jane Toogood
Sector Chief Executive,
Efficient Natural Resources

Sales

£1,057m -1%

Underlying operating profit

£268m +6%

Margin

25.4%

ROIC

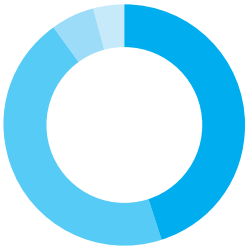
25.2%

Employees

4,017

Sales by business

- Catalyst Technologies 45%
- PGM Services 45%
- Advanced Glass Technologies 6%
- Diagnostic Services 4%



It has been a strong year for Efficient Natural Resources despite the challenges of living and working through a pandemic, and we end the year strongly positioned to win in a net zero world.

While Catalyst Technologies was hit by falling demand, cash generation was good both because of higher than average precious metal prices, which helped refining and trading performance in PGM Services, and our decisive efforts to optimise our operations for maximum efficiency. As a result, I'm pleased that we generated significant amounts of cash for the group under difficult economic circumstances.

Maintaining production throughout the pandemic

We also kept our facilities running throughout the pandemic and I'd like to thank the team for their hard work, particularly as we restructured part of our operations for greater efficiency. They did an excellent job at reducing our platinum group metal (pgm) refinery backlogs to historically low levels and improving our precious metal working capital volumes.

The impact of the pandemic has meant it's been a difficult year for everyone, and we continue to live with a lot of uncertainty. To that end, my senior leaders and I took part in mental health awareness training during the year, and we made sure employees knew how to access our wellbeing resources, such as Assist, our global employee assistance programme. This will remain an area of focus in the year ahead.

Throughout the year we have seen markets and industries recover at different rates. But the one consistent trend has been an acceleration of the drive towards sustainability: the essential transitions in transport, energy, decarbonisation of chemicals production and circularity. It's a really exciting time for Efficient Natural Resources, because we have such a big role to play. So it's essential that we make the right investment choices at the right time.

We are at the heart of the world's biggest transitions

Efficient Natural Resources is well placed to help our own businesses and customers move through those transitions and hit their sustainability and net zero targets. We're experts at converting syngas, a gaseous mixture of carbon oxides and hydrogen, and syngas is at the heart of many chemical value chains. In fact, syngas building blocks are crucial to around 40% of major primary chemicals, going into end markets such as food production, fuels and building materials. And because our catalysts are feedstock agnostic, we can produce that syngas from lots of different sources, including surplus CO_2, biomass and renewable energy. This represents a big opportunity to help the industry to decarbonise.

New growth opportunities in the hydrogen economy and industrial decarbonisation

The progress we're making in new low carbon hydrogen technologies is another excellent example. We have a long history in making catalysts and designing processes for hydrogen production, with a 40% market share in 'grey' hydrogen technologies. But grey hydrogen is made from fossil fuels, which means carbon emissions. So now we're rapidly commercialising our award winning 'blue' hydrogen technologies (made from fossil fuels and combined with carbon capture and storage), with a global pipeline of around 15 projects. And, of course, in our New Markets Sector, we're designing the next generation of electrolysis products and technologies that will help make it easier and cheaper to produce 'green' hydrogen from renewable energy.

This work will be key in helping to decarbonise some of the world's most challenging industries and support ongoing fuel cell development for transport. It also creates new growth opportunities for our world leading methanol and ammonia technologies. Using clean hydrogen to make these products not only means we can lower the carbon footprint of chemicals production, it also provides a way to ship hydrogen affordably around the world.

Efficient Natural Resources is therefore at the heart of an industry that is set to be an important part of the transport, energy and decarbonisation transitions. In fact, without hydrogen, the world cannot reach its net zero targets.

Applying recycling knowhow to the circular economy

But we are also in a unique position to support the fourth big transition – the circular economy. Like the others, there will be challenges to overcome. For example, managing rising demand for the scarce precious metals needed to make catalysts and products used in batteries and fuel cells for electric vehicles, while reducing the quantity of primary metals we extract in the first place.

We're already incredibly proud of our heritage in recycling and deep scientific capability in 'thrifting' – designing catalyst technologies that use as little precious metal as possible to conserve critical resources. And our understanding of metals chemistry means we can recycle platinum from catalysts or other sources to a minimum purity of 99.95%.

At a glance

Description

We make catalysts and license process designs and technologies that help customers in the chemicals and energy industries turn a wide range of feedstocks into many of the products that are essential for modern life. We supply customers with pgms and are also a key supplier to other parts of JM. We make specialist products from pgms and we're the world's biggest recycler of them.

Our key customers

- Chemical manufacturing companies.
- Processors of mined and used pgms.
- Oil and gas companies.
- Other industrial customers and pgm-using industries.

Our products and services

- Catalysts.
- Licensing chemical process technologies.
- Pgm recycling.
- Specialist products made from pgms.
- Specialist products for the glass industry.
- Diagnostic services for oil and gas industry applications.

10

new catalyst licences won in 2020/21

Building a cleaner, healthier world for today... and tomorrow

There's plenty of work still to do, of course, including investing in some of our older pgm refining facilities to improve efficiency, but I believe Efficient Natural Resources sits in a sweet spot – providing essential services today that will matter even more tomorrow.

As someone who joined Johnson Matthey because of its reputation in sustainability, this is an exciting prospect. I believe passionately that our science can help solve some of the world's biggest challenges. We have the foundations in place, now we must draw on our skills and expertise to make the most of the growth opportunities ahead of us.

Sector review: Efficient Natural Resources continued

Operating results: Efficient Natural Resources

	Year ended 31st March			
	2021 £ million	2020 £ million	% change	% change, constant rates
Sales				
Catalyst Technologies	**469**	556	-16	-15
PGM Services	**479**	389	+23	+25
Advanced Glass Technologies	**66**	70	-6	-6
Diagnostic Services	**43**	64	-33	-31
Total sales	**1,057**	1,079	-2	-1
Underlying operating profit	**268**	256	+5	+6
Margin	**25.4%**	23.8%		
Return on invested capital (ROIC)	**25.2%**	17.2%		
Reported operating profit	**241**	250		

Strong performance despite challenges from COVID-19

- Strong performance with sales broadly flat despite challenges from COVID-19. Catalyst Technologies was weaker due to COVID-19 and the comparison to a strong performance in the prior year from methanol catalyst refills. PGM Services grew strongly benefiting from more volatile and higher average precious metal prices.
- Underlying operating profit grew 6% and margin expanded 1.6 percentage points. This reflected higher average pgm prices and strength in our PGM Services trading business in a more volatile price environment as well as efficiency benefits. This was partly offset by weaker performance across the rest of the sector.

Catalyst Technologies

Our Catalyst Technologies business licenses key, proven and efficient process technology solutions and manufactures high value speciality catalysts and additives principally for the chemical and energy industries. We continued to operate our own plants throughout the COVID-19 pandemic by implementing new ways of working to keep our employees safe.

Sales were down primarily driven by lower demand for refill catalysts and additives, with sales of copper zeolites to Clean Air and licensing income also lower. These sales were partly offset by good growth in first fill catalysts from customer plants already under construction prior to COVID-19.

Refill catalysts and additives impacted by COVID-19 and comparison to a strong prior year

This is recurring business which makes up the majority of sales within Catalyst Technologies. Sales were lower driven by weaker demand due to COVID-19 in some end markets including additives which reflects fuel demand, and formaldehyde which is largely used in construction. As expected, following a strong performance in the prior year, sales of methanol catalyst refills were lower due to the phasing of customer changeouts.

First fill catalysts grew well

Sales of first fill catalysts are driven by the start-up of new plants. They are a lead indicator of future refill catalyst demand. In the period, we saw good sales growth with increased demand for ammonia and hydrogen catalysts as new plants came onstream.

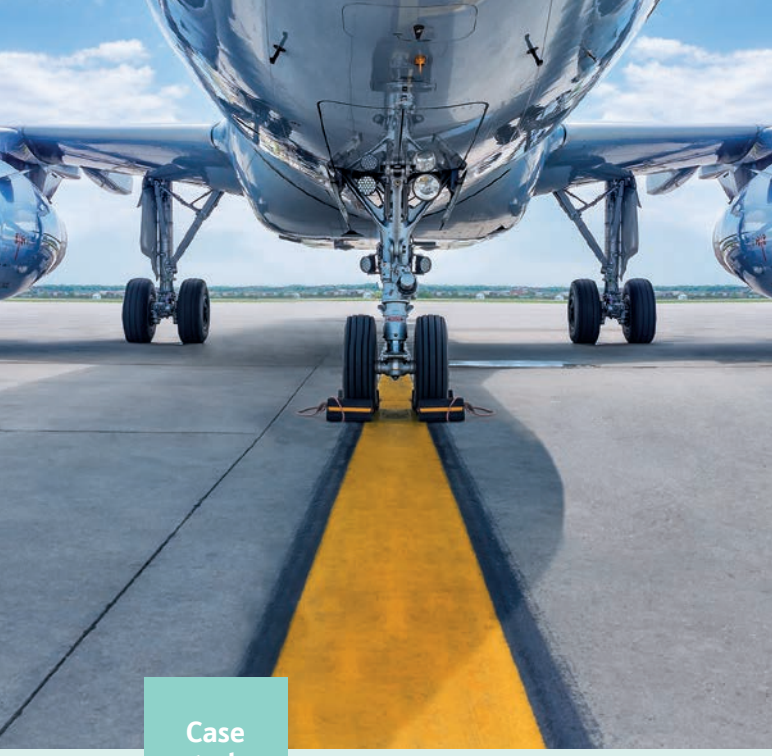
Licensing weaker in the period but strong future prospects

Our licensing business is dependent on new plant builds and revenue is recognised over the period of construction. In the period, sales were down largely due to project delays caused by COVID-19. We are starting to recognise income from our new technology including Fischer Tropsch sustainable aviation fuel and we received our first revenues from providing engineering packages and detailed studies for HyNet and Acorn, two of the world's leading low carbon blue hydrogen projects.

Licensing activity has improved and we signed 10 new licences in the year (2019/20: 4 licences) including technology for the world's largest methanol plant. We have a strong pipeline of projects which includes the world's first climate neutral e-methanol plant (see page 9).

PGM Services

PGM Services is the world's leading secondary refiner of platinum group metals (pgms) with expertise in management and refining of these scarce critical materials. This business has an important role in enabling the energy transition through providing circular solutions as demand for scarce critical materials increases and provides a strategic service to the group, supporting Clean Air with security of metal supply in a volatile market. Going forward it will provide that same security of supply to fuel cells and green hydrogen. In light of COVID-19, we adapted our working practices and our refineries maintained operation throughout the year, ensuring continued supply to our customers.



Case study

Creative solutions to transition towards sustainable fuels and chemicals

The chemicals industry has evolved to deliver products that have transformed how we feed, clothe and move people across the globe. But with its roots in 20th century investments in fossil fuel extraction and conversion, the environmental impact of the industry is under ever tighter scrutiny.

The industry has always adapted to different feedstocks, for example the recent shale gas revolution in the US. Now as we accelerate towards a future with net zero and circularity at the forefront of our thinking, and as brand owners of consumer facing products make strong commitments to sustainability and decarbonisation, we must be creative in finding new low carbon solutions. We're at the start of a revolution in our industries, but one at which efficient and effective catalyst technology sits at the heart. Industry's current skills in deploying improved thermo catalysis will be complemented by advances in bio, electro and possibly photocatalysis.

There'll be no one silver bullet, but finding renewable feedstocks and energy sources to replace fossil fuels will play a key role. We've been working on some projects recently that are great examples of this. These include advancements in real world sustainable aviation fuels, bioaromatics that can be used to produce renewable fuels and plastics, and a project that will turn wind power and CO_2 captured from the air into methanol. These are important steps in demonstrating how renewable feedstocks can be used to help decarbonise chemicals production, and a perfect challenge for JM's catalyst and process engineering expertise and capabilities.

Suzanne Ellis
Innovation Director

PGM Services sales grew strongly, benefiting from higher average pgm prices

Sales increased 25% reflecting strong growth in our refining and trading businesses as we benefited from more volatile and higher average precious metal prices driven by tight market conditions for these critical materials. Sales grew in chemical products supported by the supply of catalysts for fuel cells. Industrial products containing pgms were slightly down.

Refinery backlog volumes at historically low levels

We continue to make excellent progress in reducing our refinery backlogs. Our backlogs are now at historically low levels, reflecting a strong operational focus and improvement in the management of precious working capital. These improvements support the group's balance sheet efficiency and strengthen our position as a trusted supplier of scarce critical materials.

Advanced Glass Technologies

Advanced Glass Technologies mainly provides black obscuration enamels and silver paste for automotive glass applications. Sales were lower across both non-automotive and automotive segments primarily driven by lower demand due to COVID-19 in the first half, although we saw a strong rebound in the second half as markets recovered.

Diagnostic Services

Diagnostic Services provides specialised detection, diagnostic and measurement solutions for our customers in the petroleum industry. Sales were down impacted by COVID-19 which limited travel to customer sites, the lower oil price and lower oil consumption.

Underlying operating profit

Operating profit grew 6% and margin expanded 1.6 percentage points. This was primarily driven by a circa £80 million benefit from higher average pgm prices and strength in our PGM Services trading business in a more volatile price environment as well as efficiency benefits. This was partly offset by weaker performance in Catalyst Technologies, Diagnostic Services and Advanced Glass Technologies affected by COVID-19.

ROIC

ROIC increased 8% to 25.2% driven by lower precious metal working capital and higher underlying operating profit.

Sector review: Health

"We operate in a number of fast growing market segments, and our job is to be agile and responsive to commercialise the right opportunities out there. It's an exciting time for our sector."

Niek Stapel
Sector Chief Executive, Health

Sales

£237m +8%

Underlying operating profit

£31m +15%

Margin

13.1%

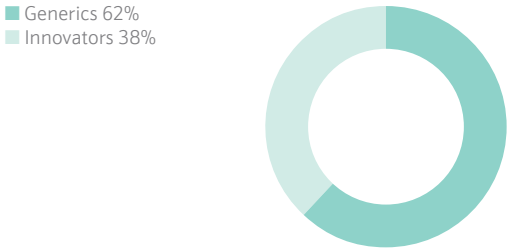
ROIC

6.4%

Employees

958

Sales by sector



Joining a new business is always a challenge.

But doing so at a time when the whole world is responding to the COVID-19 pandemic has made my first six months as Johnson Matthey's Health Sector Chief Executive particularly interesting.

Of course, we have all had to adapt to new ways of working, including strict new safety measures for our operating teams and a lot more video calls for those of us working from home. Nevertheless, I am delighted by the way everyone has risen to the challenge and kept our facilities running safely throughout the pandemic.

COVID-19 aside, I'm incredibly excited to have joined a business that has such a positive influence on society. One that is completely aligned with Johnson Matthey's broader vision for a cleaner, healthier world. This is a fantastic team that is rightly proud of the work they do. And no wonder – the services and products we provide help our pharmaceutical customers create life changing medicines. It is a pride I have come to share in just six short months.

A solid financial performance despite the pandemic

Financially, it was a good year for us. Our sector isn't typically affected by the ups and downs of the economic climate, so COVID-19 has had little direct impact. The pandemic actually resulted in some growth since our active pharmaceutical ingredients (APIs) play an important role in the pain medication used to support COVID-19 patients needing ventilation.

In our business we partner with both 'innovator' customers (companies developing novel medicines) and 'generic' customers (who make existing drugs that are no longer under patent). Growth was fuelled by the progression of existing innovator customer programmes, new innovator related contracts, as well as new generic customer contracts for APIs used in opioid addiction therapies.

COVID-19 has not changed our broader market outlook either. A growing global population, the ongoing rise in average age and greater consumer expectations were already driving up healthcare demand. If anything, COVID-19 has only made people more aware of the importance of healthcare.

Balancing our portfolio for growth

So we expect our end markets to keep growing – the market for APIs will grow around 7% per year, but in some of our segments growth could be much higher in the coming years.

To make the most of these opportunities, we've worked hard to improve commercialisation prospects in our 'generic' API product pipeline. In addition, we have worked closely with our innovator customers supporting the development and advancement of various clinical programmes. We have also supported their growing commercial programmes by investing in the expansion and scale up of our manufacturing capabilities. Furthermore, to position ourselves for the future, we are providing our customers with development and manufacturing services in high growth market segments such as high potency APIs, RNA based technology platforms, and linker technology required in the development of antibody drug conjugate based (ADC) therapies.

More agility for more productivity

I believe we now have the right portfolio, focusing on the right market segments. And we are continuing to invest in our product pipeline to bring new APIs to the market. But we're now doing that more efficiently, with a new analytical approach of assessing projects at each stage of the development cycle, which will improve our ability to forecast the best commercialisation opportunities.

We're also enhancing the way we run our plants to improve productivity and efficiency, while looking for ways to create an even more integrated supply chain. The focus will be on getting the most from our assets and equipment and also on a fully integrated sales and operations planning process.

Excellent prospects for growth

The work we have done – and are doing – is positioning us well for the strategic review of the sector that we announced just after the year end. This review is part of Johnson Matthey's ongoing work to focus our portfolio to ensure we deliver the best value for our shareholders.

There is still plenty to do in Health and we have a great team whose work is fundamental to our vision. It's a time of huge opportunity. We have a business with exciting prospects and we're working with fantastic partners and customers to help create the next generation of medicines. I am very confident that we will see plenty more organic growth in the years to come because what we do is so essential for society.

At a glance

Description

We make the vital compounds – known as active pharmaceutical ingredients (APIs) – and other specialist products used in drug development that pharmaceutical companies need to create life changing medicines.

Our key customers

- Pharmaceutical companies.

Our products

- Complex active APIs used in existing, off patent drugs (generic drugs) and in new to market treatments (newly developed 'innovator' drugs).
- Drug development and synthesis services.

59
projects in our pipeline

6
manufacturing plants

Sector review: Health continued

Operating results: Health

	Year ended 31st March			
	2021 £ million	2020 £ million	% change	% change, constant rates
Sales				
Generics	**146**	134	+9	+11
Innovators	**91**	89	+2	+3
Total sales	**237**	223	+6	+8
Underlying operating profit	**31**	27	+15	+15
Margin	**13.1%**	12.1%		
Return on invested capital (ROIC)	**6.4%**	5.3%		
Reported operating profit	**14**	10		

Sales and operating profit growth supported by new customer contracts

- Sales growth in Generics and Innovators driven by new multi-year customer contracts.
- Underlying operating profit grew 15% reflecting stronger business performance and efficiency benefits, partly offset by higher costs.
- We made further progress towards delivering circa £100 million of operating profit from our pipeline of generic and innovator APIs, and launched one innovator and one generic in the period.
- Strategic review of sector in progress as previously announced.

Generics

Our Generics business develops and manufactures generic active pharmaceutical ingredients (APIs) for a variety of treatments. Sales grew 11%, primarily driven by speciality opiates where we benefited from new supply agreements.

Growth driven by new multi-year supply agreements for opioid addiction therapies

In the year, sales of controlled APIs were up. Sales of speciality opiates grew strongly primarily driven by opioid addiction therapies where we benefited from new multi-year supply agreements with generic partners. Sales of APIs for ADHD treatments were lower as one of our customers moved to dual sourcing for some high margin APIs although we remain well positioned in this growing market with our portfolio of APIs for ADHD treatments. We are advancing development of our ADHD portfolio which includes lisdexamfetamine – a generic which is currently awaiting regulatory approval. Sales of bulk opiates in Europe were down.

Sales of non-controlled APIs were broadly flat reflecting mixed performance across a number of products.

Innovators

Our Innovators business provides custom development and manufacturing services for active ingredients of new drugs during their lifecycle, including for initial clinical evaluation and subsequently for commercial supply post regulatory approval.

Sales growth and continued progress with innovator customers

Our innovators business grew 3% in the year. This largely reflected increased demand from Gilead (formerly Immunomedics) as we execute on a multi-year contract for the supply of an immuno-oncology drug linker used in a treatment for triple negative breast cancer. We expect continued growth in the coming year and remain excited about our future prospects particularly in light of Gilead's recent approval from the FDA (Food and Drug Administration) for a further indication of the drug for the treatment of bladder cancer. Sales were also supported by higher demand from Sarepta as we continue to supply materials and treatments for their Duchenne Muscular Dystrophy treatment. As previously reported, sales were impacted following the cancellation of a customer's project in the second half of the prior year as they did not receive regulatory approval.

Case study

Helping tackle opioid addiction with buprenorphine

There's nothing more rewarding in your job than knowing that what you're doing is having a positive impact on people's lives.

That's why I'm really proud of our product buprenorphine, a leading treatment for anti addiction of opioids that helps change the lives of people living with addiction. We've been manufacturing buprenorphine since the 1990s in both the UK and US. Leveraging our expertise in solid form chemistry, we offer leading micronisation services to provide our customers with various particle sizes for their formulation needs. And our recent expansion to our Annan facility in Scotland has resulted in JM more than doubling our annual capacity allowing us to better serve our customers.

Our work with anti addiction therapeutics such as buprenorphine is just one of the ways we provide our customers with expertise in complex active pharmaceutical ingredient development and manufacture, solid form sciences, particle engineering, and catalysts.

It's a good feeling to know that what you do every day is helping enhance the lives of people all around the world.

Laurie Seifert
Global Business Director

API product pipeline

We continued to develop our new product pipeline across both our Generics and Innovators businesses and made further progress towards delivering circa £100 million of operating profit from this. To date we have launched six products which delivered sales of circa £60 million in the year.

To support the development of our product pipeline, we have enhanced our new global product introduction process. This ensures resources are focused on the right opportunities, with a disciplined approach to project stage gate reviews alongside effective governance including intellectual property and regulatory approval.

Overall, our pipeline comprises 59 molecules across generic APIs, innovator APIs and new applications. This includes the six launched molecules, including one innovator (Gilead) and one generic oncology treatment which both launched in the period. We have 11 generic molecules awaiting regulatory approval and one innovator project in late stage testing.

Underlying operating profit

Operating profit grew strongly, up 15%, and margin expanded 1.0 percentage points reflecting stronger business performance and efficiency benefits, partly offset by higher costs.

ROIC

ROIC increased 1.1% to 6.4%, reflecting higher operating profit and lower working capital.

Sector review: New Markets

> We're getting very encouraging feedback from key European customers who see Johnson Matthey as a credible supply partner for the battery materials technology of the future."

Christian Günther
Chief Executive,
Battery Materials

Sales

£356m -6%

Underlying operating profit

£9m

(2019/20: £1m underlying operating loss)

Margin

2.5%

ROIC

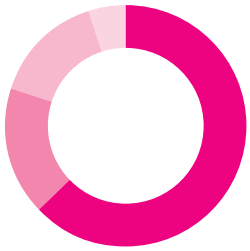
3.4%

Employees

2,132

Sales by business

- Alternative Powertrain 63%
- Medical Device Components 17%
- Life Science Technologies 15%
- Other 5%



It's been a busy year for our New Markets Sector, notably in Battery Materials and Fuel Cells, as the transition in our global transport system towards electrification gathers pace.

On track to commercialise our advanced battery materials

For the battery electric vehicle (BEV) market to grow at scale, we need the driving experience itself to match or better that of a traditional fuel powered vehicle, and that needs new materials. So our family of advanced high nickel eLNO cathode materials has been developed with consumer priorities in mind: driving range, safety, acceleration, recharging and total cost of ownership, as well as sustainability across the entire value chain. And I am delighted with the progress we have made in eLNO this year – we remain on course to commercialise despite the challenges COVID-19 threw at us. Construction at our first commercial plant in Konin, Poland, is progressing well and we expect to start commissioning in 2022 so that we are producing material for commercial use in 2024. And, because we want to embed sustainability into every part of our supply chain, our Polish facilities will be powered entirely by renewable electricity from day one of production.

Plans for our next plant are well underway and we have started the design work. This plant will be located in Vaasa, Finland, and will have approximately three times the capacity of our plant in Poland – producing enough material each year to power 300,000 BEVs. Like our Polish plant, our Finnish one will also be powered entirely by renewable electricity. Both plants are close to major central European automotive customers and battery cell manufacturers. And, to help create a more circular economy within the broader industry, we are a member of the Global Battery Alliance, which is developing a 'battery passport' system to document a battery's provenance.

Encouraging feedback from customers

We continue to see considerable interest with new customers entering testing and our existing customers are progressing well. Two customers already in full cell testing – which typically takes one to two years – are now at more advanced stages. Additionally, Wildcat Discovery Technologies, an independent third party technology company with significant original equipment manufacturers (OEMs) experience in battery materials, has recently performed evaluation and benchmarking on our family of eLNO materials. That confirmed eLNO met or exceeded current automotive targets that are continuing to move forward, giving us further confidence in the attractiveness of our technology to OEMs. These are positive developments in anticipation of signing our first automotive contract for commercial production of our materials in 2024.

All of this gives me great confidence that we are on track to becoming a significant player in the European Battery Materials market.

Rapid growth in fuel cells and commercialising green hydrogen technology

Meanwhile, in fuel cells, we saw another year of rapid growth driven by our supply of key components to the transport and power industries. We signed a memorandum of understanding with a major European automotive supplier for the long term supply of components for new fuel cell technology for automotive applications. And we doubled our manufacturing capacity in the UK and China.

Our expertise in fuel cell technology, in particular proton membrane electrode assemblies, also positions us well in another exciting growth area: green hydrogen. We announced new manufacturing capacity here too, based in our state of the art facilities in Swindon, UK, and expect our first commercial sales in 2022.

While there is still some uncertainty about when exactly the transport and energy transitions will occur and which technologies will eventually be most successful, it's clear that they will happen faster than we thought before the pandemic. This will be driven by tightening government regulation, automotive and energy companies looking to deliver their net zero targets, and growing societal expectations, post-COVID, to 'build back greener'.

Looking ahead – solutions for key challenges

One of the biggest issues the market faces in meeting increasing demand for BEVs is raw material supply. And so, with materials such as nickel, cobalt and lithium all forecast to be in deficit over the coming years, we have moved to secure a sustainable, responsible supply through new partnerships with Nornickel and SQM.

We've also begun working on a solution to treat sodium sulphate, a common byproduct of the manufacturing process for battery materials that is a big challenge for the industry. I was pleased with this development as it helps provide a sustainable supply chain to conserve natural resources and protect the local environment.

There is a lot of work still to do to keep growing in fuel cells, green hydrogen and commercialising battery materials, but I am excited to be leading one of the teams that is helping to build the future of our company, and enable the transitions the world needs for a sustainable future.

At a glance

Description

We design and make advanced battery materials, battery systems and fuel cell technologies for the automotive and power industries. We also create specialist catalysts for the pharmaceuticals and agricultural chemicals markets and make products found in devices used in medical procedures.

Our key customers

- Vehicle producers.
- Battery cell makers.
- Fuel cell manufacturers.
- Companies using battery packs for cordless power tools and e-bikes.
- Pharmaceutical, fine chemical and agrochemical manufacturers.
- Companies that make medical devices.

Our products

- Advanced battery cathode materials.
- Catalysts and complex components for fuel cells.
- High performance battery systems.
- Catalysts and specialist chemicals for life science applications.
- Precision engineered components used in medical devices.

211,000 tonnes

CO_2 equivalent avoided by our battery materials and fuel cell technology in 2020/21

Sector review: New Markets continued

Operating results: New Markets

	Year ended 31st March			
	2021 £ million	2020 £ million	% change	% change, constant rates
Sales				
Alternative Powertrain	**225**	237	-5	-3
Medical Device Components	**61**	72	-15	-13
Life Science Technologies	**53**	50	+6	+8
Other	**17**	30	-43	-41
Total sales	**356**	389	-8	-6
Underlying operating profit / (loss)	**9**	(1)	n/a	n/a
Margin	**2.5%**	-0.2%		
Return on invested capital (ROIC)	**3.4%**	-0.3%		
Reported operating loss	**–**	(62)		

Progress in the commercialisation and scale up of eLNO and continued strong growth in Fuel Cells

- Sales decreased 6%. Strong growth in Fuel Cells was offset by Battery Systems and Medical Device Components which were weaker due to the impact of COVID-19, as well as the disposal of other businesses in the second half.
- Operating profit grew to £9 million, largely due to the absence of a one-off £8 million impairment in the prior year relating to the eLNO demo plant.
- Commercialisation of eLNO remains on track and we announced plans to scale up beyond our first commercial plant.
- Strong sales growth in Fuel Cells with 2GW of capacity on stream, and planning further expansion.

Alternative Powertrain

Alternative Powertrain 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 nickel rich advanced cathode materials.

Sales declined 3%. We saw continued strong growth in Fuel Cells. This was offset by lower sales in Battery Systems due to a weaker sales mix and impact from COVID-19.

Fuel Cells continues to grow strongly

Sales in Fuel Cells increased 24% to £41 million as we continue to see increased demand for fuel cells in automotive applications in Asia. The recent expansion programme to double our manufacturing footprint is now complete, with 2GW of capacity across the UK and China. We will add new capacity quickly to meet market 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 were down 13%, weighted to the first half where we saw postponement of some elective procedures as a result of the COVID-19 pandemic.

Life Science Technologies

Our Life Science Technologies business provides advanced catalysts to the pharmaceutical and agricultural chemicals markets. Sales were up 8% as we saw increased demand for some products.

Other

Other comprises Atmospheric Control Technologies and Water Technologies, which were disposed of in November 2020.

Underlying operating profit

Underlying operating profit increased to £9 million, reflecting the absence of a one-off £8 million impairment in the prior year relating to the eLNO demo plant.

ROIC

ROIC increased 3.7% to 3.4% reflecting the increased underlying operating profit in the year.

Case study

Partnering for pole position

I'm excited to be part of the JM team creating a sustainable supply of battery cathode materials to support growing demand for EVs. We've made good progress towards commercialising eLNO, and my role is all about developing partnerships to help us to go even faster.

For example, announcing our new partnership with leading Formula E racing team Envision Virgin Racing was a big moment for us. Formula E is the ultimate showcase for e-mobility, using only high performance battery EVs in its races. As well as sponsoring their races, we're working together to develop the first ever two seater electric race car powered using eLNO. The project will act as a test bed for our technology, giving us valuable experience of a challenging application. This, in turn, will help us continue to develop eLNO as a high performance, customisable material for passenger cars. It's amazing to see the progress, and I can't wait until we can watch an ultra high performance car zooming down the tracks, powered by eLNO.

Srinivas Popuri
Strategic Partnerships Project Manager

Fuel cells

What they are and how they work

Fuel cells are used to provide back-up power for buildings and in transport, especially heavy duty trucks, where they are lighter and quick to refuel compared to some battery technology.

We have decades of experience in using pgms to make the highly specialised, catalyst coated membranes (CCMs) that are at the heart of a fuel cell unit (called a 'stack'). They help convert hydrogen (the fuel) into electricity and, over the years, we have perfected the formula of our CCMs to help make more electricity using less pgm.

Science and innovation

"Driving innovation through R&D is key if we are to help the world realise its net zero goals and successfully bring about the four essential transitions."

Maurits van Tol
Chief Technology Officer

A lot of what we do at JM starts with R&D.

It's where we bring our scientific skills to life so we can design and scale up technologies and solutions that help our customers address their most complex challenges. If innovation is defined as the entire process from idea to 'money in the bank', R&D is at the core of it.

Driving innovation through R&D is also key if we are to help create a sustainable future and successfully bring about the four essential transitions needed in transport, energy, decarbonising chemicals production and the circular economy. We'll need to progress at a pace that matches society's expectations. So, while our strong balance sheet will help us continue to invest in new R&D, we've also taken several steps to ensure we can respond in an agile way as we move through those transitions.

For example, we've expanded our technology horizon scanning out to 2050 and we look at a range of likely future scenarios. These help us make portfolio decisions today for the technologies we'll need tomorrow, and for much, much later. We have also reshaped our R&D portfolio around key programmes to accelerate innovation and help us commercialise new products with focus, at speed.

Embracing data to accelerate innovation

One of our programmes is called Labs of the Future, which we've set up to help us develop new ways of doing our research. For example, we're using machine learning to speed up the generation of results and the output of our R&D. We're also looking at ways to use and share data more effectively and we are introducing more automation to carry out repetitive experiments. This will give our scientists more of the space they need to do what they're brilliant at – creative thinking and innovation. And it is my conviction that these novel approaches will result in an increased 'RoI': return on innovation.

Attracting a new generation to help drive the transitions

R&D – no matter what we're developing – requires talent. While we have that in abundance in our team today, we continue to help our people develop new, transferable skills so they can grow their careers with us.

We are also looking for the next generation and that will be tough given the growing shortage of scientists and engineers to match the number of available jobs. At a grassroots level, Johnson Matthey's new long term £1 million science education fund will help improve access to quality science education in schools and encourage more young people to consider science careers. We need young people to select science subjects at school and university, as it is my strong belief that many of the problems humanity and the planet face need technological solutions.

One of the key ways in which we can attract new talent is through our partnerships with some of the world's leading universities and academic institutions. These relationships create important connections with the scientific community, and many of the PhD students we sponsor eventually come to work with us. These partnerships also give us the opportunity to understand and participate in the latest academic research in clean and sustainable technologies and tap into the start-up communities that so often flourish around universities.

Forming new partnerships to turn carbon into valuable products

To reach a net zero world, we have to work with others. So I'm particularly pleased to represent Johnson Matthey on the new Carbontech Leadership Council, part of an early stage technology investment initiative called Carbon to Value (C2V). The initiative is designed to stimulate R&D in technologies that turn carbon emissions into valuable products. Members join by invitation and come from business, academia and politics. Together, we're working on a 'carbontech' roadmap and will be working closely with the start-ups who join C2V.

Number one in the UK for chemical patents

As we move through the next decade of societal transition, we must ensure that we protect the competitive advantage that our technologies create. I am pleased that we are the number one chemicals company in the UK when it comes to filing patents[1] – and we must maintain that leadership.

The work we do in R&D has the potential to change the way we live. It is fundamental to Johnson Matthey's vision for a cleaner, healthier world. But it will take all our skills in metals chemistry and creative thinking to make a sustainable planet a reality. There will be challenges along the way of course – but it's what we thrive on. I've never met a scientist or an engineer who didn't relish a challenge!

[1] EPO status, 1st February 2021.

Case study

Using electrochemistry expertise to create new technologies for a sustainable future

The world is going to need new energy technologies if it is to meet its ambitious net zero targets. Many of those technologies rely on complex electrochemistry to turn energy from chemical reactions into electricity or electricity into chemical reactions. For example, fuel cells use special membrane technology to convert hydrogen and oxygen into electricity and water.

That's where JM comes in. For many years we've made the catalyst coated membranes inside proton exchange membrane (PEM) fuel cells that trigger this conversion.

But PEM technologies can also be used to make 'green' hydrogen, using renewable electricity to split water into hydrogen and oxygen. So we're developing new metal containing products to help make green hydrogen and have developed the manufacturing skills we need to make sure we can scale our business quickly as demand grows.

We're also combining our metals chemistry expertise and electrochemistry skills to develop advanced new battery materials. These materials will help charge the next generation of battery electric vehicles more quickly and allow EVs to travel farther on a single charge.

Read more about electrochemistry in action.

Decarbonising heavy duty transport on page 5

Enabling the transition to a hydrogen economy on page 7

World's first climate neutral methanol plant on page 9

Creating a sustainable battery supply chain on page 11

Awards won by Johnson Matthey over the past year

- IChemE Energy Award for low carbon hydrogen process
- IChemE Industry Project Award for formaldehyde technology
- Best Process award winner at ICIS Innovation awards
- Best Innovation Project at the Fuel Cells and Hydrogen Joint Undertaking Awards

At a glance

We use our deep understanding of metals chemistry to research, design and customise the next generation of technologies, products and solutions that will make the world cleaner and healthier.

Number of R&D employees

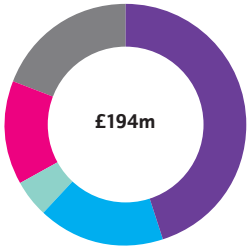
>1,600

Gross R&D expenditure in 2020/21

£194 million
(including £22 million of capitalised R&D)

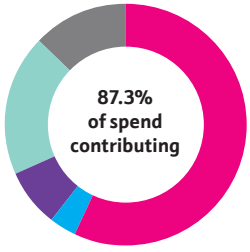
Annual gross R&D expenditure

- Clean Air: 45%
- Efficient Natural Resources: 17%
- Health: 5%
- New Markets: 14%
- Corporate: 19%



% R&D spend contributing to four priority UN Sustainable Development Goals

- UN SDG 3: 57%
- UN SDG 7: 3%
- UN SDG 12: 8%
- UN SDG 13: 19%
- Not related to the four UN SDGs: 13%



Sustainable business

Annette Kelleher, Chief HR Officer
Ron Gerrard, Chief Environment, Health and Safety and Operations Officer

New targets and commitments for a sustainable future

Ron and Annette reflect on a challenging year and discuss our new sustainability goals.

Looking back on a challenging year

Q It's been an extraordinary year. How did JM respond to the challenges of COVID-19?

AK I am so impressed with the way that our people adapted, which makes me feel very proud to be part of JM. At a high level, we gave guidance and put processes in place, and we trained leaders on how to spot signs of stress. However, we empowered our local leaders to make decisions appropriate to their locations and circumstances. I'm delighted by the tremendous positive feedback from yourSay, where our people told us how much they appreciated the support we gave them.

RG I'd add to that and say that this past year has been a great example of JM coming together as one team, particularly since we also continued to work through our transformation programme. That has meant additional organisational change for lots of people, including my team in Environment, Health and Safety (EHS). For example, we've introduced a new operating model to create clearer accountabilities and a new auditing standard. We've also created new process safety and product stewardship centres of expertise to allow for more efficient allocation of specialist skills and resources. As a result, we've identified some areas where we want to grow the team, but I'm aware that isn't the case in every part of the business.

AK That's true. We said that we expect about 2,500 redundancies over the course of the three year programme, which started last summer. We're doing everything we can to help those who are affected, including identifying other potential roles within the company. We realise change is often quite unsettling, but I'm pleased we held off our planned redundancies until after the first peak of the pandemic.

Q What were the highlights of 2020/21 for you?

AK Firstly, I'm thankful for the way our leaders and managers supported our people during the pandemic, showing enormous empathy, flexibility and focus. I'm thrilled to see the business progress we made thanks to our employees' adaptability and resilience. I personally learned a lot, and we've made several changes in our approach to learning, recruitment and how we induct new colleagues into JM. We shifted many development opportunities online and saw more employees take them up; this will be great for the future. Also, we've been able to adjust our induction process so that our new recruits still get the chance to learn about the business and a feel for our culture despite a pandemic.

RG I was one of them! I joined in August 2020 and am impressed with the way the company has kept people connected.

AK Although many of us couldn't meet face to face, we reached many people virtually, through town halls and Q&A sessions. We learned a lot about keeping the best parts of working differently in future. Our leadership engagement forums are a great example. We had super engagement on our new sustainability goals. More broadly, we saw a 10% rise in the number of yourSay responses and over 80% of survey participants shared information about diversity and inclusion for the first time ever. I'm so pleased with that – I think it shows that people want us to be a more inclusive place and that they trust us to use their data responsibly.

RG The progress we've made in our sustainability agenda has been a big highlight for me. We've made really good progress against our 2025 target to source 60% of our global electricity demand from renewables and we issued a new Supplier Code of Conduct that demonstrates our ambition to lead the sustainability agenda through our supply chains. But the most exciting element is working towards setting goals to increase our societal impact through our R&D and products.

> "Successful businesses are built on trust...and we can only maintain trust by continuing to hold ourselves to the highest standards."
>
> **Ron Gerrard**

> "If we want to help others achieve their climate and sustainability goals we have to do the same ourselves."
>
> Annette Kelleher

New targets and commitments for a sustainable future

Q You have some very ambitious 2030 sustainability targets and goals. Why now?

RG Sustainability has always been at the heart of what we do and we're very proud of the fact that our products and services already make a huge contribution to society. But the world is changing far more quickly than anyone imagined and COVID-19 has increased the pressure on governments and companies to help build a cleaner, healthier world. So these targets are about making sure that we do everything we can internally to be a sustainable business. But they will also enable us to accelerate growth in our new businesses and help our customers achieve their own net zero goals. That's an exciting prospect.

AK Yes, I agree with this. We've always had this fabulous spirit to use our science and innovation skills to make a difference in the world. But we have to keep adapting and evolving. The six sustainable business goals that we set in 2017 were completely aligned with the material issues that faced our stakeholders at the time. But now we need to push ourselves further given the pace of change in the sustainability agenda and the ever increasing expectations on companies to act, and report on their progress. We are also taking the opportunity to align our work even more closely with the United Nations Sustainable Development Goals (UN SDGs). Again, we'd started that work in 2017, but now we're refining our targets to focus on four UN SDGs (see pages 64 and 65).

Q The targets are shaped into three pillars – products and services for a cleaner, healthier world, our operations, and people. Why these and what will they help you deliver?

RG Our products and services are the clearest expression of our purpose to create a cleaner, healthier world. They are also how we will help our customers and society reach net zero. To support that, we've set science based targets (SBTs) to reduce our Scope 3 emissions by 20% by 2030. But we also have to look at every aspect of our own manufacturing processes. So our SBTs also include a target to reduce our Scope 1 and 2 emissions by 33% over the same period. And we are setting specific targets on water use and hazardous waste management. Together, they will help us protect the planet.

AK Our people pillar is our recognition that none of this is possible without people – those who work for us and with us and the communities that live near our facilities. So we've set targets that will help us build teams that reflect the world we live in, get the right processes in place to protect their wellbeing and create a highly inclusive organisation. We also have targets to ensure we uphold human rights in our supply chain and invest more in our local communities.

Q Stakeholders will want to know that you are measuring and sharing progress. How will you do that?

AK We have a transparent, open culture and actively promote feedback and dialogue. Our Group Management Committee (GMC) regularly reviews our people plans and targets and our board ensures that we challenge ourselves and deliver on our promises. We track employee sentiment through channels like our yourSay survey and new employee forums hosted by our non-executive directors. I was particularly pleased that we kept those running virtually in 2020. Our recognition processes will call out and reward the behaviours we appreciate and need to deliver our plans. From this year, every member of the GMC will have a new sustainability target in their annual bonus plan. We will incorporate targets into our performance share plans in 2022 and will pilot this in 2021.

Thoughts for the future

Q What challenges will you need to overcome to achieve your new targets?

RG We've made some ambitious commitments, so the first challenge is to start demonstrating progress straight away. But we also need to match that progress to the speed at which the world around us changes. After all, our direct impact on the world is small compared with the impact our products have through our customers. And because of that, everything we've said we want to achieve depends on governments, other companies and society continuing to show support and commitment for tackling climate change. We will continue to use our voice to advocate for this.

AK Many of our people choose to develop their careers with JM because they believe in our purpose and impact. As we accelerate our growth, I want to make sure we have the right broad set of skills in place. We've got fabulous people and world beating knowhow and experience in R&D, technology and science. Now we are deliberately strengthening our commercial capabilities to support our growth plans. That's why we set up a new commercial council this year to bring together all our commercial leaders to structure career paths, understand our gaps and opportunities and build the skills we need for the future.

Q Why is being a sustainable business important for the future of JM?

RG We think this is critical. Successful businesses are built on trust, whether that's with employees, suppliers, partners, customers or communities. And we can only maintain that trust by continuing to hold ourselves to the highest standards and by working with others to encourage them to do the same.

AK I agree. You don't get to be a 200 year old business without trust. It's what gives us the licence to deliver our strategy and our purpose. And frankly if we want to help others achieve their climate and sustainability goals, we must also set – and meet – our own rigorous targets.

Sustainable business continued

Our sustainability strategy and framework

We have a responsibility to ensure that the products we make – and the way that we make them – is as sustainable as possible, whether that's keeping our people safe at work, adopting ethical business practices or reducing greenhouse gas emissions from our facilities.

Our goals are set out under three pillars:

Products and services

This is where we will have the greatest impact in accelerating progress towards a cleaner, healthier world.

Operations

We are also tackling the environmental footprint of our own operations.

People

We need the right people in our company and value chain to achieve this, and we will treat them and our communities in an ethical and respectful manner.

Our sustainability reporting

Our sustainable business report contains all the mandatory non-financial disclosures required by the UK Companies Act, including SECR regulation. We also report against several voluntary non-financial reporting initiatives, as outlined below.

Global Reporting Initiative (GRI) standard

As in previous years, we report to the GRI protocols. The GRI index on pages 272 to 273 references the relevant GRI code and indicates where in the annual report the disclosure can be found.

Materiality assessment

Through talking to stakeholders, we have identified the topics that are material to them. Our materiality map highlights our areas of environmental, social and governance (ESG) focus and is available on our website at matthey.com/materiality.

Sustainability Accounting Standards Board (SASB)

In this year's report we make disclosures aligned to the SASB chemical sector reporting requirements for the first time, to provide increased transparency for our stakeholders. The SASB index is set out on page 271 of the annual report.

Independent external assurance to the ISAE3000 standard has been provided by Avieco. It confirms Johnson Matthey's global Scope 1 and 2 GHG emissions, energy consumption specified environmental performance indicators, waste disposed, water consumption and specified health and safety indicators.

The Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD)

The TCFD recommendations are followed within the Sustainable business section of this annual report (pages 86 and 87). We provide a summary report on the progress made during the year in each of the four pillars of TCFD and plan to demonstrate full compliance in our 2022 annual report.

Other disclosures

During the year we also report our sustainability performance to a number of leading environmental, social and governance (ESG) surveys, including CDP Investor, CDP Water, S&P Global (Dow Jones Sustainability Index), FTSE4Good, MSCI, Sustainalytics, Equileap and Institutional Shareholder Services Inc.

Independent external assurance

Avieco, a sustainability consultant, has provided independent assurance of our greenhouse gas (GHG) emissions and key metrics quantifying our environmental, health and safety performance.

Their statement can be found on page 265 and the full report is available on our website at matthey.com/avieco-21.

Accelerating the transition towards a cleaner, healthier world

Products and services

Goal	2030 targets
Produce and innovate products for a cleaner, healthier world	>95% of sales contributing to four priority UN SDGs
	>95% of R&D spend supporting four priority UN SDGs
Drive lower global greenhouse gas emissions	Tonnes of GHGs avoided by using JM's products and solutions – target to be set 2021/22
Enable less harmful air pollution globally	Tonnes of oxides of nitrogen (NOx) emissions removed by using JM's products – target to be set 2021/22
Conserve scarce resources	Percentage of JM's products sold with an end of life recycling solution – target to be set 2021/22

Our commitment

- Provide back to source transparency for all our critical metals to OECD due diligence standards.

Operations

Goal	2030 targets
Achieve net zero by 2040	33% reduction in Scope 1 and Scope 2 GHG emissions
	20% reduction in upstream Scope 3 emissions
Reduce water consumption and waste	25% reduction in net water usage
	50% reduction in total hazardous waste produced
Minimise environmental footprint	40% reduction in nitrogen oxides emissions from our operations
	Make cradle to gate lifecycle analysis (LCA) information available for >95% of our products

Our commitment

- Joined the Business Ambition for 1.5°C and committed to net zero by 2040 – April 2021.

People

Goal	2030 targets
Keep people safe	Achieve a total recordable injury and illness rate (TRIIR) for employees and contractors below 0.25
	Reduce our ICCA process safety severity rate to 0.4
Create a diverse, inclusive and engaged company	Achieve an employee engagement score of >75%
	Achieve >40% of female representation across all management levels
Uphold human rights in our value chain	100% of value chain partners assessed for human rights risks and remedial plans in place where high risks identified
Invest in our local communities	>6,000 days of corporate volunteering annually

Our commitments

- Join the UN Global Compact for Human Rights.
- Accredited as a Real Living Wage employer in the UK – February 2021.
- Be recognised as a promoter of diversity and inclusion.
- Signed "If Not Now, When?" and "Change the race" commitments to take actions on black inclusion – December 2020.
- Deliver against Valuable 500 objectives for disability inclusion and be recognised in global LGBT+ indices.
- Invest at least £1 million annually in community engagement.

Products and services

For more than two centuries our products and services have helped enable human progress. Using our expertise in metals chemistry, we've designed solutions for automotive customers that reduce air pollution, developed chemical process technologies for customers who make life changing products and pioneered some of the world's most advanced metals recycling processes.

Every product and solution we make is driven by our belief in the transformative power of science and our passion for creating a cleaner, healthier world. Now, as we stand at a decisive moment in modern history, we need that passion and belief more than ever.

While the products and services we make today already have a hugely positive impact on society, the ones we're making for tomorrow have the potential to transform the world around us. They are at the centre of society's ambitions to reach net zero and they will play a pivotal role in driving the four essential transitions in transport, energy, decarbonising chemicals production and the circular economy.

That's why we're investing in exciting new markets like battery materials that will help electric vehicles travel farther on a single charge, fuel cell solutions for a new generation of transport, and hydrogen technologies that will help some of the world's biggest industries achieve their decarbonisation goals.

It's why we will continue to invest in new, more efficient catalysts that require smaller quantities of precious metals and keep designing products with end of life recycling in mind.

And it's why we've set ourselves a new commitment to provide our customers with back to source transparency for all the critical metals we use, in line with OECD due diligence standards.

This commitment will ensure we keep making products and solutions in a way that delivers our purpose as we move through the next transitional decade. But we must also back them up with action. To that end, we've developed four new key goals.

1. Produce and innovate products for a cleaner, healthier world

Without innovative thinkers, Johnson Matthey would not have succeeded these past 200 years. It is our blend of creativity and metals chemistry expertise that helped us shift from assaying metals to making products that protect people and the planet. It is that same blend that helps us design highly efficient chemical plants and manufacturing processes for our customers and steadily reduce the quantity of precious metals that we use in our technologies. Innovation is core to everything we do, and we're proud of the positive impact that our products already have today because of it. And there's plenty more to come as we grow our exciting new businesses, and help the world tackle climate change and tread a more sustainable path.

Our targets

We track our progress against this goal by measuring the percentage of our product sales that make a positive contribution to our four priority UN SDGs. Our original 2025 target was to have more than 90% of sales coming from products that positively contributed to all 17 goals. As part of setting our 2030 targets, we have refined this to focus more specifically on four UN SDGs – good health and wellbeing (#3), affordable and clean energy (#7), responsible consumption and production (#12) and, critically, climate action (#13). We've also increased our target to more than 95% of sales. And to ensure we invest in the right technology areas of the future, we will also measure the potential of our R&D spend in the same way.

2. Drive lower global greenhouse gas emissions

The world will need a range of low carbon solutions if we are to decarbonise our transport, energy and industrial systems and reach net zero. Solutions like clean running hydrogen, which can power fuel cell vehicles, provide back-up power storage and run big industrial turbines, and battery materials to help drive the electric vehicle (EV) revolution.

Our deep understanding of the way in which the chemistry of precious and other metals can be used to create powerful effects means we are already making the next generation of catalysts, membranes and electrolysis technologies. It's these technologies that will help bring about the hydrogen economy and create the materials that allow EVs to travel farther on a single charge.

Our targets

Our products and services already help our customers avoid and remove millions of tonnes of GHG emissions every year. Over the next decade we aim to increase our impact further, through a combination of new and improved low carbon offerings. We expect products and services such as our battery materials, fuel cell components, and technologies to produce clean hydrogen, sustainable fuels and chemicals, to make a significant contribution to lowering GHG emissions. We will measure and track the quantity of GHGs reduced by our products and will be setting an ambitious new target for 2030, which we will announce next year.

By 2030, our targets are:

- More than 95% of product sales will contribute to our four priority UN SDGs.
- More than 95% of our R&D spend will support our four priority UN SDGs.

3. Enable less harmful air pollution globally

We know the automotive industry well. We've been working with some of its biggest names for decades, using our catalyst expertise to design emission control systems that help them meet strict air quality regulations. For the past four decades those systems have helped prevent millions of tonnes of harmful emissions, such as carbon monoxide, NOx and particulates, from entering the atmosphere, improving the health of millions of people living and working in cities around the world. Today, one third of new cars are fitted with one of our catalytic converters.

Now, we are using that same expertise to develop and commercialise new battery and fuel cell technologies that will help our customers create the lower emission vehicles of the future. But that doesn't mean the internal combustion engine is going to disappear overnight, so we will keep innovating and advancing all our products to help our automotive customers ensure tailpipe emissions are as clean as possible, no matter how the vehicle is powered.

Our targets

One of the simplest ways in which we can demonstrate our impact in improving global health is by tracking increases in the quantity of harmful NOx emissions that our technologies remove from vehicle tailpipes before they reach the air we breathe. We intend to go further than before, increasing the proportion of vehicle related particulate matter and NOx emissions that is destroyed by JM technology globally. Over the next year we will set a 2030 target for this.

4. Conserve scarce resources

Many of our products and solutions rely on metals that are already scarce in the earth's crust, such as platinum group metals. Others, such as cobalt and lithium, may become increasingly difficult to source as demand for electric vehicles and fuel cells rises.

And so our R&D teams have spent decades designing and redesigning catalysts that use minimal quantities of these important resources. And we are already the world's biggest recycler of platinum group metals (pgms). As well as helping us do more with less, recycling helps us avoid greenhouse gas emissions, since the carbon footprint of recycled pgm is around 50 times lower than the carbon footprint associated with mining, refining and transporting new primary pgm from a mine to its point of use.

Since the world is going to need more of these scarce metals as we decarbonise our transport, energy and industrial systems, circularity will be essential. And it's not only the metals, there are other raw materials in the products we are designing for a low carbon future, and it will be important to create circular solutions for these to conserve the earth's resources and reach net zero. That means thinking about how we source, use and recycle all our critical raw materials and products while they are still on the drawing board.

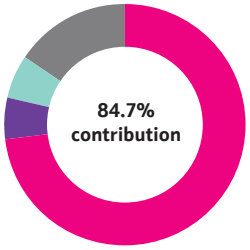
Our targets

Going forward, we will be designing for recycle for a sustainable future. We will track our progress through a new 2030 target, which will aim to increase the percentage of our products sold with an end of life recycling solution, either on our own or in partnership with others.

Our performance in 2020/21

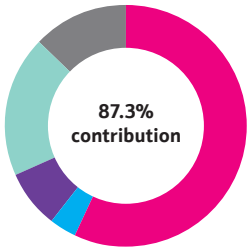
% sales from products contributing to priority UN SDGs

- UN SDG 3: 73.1%
- UN SDG 7: 0.1%
- UN SDG 12: 5.5%
- UN SDG 13: 6.0%
- Not related to the four UN SDGs: 15.3%



% R&D spend assigned to priority UN SDGs

- UN SDG 3: 57.2%
- UN SDG 7: 3.5%
- UN SDG 12: 7.8%
- UN SDG 13: 18.8%
- Not related to the four UN SDGs: 12.7%



Amount of GHGs avoided

211,000 tonnes CO_2 eq

GHGs avoided by consumers using our fuel cell and battery materials products

Amount of GHGs removed

11.5 million tonnes CO_2 eq

GHGs removed by our customers using our nitrous oxide abatement solution on nitric acid production plants

Sales of products designed for in-use resource efficiency

£804 million

Operations

Our products have a major impact on delivering our vision for a cleaner, healthier world. And they will have a huge role to play in driving the four essential transitions in transport, energy, decarbonising chemicals production and the circular economy that will help combat climate change and create a sustainable future for all.

As we work to realise our ambition to lead in sustainability, we must ensure that we design, make and move our products in ways that reduce our own impact on the planet.

That's because the work we do uses energy, creates emissions and generates waste products. For example, some of our manufacturing processes require high temperatures to trigger chemical reactions. As a result of both our chemical reactions and generating the heat needed for our processes, the work we do generates GHGs, including carbon dioxide (CO_2), nitrogen oxides and volatile organic compounds (VOCs). These can all contribute to climate change and local air quality issues, if not effectively managed.

We also use water in many of our production processes, as well as to heat and cool some of our operations. And our work produces waste, some of which can be hazardous and requires specialist treatment by external companies.

The good news is that we already have many processes in place to help us lower our environmental impact. For example, wherever possible, we recover and recycle waste materials that contain pgms. These metals can then be reused in new products.

But we know we can – and must – do more. So we are setting ourselves three bold new goals to continue lowering our footprint and help protect the planet.

Those goals are:

- Achieve net zero by 2040.
- Reduce water consumption and waste.
- Minimise environmental footprint.

These goals are underpinned by a series of tough 2030 targets, including science based targets (SBTs) to reduce our GHG emissions. More information about all our targets can be found in their relevant section and are summarised in the table below.

We already share detailed environmental lifecycle analyses (LCAs) of some of our products with our customers on request. Now we are setting ourselves a target to ensure we can offer this service for more than 95% of our products by 2030. This will help us demonstrate the ways the positive environmental benefits of our products outweigh the impacts associated with making them, particularly when used in other end products.

Our goals and targets

Goal	Sustainable business goal	Sustainable business KPIs	Baseline measure	Baseline	2020/21	2030 target
Net zero by 2040	Reduce our Scope 1 and 2 GHG emissions by 33% by 2030	Tonnes annual GHG emissions (Scope 1 and 2): market method	CO_2 eq emissions in 2019/20	391,459	388,904	**237,914**
	Reduce our Scope 3 GHG footprint: Purchased goods and services category by 20% by 2030	Tonnes annual GHG emissions (Scope 3): purchased goods and services	CO_2 eq emissions Scope 3: purchased goods and services in 2019/20	3,859,969	3,139,540	**3,087,975**
Reduce water consumption	Reduce water consumption by 25% by 2030	Net fresh water consumption (megaLitre)	Net fresh water consumption in 2019/20	2,254	2,039	**1,690**
Reduce waste	Halve the amount of hazardous waste produced by JM by 2030	Total hazardous waste shipped to third party for treatment (tonnes)	Total hazardous waste shipped to third party for treatment in 2019/20	56,751	57,213	**28,375**
Reduce emissions to air	Reduce NOx emissions to air by 40% by 2030	NOx emissions (tonnes)	NOx emissions (tonnes) in 2019/20	301	299	**181**
Provide LCA information	Make cradle to gate LCA information available for >95% of our products	–	–	0%	6%	**>95%**

Achieving net zero by 2040

Our products have huge potential to help our customers achieve their net zero ambitions. At the same time, we also have a responsibility to address our own GHG footprint and help enable the transition to a low carbon world.

That's why we have set a bold new commitment to reach net zero by 2040 and in April 2021 we signed up to the UN Global Compact's Business Ambition for 1.5°C. This commitment reflects our recognition of the Intergovernmental Panel on Climate Change's (IPCC) science on climate change. It also supports our earlier climate actions, including signing the Paris Climate Pledge to keep the global temperature rise below 2°C and our commitment to the UN SDGs, including UN SDG 13 (climate action).

If we are to get to net zero by 2040, we must start making progress today. To that end, we are introducing science based GHG targets. From 2020 to 2030 we aim to:

Reduce our Scope 1 and 2 emissions by

33%

Reduce our upstream Scope 3 emissions from purchased goods and services by

20%

And we intend to have these targets independently verified by the Science Based Targets initiative (SBTi) in the next year.

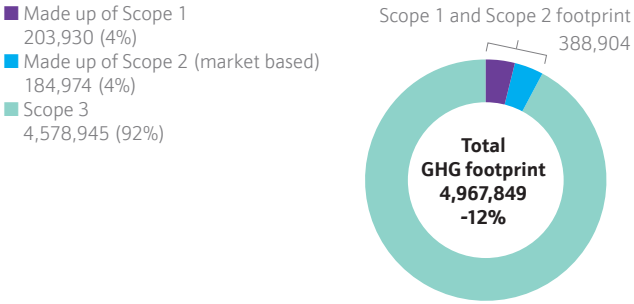
To make early progress towards our Scope 1 and 2 GHG reduction target, we will continue to work towards increasing the amount of renewable electricity we purchase to more than 60% by 2025. We will continue to improve energy efficiency of our existing processes. We will also introduce technology that removes nitrous oxide (N_2O) – a gas with a greenhouse effect 250 times more powerful than CO_2 – from our emissions to air at some of our biggest plants. For new facilities, we will design and build for a net zero future, as we are doing for our first large commercial plants for our Battery Materials business.

In the medium term, we will look to reduce our dependence on natural gas as a source of energy at our existing manufacturing plants as part of our asset renewal programme. We will introduce new technologies that capture CO_2, and convert equipment to use clean energy, such as hydrogen, when they become available locally. We will electrify other equipment where cost competitive renewable energy is available. Asset renewal programmes are typically long term investments and in setting our SBTs we recognise that most of the impact on our emissions from these activities will not be realised until the 2030s. We are currently considering the benefits of introducing an internal carbon price into our capital investment process to ensure that we are future proofing all our investment decisions for a net zero future.

Our GHG footprint

We have been measuring and reporting our Scope 1 and 2 GHG footprint since 2007. This is the part of our footprint we can directly affect by changing the way we use energy in our factories. However, we recognise that this is not our only contribution on GHG emissions.

Total footprint – Scopes 1 and 2 and 3 2020/21 (Tonnes CO_2 eq / % of JM carbon footprint)



During 2020 we worked with sustainability consultant Avieco to calculate our Scope 3 GHG footprint across all 14 categories for the first time. The full breakdown is shown on page 267.

In total, 92% of our GHG footprint comes from Scope 3 emissions embedded in our value chains. By far the largest component of our footprint is the embedded carbon in our raw material procurement, which is part of purchased goods category. That's why our 2030 target focuses solely on reducing our upstream Scope 3 emissions in this category.

Overall our Scope 1, 2 and 3 footprint has reduced by 12% in the last year (2019/20: 5,646,779 tonnes CO_2 eq.), broadly in line with temporarily lower production volumes of 8%, due to COVID-19.

Our Scope 1 and 2 GHG performance

Over the last four years we have made a lot of progress. In that time we have reduced our:

- Absolute Scope 1 and 2 emissions by 15%.
- Absolute Scope 1 emissions by 5%.
- Absolute Scope 2 (market based method) emissions by 20%.

These improvements demonstrate our commitment to the Paris Pledge for Action. The more significant reduction in Scope 2 emissions is due to good progress in sourcing renewable electricity (see page 68). We also emit some CO_2 directly from our processes.

While production output across JM was lower overall this year because of COVID-19, our Scope 1 emissions increased slightly mainly due to increased production at our largest natural gas using site in Clitheroe, UK. In addition, we started full operation of our natural gas fuelled combined heat and power plant at our site in Royston, UK, following a project to upgrade the equipment with more efficient engines. Our Scope 2 market based emissions were lower this year due to reduced production and also because some of our large production sites have used energy with a lower carbon emissions factor, such as Skopje, North Macedonia.

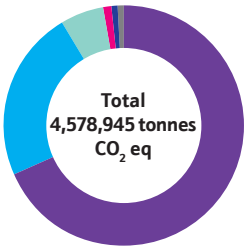
Operations continued

Some of our facilities operate in territories where there are specific regulations aimed at reducing carbon emissions, for example under the EU Emissions Trading System. A quarter of our Scope 1 carbon emissions are covered by such schemes. Because of the way we source renewable electricity, none of our Scope 2 emissions are subject to any carbon emission limiting regulations.

Our Scope 3 GHG performance

Scope 3 emissions (tonnes CO_2 eq)

- Purchased goods and services 3,139,540
- Use of sold products 1,057,318
- Capital goods 266,513
- Fuel and energy related transport and distribution losses 40,515
- Upstream transportation and distribution 37,859
- Other 37,201



For a full breakdown and prior year data see page 267.

Several Scope 3 GHG emissions categories fell substantially because of COVID-19:

- Our production volumes reduced 8%, so we procured fewer raw materials.
- Transportation of goods and business travel also fell.
- With more employees working from home, we expect that emissions caused by commuting fell, but we do not have the information available to support that.

Making progress towards our renewable electricity target

Shifting our energy supplies to renewable sources is an important element of our journey to net zero. This year we continued to make good progress against our aim to source 60% of our global electricity demand from renewable sources by 2025.

Globally, 31% of our electricity use in 2020/21 came from sources with a Renewable Energy Guarantee of Origin (REGO) certificate (2019/20: 27%)[1].

Just over 1% of our electricity supply came from local solar power facilities that are not grid connected. Where we don't use renewable electricity, and market choices exist, we actively manage our electricity purchasing to minimise the associated carbon footprint.

As part of our net zero plans, we will look to power new facilities using renewables. Our two new battery materials plants in Poland and Finland will both use 100% renewable electricity when they start production.

Driving energy efficiency in our operations

While more renewable energy will be critical in helping us lower our GHG emissions, particularly over the first decade of our plans to reach net zero by 2040, we also continue to improve energy efficiency in our operations.

Regional lockdown measures caused by COVID-19 meant we had to temporarily stop production at some of our sites, which lowered our energy use. Energy use at our facilities fell by 3%. Electricity use across the group fell by 5% and gas use dropped by 2%. COVID-19 also affected our energy efficiency, as we needed to run our plants in non-optimal ways to meet sudden geographical changes in demand for products.

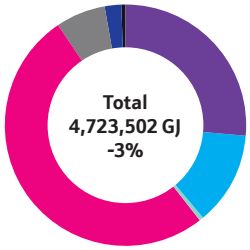
As we return to normal operation, we continue to make progress with our existing energy efficiency projects around the world. For example:

- At our Brimsdown facility in the UK, we have improved the reliability of our furnace burner used in our pgm refinery.
- In Nilai, Malaysia, we have replaced existing gas discharge lighting with LEDs, improved our air conditioning systems and optimised our ovens.
- In West Whiteland, US, we reviewed the use of compressed air on site and reduced the operational pressure in several locations.

Of the total energy used by JM, 39% (1,840,544 GJ) was grid supplied electricity. JM sources renewable electricity at a number of locations and the total amount of renewable energy sourced was 615,809 GJ or 13% of the total energy we used.

Energy mix (GJ)

- Non-renewable grid-supplied electricity 1,250,156 (26.5%)
- Certified renewable electricity from grid 590,388 (12.5%)
- Renewable electricity generated locally and not grid-connected 25,421 (0.5%)
- Natural gas used on site 2,416,909 (51.2%)
- Other fossil fuels 313,052 (6.6%)
- Non-renewable steam 112,445 (2.4%)
- Non-renewable fuel used on public roads by vehicles on company business 15,131 (0.3%)



A number of our sites generate electricity using combined heat and power (CHP) plants. We use natural gas as a fuel in our CHP plants and this energy is included in the natural gas section of the chart above. In total, 126,834 GJ of electrical energy was generated this way. Our total electricity consumption is therefore 1,992,799 GJ. From our total consumption of electricity, we used 615,809 GJ (30.9%) that was certified as renewable.

This year we spent £64 million on energy versus £68 million in 2019/20.

Further GHG-related disclosures are given on pages 266 and 267.

[1] Restated following review and reclassification of data submitted by some sites after the year end.

Reduce water consumption

Net fresh water consumption ('000m³)

We use water as a raw material to make some of our products and to heat and cool our operations.

Since water is one of our planet's most precious resources, we endeavour to use it in a responsible, sustainable way, not just for our operations but the communities who live near our facilities. To reaffirm our commitment to sustainable water management in our operations, we have set a new target to reduce our net fresh water consumption by 25% by 2030. To reach this target we will need to invest more in our existing and new facilities to ensure they meet high standards of water recycling.

Reduce our net fresh water consumption by

25%

This is particularly important at our 28 facilities that withdraw and consume water in locations that have a high or extremely high baseline water stress level (as determined by the World Resources Institute's Water Risk Atlas tool). The water we use at these facilities accounts for 24% of our net fresh water consumption and 24% of our water withdrawal.

Wherever possible, we look for ways to reduce our consumption of fresh water and reuse treated water within our facilities. For example, our Germiston facility in South Africa is located in a highly water stressed area. So, we have invested in a reverse osmosis plant that allows us to treat and reuse 80 to 100m³ of water each year. The process also allows us to recover small quantities of valuable pgms.

Our facilities source 93% of their water from mains supplies with the rest extracted from groundwater sources.

In 2020/21, we consumed 10% less water than the year before because of the affect of COVID-19 on our manufacturing output. We also upgraded pipework at our Brimsdown site, which led to an 18% reduction in water use and a 2% reduction in JM's overall water consumption.

We also treated 1.150 million m³ of waste water on site, 24% of which we recycled back into our processes instead of discharging. We are pleased to report that there were no non-compliances against water quality permits or regulations.

As part of our adoption of the scenario based risk assessments and reporting standards set by the TCFD, which we will report on in full from next year, we also intend to carry out a full climate assessment on our facilities, which will include water risks, such as drought, flooding and hurricanes. Read more: our 2020/21 TCFD on pages 86 and 87.

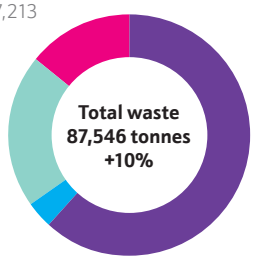
A full breakdown of our water management performance over five years is shown on page 268.

Reduce waste

Type of waste (tonnes)

- Liquid hazardous waste 54,170
- Solid hazardous waste 3,043
- Liquid non-hazardous waste 18,166
- Solid non-hazardous waste 12,167

Total hazardous waste 57,213



We have a responsibility to make sure that we dispose of our waste in a safe manner, including working with specialist treatment companies. We also look for ways to reduce and recycle wherever possible. For example, we recover materials that contain pgms to our refineries to be reused. We also ensure that all our other waste is treated within local regulations.

Our manufacturing processes produce different types of waste, 65% of which is hazardous. If we are to help the world tread a more sustainable path, we know we must do more in this area. That's why we have set ourselves a tough new target to reduce our hazardous waste by 50% by 2030, using our 2020 data as our baseline.

This will be a big challenge, but we understand the issues and where our biggest areas of concern lie. And we are already looking for ways to introduce new processes or upgrade our facilities to meet this target.

In 2020/21, we produced 87,546 tonnes of waste. This is 10% higher than 2019/20. This is mainly due to an increase in effluent discharge at our Annan site, Scotland. The site is licensed to discharge effluent via pipeline using tidal discharge. The tidal discharge pipe became damaged and the site is currently not able to use this method to dispose of effluent waste. While we worked to fix the issue we temporarily used a waste vendor to tanker the material off site to ensure compliance.

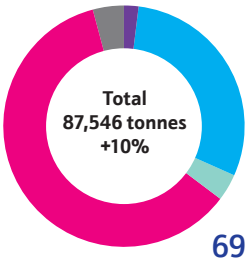
In 2020/21, we incinerated 2,560 tonnes of our waste within our own facilities. This was mainly waste that is sent to our refineries for precious metal recovery.

We also produced 57,213 tonnes of hazardous waste. This is 1% higher than 2019/20. Of this total, we recycled or reused 20% (11,332 tonnes). This compares to 19% in 2019/20. Meanwhile, 3% (1,350 tonnes) of our waste is solid material that is not reused after it is sent off site.

The amount of hazardous waste we produced was similar to last year, despite a reduction in overall output due to COVID-19. Much of our hazardous waste is liquid and it is often generated in our effluent plants and abatement scrubbers. These remained fully operational, even though our overall output of finished product was lower in the year.

Waste treatment (tonnes)

- Reuse 1,895
- Recycling 25,845
- Off site incineration with energy recovery 3,314
- Off site incineration without energy recovery 52,891
- Landfill 3,601



[2] Dow Jones Sustainability Index (DJSI) definition of hazardous waste.

Operations continued

Reducing our other emissions to air

	2020/21	2019/20
NOx (tonnes)	**299**	301[1]
SOx (tonnes)	**49**	28
VOC (tonnes)	**83**	99
Sites covered	**74%**	67%

As well as GHGs, our operations produce other emissions, including NOx, dioxides of sulphur (SOx) and VOCs. These emissions arise when we burn fuels in our furnaces to generate heat and are also produced as byproducts in some of the chemical reactions that are involved when we make our products.

All our licensed sites monitor these emissions to ensure that they comply with local regulations. They also set their own absolute emissions reduction targets as part of their local EHS improvement plans.

To keep pushing ourselves, we've set a new target to reduce our NOx emissions by 40% by 2030, using 2020 as our baseline data. We will also improve our NOx monitoring processes to help us increase data coverage and accuracy.

Reduce our NOx emissions by

40%

In 2020/21, our NOx emissions fell slightly to 299 tonnes due to more accurate data and lower production. Meanwhile, our SOx emissions rose to 49 tonnes. However, this rise is again partly due to better coverage of reporting data and an increase of measured SOx at our Brimsdown facility due to changes in feedstock. Our VOCs fell by 16% to 83 tonnes partly reflecting lower manufactured output.

How we manage environmental performance

Together with our environmental strategy, we have group policies, processes and systems that help us manage our environmental performance to a high standard. We also set out corporate standards in five key areas of environmental performance and assess sites against those standards during regular audits.

Our EHS Leadership Committee is responsible for agreeing our overall approach to carbon emissions and our GHG reduction through ensuring leading environmental performance from our manufacturing facilities.

In all, 85% of our manufacturing sites operate environmental management systems that meet the ISO 14001:2014 standard. Many of our operations are covered by environmental permits or licences and, as a minimum, we ensure that we comply with all conditions set up by regulatory bodies in the locations where we operate.

We use an electronic reporting system to measure key environmental indicators and use this data internally to improve performance.

Reporting environmental incidents

We expect all our sites to report any incident that impacts the environment using our robust management system. We classify any spills that occur on unmade ground or near drinking water sources as significant. We are pleased to report that there were no significant spills during 2020/21.

[1] Restated. See basis of reporting on page 260.

People

Everything we do at Johnson Matthey is designed to have a positive impact on people's lives. Our products help us realise our purpose to create a cleaner, healthier world, but equally important is our responsibility to make sure that the way we make them, and the impact they have more broadly, is positive too.

That means we work hard to look after our employees and provide a good quality place to work. And we have a responsibility to treat them, and our suppliers, customers and the communities who live near our facilities with dignity and respect. It means ensuring that our manufacturing facilities are well run so that our people can go home safely after every shift. It means designing our products in ways that minimise the quantity of hazardous materials within them. And when we can't remove those materials, it means making sure we provide clear, simple guidance on how to use them safely to protect people and the environment. It means training our teams and providing them with development opportunities, as well as recognising their efforts.

All our actions are guided by our commitment to safety and by our JM values, which help us act ethically and respectfully, both inside our company and within our supply chains. These help to create an inclusive culture that will deliver our vision and business strategy.

We want to lead in sustainability and help enable the world to move through the essential transitions in transport, energy, decarbonising chemicals production and the circular economy. People continue to be central to our success, which is why we have chosen 'People' as one of our sustainability pillars.

Our goals and targets

Sustainable business goal	Sustainable business aim	Baseline measure	Baseline	2020/21	2030 target
Keep people safe	Achieve a TRIIR for employees and contractors below 0.25	Recordable cases per 200,000 hours worked in 2019/20	0.79	0.54	**<0.25***
	Reduce our ICCA Process Safety Severity rate to 0.4	Points per 200,000 hours worked in 2019/20	1.2	0.81	**0.4**
Create a diverse, inclusive and engaged company	Achieve an employee engagement score of >75%	Score in 2019/20	63%	65%	**>75%**
	Achieve >40% of female representation across management levels	% female representation in management in 2019/20	30%	27%	**>40%**
Uphold human rights in our value chain	100% of direct value chain partners assessed for human rights risks and remedial plans in place where high risks identified	% assessed in 2019/20	New measure	–	**–**
Invest in our local communities	>6,000 days of corporate volunteering annually	Number of days in 2019/20	2,682	431	**>6,000**

Setting new commitments

We have made a series of new people orientated commitments as part of our broader new sustainability goals. Those commitments are to:

- Join the UN Global Compact for Human Rights.
- Accredited as a Real Living Wage employer in the UK – February 2021.
- Be recognised as a promoter of diversity and inclusion.
- Signed "If Not Now, When?" and "Change the race" commitments to take actions on black inclusion – December 2020.
- Deliver against Valuable 500 objectives for disability inclusion and be recognised in global LGBT+ indices.
- Invest at least £1 million annually in community engagement.

* This target includes employee + contractor incidents and hours in line with best practice companies.

People continued

Our people

Our people are what make Johnson Matthey a great place to work. Without their passion, skills, and creativity, our products would not have existed these past 200 years. Every day they demonstrate their commitment to our vision for a cleaner, healthier world.

Even through a global pandemic our people worked hard to keep each other safe and our operations running. For more on how we helped our people stay connected and supported their wellbeing during the pandemic, see page 76. For more on how we protected our people at our facilities, see page 78.

We are proud of our team and we will need their capabilities even more than ever as we play our full role in the big transitions happening today. To do that we intend to continue to find ways to enable our people develop their skills, give them new experiences, protect their wellbeing and remain engaged with our vision.

Engaging our people

Our new target to score more than 75% in our employee engagement survey by 2030 would put us on an equal footing with the highest performing companies.

We have made an excellent start. In 2021, we saw employee engagement in our yourSay survey rise two points to 65% and our enablement scores rise five points to 67%. This is a remarkable achievement in an unprecedented year in which our people have had to adapt to COVID-19 and our broader transformation programme.

Clearly there is more to do to reach our target and every Johnson Matthey leader has a role to play in helping us get there. This includes our board members. In October 2020 and in April 2021, we held virtual engagement focus groups in China, UK, Germany and the US. These were attended by a diverse mix of 25 employees and hosted by our non-executive directors. In these sessions we heard many positive comments about the support offered to employees during COVID-19 and the positive impact of improved manager communications. However, the feedback also suggests there is more work to do to help people feel more connected to JM as a whole – something that will form a key part of our engagement strategy this year.

A great place to work

We want our current and future teams to see Johnson Matthey as a great place to work, a place where innovation and performance are recognised. We want our people to feel like they belong regardless of gender, nationality, religion, race or disability and empowered to develop their skills and grow their career with us. We also want our colleagues to feel part of a company that acts ethically and treats people with the highest standards of integrity.

Accelerating our people strategy through a time of change

The world is going through a period of enormous change. COVID-19 has transformed the way we live and work in the past year, but there are also big, long term societal changes on the horizon.

Governments want to build a greener, cleaner post-COVID world and as stakeholder expectations on environment and climate change rise more and more nations and companies are setting ambitious net zero targets. We have set our own net zero target too (see pages 66 and 67). But beyond that, we have a unique opportunity to help the world achieve its ambitions through our products and to do that we must transform our own business to drive down costs and become simpler, more efficient and ready to accelerate future growth.

We began that transformation process during 2020/21 and expect some elements to continue for another couple of years. In this first year, the programme focused on reshaping our operating models in our group functions and Clean Air business.

To support the transformation work and execution of our business strategy we are also accelerating the roll out of our people strategy with a focus on four areas:

1. Creating an inclusive JM and embedding our culture ambition.
2. Creating a simplified, agile organisation that is global in outlook and reflects the communities in which we work.
3. Building our leadership skills and helping our people develop new skills for the future JM.
4. Enhancing employee recognition and wellbeing to strengthen their resilience, help them feel included and want to build their career at JM.

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

1. Creating an inclusive JM and embedding our culture ambition

Passionately purpose driven	Creating shared value	Boldly drive performance
Working together to make the world cleaner and healthier, being innovative and curious to create value from our science, learning and growing from what we do so JM can continue to evolve.	Courageously facing outwards, we lead and shape markets, collaborating as one JM across boundaries to create great solutions for our customers and constantly find smarter ways to achieve our goals.	Embracing change with a real sense of pace and focus, together we go the extra mile to deliver results. Because we care, we are open, honest, and hold ourselves and others to account.

Our culture ambition sets out the working practices we need to deliver our purpose and business strategy. That includes ways of working that will create new market opportunities and allow us to move at pace, delivering our JM wide plans while supporting an inclusive working environment.

In 2021, we launched a new employee engagement programme to help our people feel more connected with our strategy and adopt our culture. As part of that programme, we created opportunities for two way conversations to encourage employees to share their lived experiences and feel empowered to take action to address issues when they see them.

Diversity and inclusion

People will always be at their best when they feel like they can be themselves at work. And research shows that companies who embrace diversity and create a sense of inclusion consistently outperform those that don't.

As a global company we also have a responsibility to ensure that our teams reflect the communities in which we work, which means recruiting, developing and recognising employees from all backgrounds. To that end, we have created a diversity and inclusion (D&I) ambition that aligns with our 2030 sustainability commitments, as well as specifically for the year ahead.

Our equal opportunities policy

Johnson Matthey recruits, trains and develops employees who are best suited to the requirements of the job, regardless of gender, ethnic origin, age, religion or belief, marriage or civil partnership, pregnancy or maternity, sexual orientation, gender identity or disability.

Supporting employees with disabilities

Our equal opportunities policy recognises that disabled people are often denied a fair chance at work because of misconceptions about their abilities. However, very often, it is the way that our society is built that prevents disabled people from fulfilling their true potential in the workplace. So we look for ways to help overcome these obstacles, including modifying equipment, restructuring jobs and safely improving access to our offices and facilities.

Working with employees to create an inclusive culture

Our employee resource groups (ERGs) do a great job in helping raise awareness of the experiences of individuals within certain communities. We currently have five groups – LGBT+, gender, disability, black employees and early careers. During the year some groups spent time with the GMC and with many of our leaders to discuss employee perceptions and explore actions that leaders could take to support further change.

For the first time we included questions in our 2021 yourSay survey that asked employees to share diversity and inclusion information, such as gender and ethnicity. We were delighted that over 80% of participants who responded to the survey answered these questions. This information will help us better shape our approach and actions to encourage greater diversity in the future.

Gender diversity statistics

The table below shows the gender breakdown of the group's employees as at 31st March 2021.

As at 31st March 2021	Male	Female	Total	% male	% female
Board	5	2	7	71%	29%
GMC	5	4	9	56%	44%
Subsidiary directors	95	16	111	86%	14%
Senior managers*	41	21	62	66%	34%
New recruits	1,117	475	1,592	70%	30%
Total group	**9,857**	**3,783**	**13,640**	**72%**	**28%**

* Senior managers are defined as the direct reports of the GMC. For the purposes of the UK Corporate Governance Code 2018 disclosure, senior managers are defined as the GMC and Company Secretary. This disclosure is stated within the GMC statistics above and their direct reports are included within this senior managers disclosure. Some individuals are included in more than one category.

People continued

Improving our gender diversity

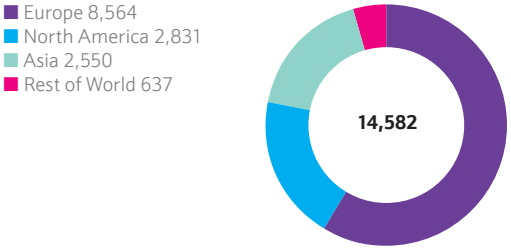
As at 31st March 2021, women represent 29% of our board members and 44% of our GMC. We have made significant progress improving gender balance in our senior leadership roles, with women now holding 34% of all relevant jobs – up from 25% in 2018. Given this progress and our new yourSay data, we plan to refresh our diversity and inclusion ambition. We have high aspirations for D&I as this agenda is fundamental to our vision. We ultimately aim to have gender balance across all levels of our organisation and have set a target of over 40% of female representation in all managerial levels by 2030 as a key milestone on this journey.

Gender pay gap

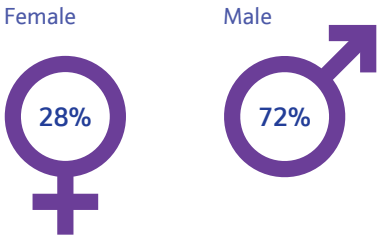
We saw a small increase in our UK gender pay gap from 6.0% in 2019 to 6.7% in 2020, which remains low relative to our peers and the national average, which was 15.5% in 2020. While good progress has been made in addressing gender imbalance in our senior management roles, we must focus on the broader population where we have seen little movement to positively shift our gender pay gap. Our new sustainability target related to gender diversity across management levels will support this. A full copy of our UK Gender Pay Gap Report can be found on our website.

At a glance

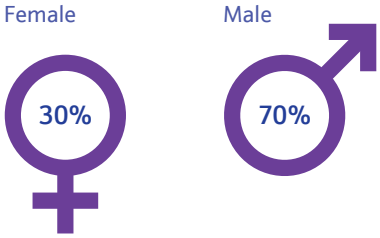
Total employees by region



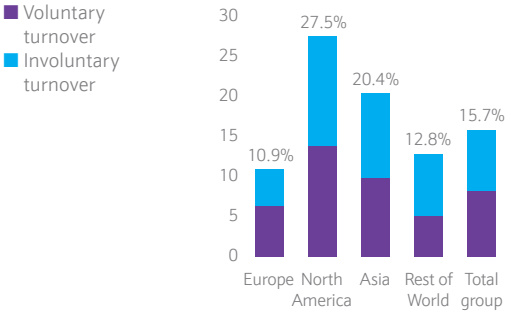
Gender diversity



New joiners



Employee turnover by region



Our total turnover increased this year from 11.8% to 15.7% as the restructuring as part of our ongoing transformation led to the removal of roles. However, our voluntary turnover fell from 9.0% to 8.2%.

2. Creating a simplified, agile organisation that is global in outlook and reflects the communities in which we work

As well as talented people we will need an organisation that is fit and ready to support our ambitious growth plans and adapt to changing markets. Our transformation programme is helping us achieve that.

Ongoing transformation is a necessary part of our ability to execute our strategy. In 2020 we shared an intent to reduce the number of roles in our organisation by 2,500. This year our restructuring led to the removal of 1,128 roles. By focusing on redeployment and not filling vacancies we were able to reduce redundancies by over 10%. Further changes are expected over the next three years, however they will have less of an impact than expected on organisation structures largely due to strong performance in our core businesses and predicted future growth. We now estimate a further reduction of around 900 roles over the next three years to complete this phase of the transformation journey.

When the pandemic hit, our priority was the safety and wellbeing of our people. We paused redundancies in June 2020, resuming again when people were more able to find alternative employment. In managing through the pandemic, we did not furlough any employees or seek any government financial support.

Meanwhile, we implemented transition principles to retain our best talents and voluntary turnover fell from 9.0% in 2019/20 to 8.2%. We have provided leaders with change management support, learning and development programmes and communications training to help them lead their teams through this transformation.

The future of work in a post-COVID world

During the pandemic many of our employees worked in very different ways, with many more colleagues working from home. While this has been challenging for some people, many of our employees told us that they have appreciated the extra flexibility in working hours and location. So we are now in the process of shaping a new 'future of work' approach that will encourage more flexible ways of working. For employees who may work more remotely in the future, we will be making sure they still feel well connected and part of JM. We anticipate we will make use of office time to collaborate with team members to innovate and learn.

3. Building our leadership skills and helping our people develop new skills for the future JM

To play our part in the big transitions and help the world reach net zero we need to do two things: help our teams develop the skills they'll need to accelerate growth in our new business areas and hire new people into our teams.

Digital training and careers events in the COVID era

Although COVID-19 affected face to face training, we continued to provide training via our online iLearn portal. During 2020/21, more than three quarters of our people accessed the portal, a significant increase for the third year in a row. There was an 82% increase in the number of courses and resources accessed compared to 2019/20, and a four-fold increase in people registering for online courses.

We also turned our successful global careers weeks into virtual events, running everything from career coaching drop in clinics to external speaker webinars. This year inclusivity was a strong theme, with external speakers talking about diversity in careers. Our ERGs also ran a range of sessions to increase awareness and provide support.

Accelerating development of our high potential people

Our high potential people are our leaders of the future, so we want to support them with good quality development plans, clear career paths, senior level sponsorship and job rotations. Approximately 50% of those identified are female to help accelerate towards our gender balance targets.

As a result of our investment in internal career and talent management, internal appointments rose to 47% of total hiring from 33% in 2019/20.

A new leadership framework for a new culture

During 2020/21, we introduced a new leadership behaviour framework that is aligned with our culture ambition. We will use it to develop, assess and recruit leaders that inspire others to deliver great performance and our business strategy. To help embed the new framework, all our senior leaders, around 100 in total, took part in a 360° review to provide them with feedback and all are attending a new coaching programme to support their development.

Despite the pandemic, we continued the roll out of our 'Aspire' leadership programmes, which help everyone, from first line leaders to senior executives, develop consistent skills and behaviours. To date 1,500 managers have attended at least one of the programmes and while face to face training was suspended we ran a virtual programme with 125 managers. We are refreshing our other programmes to make them suitable for agile delivery and to incorporate our leadership expectations, culture ambition and sustainability goals.

People continued

Recruiting our next generation of creative thinkers

To build the Johnson Matthey of tomorrow we will need to continue to grow our overall capabilities, and in particular we will have opportunities for more commercially minded scientists, engineers and technologists. With their help we will be able to accelerate our growth and realise our business and sustainability ambitions. So, we continued to recruit new people into key roles, despite the pandemic. In all, we hired 1,592 new people, with the majority of those in our growth businesses in the UK, China, Poland and the US.

Crucially, we also continued to hire graduates into science, operational and commercial disciplines. So far we have recruited 33 graduates for our 2021 programme from the UK, US and China, 58% of whom are women.

4. Enhancing employee recognition and wellbeing to strengthen their resilience, help them feel included and want to build their career at JM

We want our employees to feel they belong at Johnson Matthey and to know that we have the tools and processes in place to help them build a career with us. Recognising and rewarding them for excellent performance, as well as supporting their wellbeing, is an important part of how we do this.

Supporting employee wellbeing during the pandemic

One thing that the COVID-19 pandemic has demonstrated is that our mental health is just as important as our physical health. So while we put lots of measures in place at our facilities to protect people's physical health and safety (see page 78 for more on this), we also supported their overall wellbeing:

- Time to Talk – our campaign, first launched in 2019, to help reduce stigma around mental health.
- Communications to increase access to our dedicated wellbeing resources such as Elements, our wellbeing portal.
- Intranet articles on topics such as stress management, nutrition and maintaining social connections.
- Virtual coffee sessions to keep people connected.
- 'Say Thanks' and 'Career Celebrations' programmes in the US to recognise the contributions of our colleagues, now being rolled out across JM.

Supporting wellbeing for future success

Taking care of wellbeing isn't just about responding during a pandemic. We will continue focusing on it as the big global transitions speed up and we accelerate our growth. To that end, we continued to grow our wellbeing ambassador network around the world, with 140 people helping us promote wellbeing issues at a local level. Meanwhile, in the week running up to World Mental Health Day in October 2020, we published intranet articles and ran webinars and activities to help our employees learn about and discuss wellbeing issues.

Recognising and rewarding our people

We continue to make sure that employee remuneration and benefits are competitive and in line with local markets. This year we also:

- Acknowledged the tremendous effort and commitment of our people as they came together to keep our operations running safely during COVID-19 with an additional one-off recognition payment of £250 (or local equivalent) for non-managerial employees.
- Celebrated the achievements of our people and great examples of teams demonstrating our values at our annual JM Awards, which we held virtually this year.
- Signed the UK's Living Wage Commitment as part of our ongoing commitment to paying people fairly.

Ethics and compliance

Being a responsible business means living by our value to act with integrity and upholding the highest ethical standards when working with our customers, suppliers and local communities. This responsibility underpins our purpose and strategy and is expressed through our Code of Ethics. This Code has been particularly important during the pandemic, helping our teams make good decisions in difficult circumstances.

We continue to assess our ethics and compliance programme against changes in legislation in the locations where we operate and to understand any gaps or weaknesses that we need to address.

Maintaining our ethical stance during the pandemic

COVID-19 has created extra pressure and uncertainty in all our lives. Stress can have a negative impact on our ability to make good decisions and, unless carefully managed, ethics and compliance can sometimes suffer.

To help manage the additional risk, our Group Ethics and Compliance team created a series of global video communications offering employees practical support and guidance. The videos highlighted the risks and provided a refresher on our key ethics and compliance principles. We also used our communications channels and training to reinforce the importance of using our Code to make good decisions. Our values and compliance obligations can never be compromised, and our teams were encouraged to continue supporting others in doing the right thing, recognising that the pandemic posed increased commercial pressures externally and internally.

We also continued to grow our global network of ethics ambassadors with more than 130 employees now involved. These ambassadors act as a sounding board for their colleagues and offer guidance on navigating difficult situations. They also help employees seek extra help and play a vital role in helping us run our annual 'Ethics Week' celebrations.

Embedding an ethics and compliance programme

We set out our global ethics and compliance standards using a two pillar approach that is supported by our Code:

1. Promoting an ethical culture across the company.
2. Implementing a compliance programme framework applied to each risk area.

Our compliance programme brings together our approach to risk management, internal controls and work to promote an ethical culture across the company. Our key compliance risks include:

- Bribery and corruption.
- Data protection.
- Export controls and sanctions.
- Conflicts of interest.
- Competition / anti-trust issues.
- Financial crime (including the corporate criminal offence of failing to prevent the facilitation of tax evasion).
- Supply chain compliance.

Continued focus on ethics and compliance training

Some of our employees work in jobs that expose them to a higher risk of ethical and compliance issues. We provide these individuals with additional, targeted compliance training to help them manage those risks. During the pandemic we shifted this programme online, providing 'live' ethics and compliance training sessions to our employees globally.

Meanwhile, 71% of employees completed our annual Code of Ethics training – this is higher than the previous year (66%) following a concerted engagement effort during our Ethics Week. We also continued to deliver our global compliance training via our e-learning portal, with classroom training options for employees who do not have regular access to a computer. These face to face sessions were run in line with local COVID-19 regulations.

Helping our people speak up

We encourage our employees and anyone with whom we do business to speak up when they have a concern or are unsure about how to do the right thing. There are several ways in which people can raise a concern, including via their manager, ethics ambassador, HR and legal. Those who are not comfortable using these routes can contact our independent speak up helpline and online chat function. Where local law permits, these calls and conversations are anonymous.

All Speak Ups are investigated and we take appropriate action whenever an issue is identified. Those investigations are overseen by our senior leadership Ethics Panel who also report back to the board, particularly on any themes or opportunities to improve our working practices. In 2020/21, we received 129 Speak Ups (see page 269 for a full breakdown by issue type). There were some that related to questions or concerns about COVID-19 protocols, which enabled us to clarify misunderstandings and further enhance practices in other instances.

While the number in the 'discrimination' category is higher than other categories, this is in line with industry norms. All reports are taken seriously, and we view the total number of Speak Ups as a positive reflection of the confidence in the process.

People continued

Occupational health and safety

Nothing is more important than keeping people safe at work. COVID-19 only made that commitment more acute, reminding us all that every Johnson Matthey employee has a responsibility to look after themselves and each other. The pandemic was also a stark reminder of the importance of protecting people's mental health as well as their physical health and safety. Here we discuss safety at our facilities. For more on how we support people's wellbeing and mental health, see page 76.

We are proud of the way our people came together, helping each other and adapting to new ways of working without ever losing sight of the bigger health and safety picture. Their hard work can be seen in our results.

But keeping people healthy and safe is always a work in progress. We must keep asking ourselves 'what more can we do?' and then putting the processes and procedures in place to keep improving. To that end, we have set ourselves an ambitious new TRIIR target as part of our new sustainability goals for 2030: achieve a TRIIR of 0.25. This is equivalent of a one in 400 years risk of such an injury to any individual worker, be that our employees or contractors.

In 2020/21 we continued to focus on:

- Process safety, which is about how we safely manage our most hazardous processes and design, operate and maintain our factories safely.
- Occupational health and safety, which is about incidents that happen more frequently but are usually less severe, like slips, trips, falls, cuts and sprains.

Protecting operational teams during COVID-19

When COVID-19 hit, we quickly put safety measures in place at our facilities around the world to protect our operational teams and reduce the spread of infection. While we developed site guidance at a corporate level, local leadership teams also worked with our EHS experts to ensure measures met national and regional health guidelines and relevant COVID-19 laws.

Some of the measures we put in place at our sites include:

- Checking temperatures as employees arrive.
- Installing new cleaning and hand sanitiser stations.
- Implementing social distancing and one way systems.
- Issuing personal protective equipment.
- Introducing site response pandemic guidance.

In some parts of the world, regulators have carried out spot checks to review our onsite COVID-19 controls. In all instances, those audits have commended our facilities for their actions.

To assure ourselves internally we also set up a global outbreak response team. This team is responsible for continually monitoring and assessing the health situation at an international, national and regional level and, when needed, escalating strategic decisions to the GMC. They also developed our internal COVID-19 standards, including a work from home plan for our office based employees. And they talked to other companies and experts to benchmark ourselves and share examples of good practice.

We are acutely aware that efforts to prevent virus transmission at our sites raises the risk of distractions when it comes to process safety. To manage this risk, we drew on external sources for COVID specific lessons, and senior managers hosted process safety conversations with site teams to maintain vigilance.

The steps we have taken have kept our facilities operating and our people safe. But since we're still living with the virus, we continue to assess the situation and will introduce additional safety measures if needed. As countries start to ease their lockdown restrictions, we will help home based employees get back on site. But we will only do this in line with our own alert level status guidance and in compliance with national and local requirements.

Safety metrics and policies to protect lives

Everyone is responsible for health and safety at Johnson Matthey. That's why every employee is expected to follow our clear, simple safety principles. We also expect every employee to include a health and safety objective in their annual performance review.

At a company level, our approach to health and safety is guided by our Group EHS Policy and underpinned by eight core health and safety policies. We call these our 'lifesaving policies' (LSPs) and make them available in local languages. Our LSPs address high risk topics, such as working at height and driving on company business, where any breach might endanger life or lead to serious injury. We provide sites with guidance on how to implement our LSPs and expect them to create and follow their local procedures to meet these policies. We also monitor compliance through EHS audits. COVID-19 affected the audit programme as travel was severely disrupted by lockdowns. The assurance team took two months to prepare and test a new remote audit protocol and then proceeded to audit on a priority basis using that tool.

It's six years since we first introduced our LSPs so, to ensure employees stay up to date, we introduced a refresher e-training programme. By March 2021, more than 80% of our employees had completed the course.

Process safety – good progress under difficult circumstances

Process safety is all about ensuring our operational equipment remains in good working order and is managed in a way that reduces risk of failures that could lead to significant injury, significant impact to the environment or significant asset damage. It relies on good design principles, strong engineering, operating and maintenance practices. It also means making sure that our employees have the skills and training they need to follow our procedures and policies.

Our process safety performance indicators showed significant improvement in 2020/21 with the number of potentially life threatening incidents falling from ten to three. While these incidents damaged equipment, they did not cause major injuries.

Meanwhile, our process safety severity rate (based on the actual impact of incidents as defined by the International Council of Chemical Associations – ICCA) fell from 1.20 in March 2020 to 0.81 in March 2021. Our Tier 1 process safety event rate increased from 0.11 to 0.15 due to better reporting of process safety events from our sites. We had five Tier 1 process safety events during the year. This compared to four in 2020. A definition of a Tier 1 Process Safety Event and our performance is given on page 269.

ICCA process safety severity rate

Investigating the root causes of safety events

We investigate every process safety event to understand both the root cause and the actions a site took to correct the problem.

In 2020/21, our most serious event occurred when a reaction hazard generated excess hydrogen at our site in West Deptford in the US. This caused an internal explosion and ruptured a reactor. Detailed root cause analysis found flaws in the operating instructions. To address this, the team improved its approach to reaction hazard processes. Meanwhile, we implemented a group wide review of the basis of design safety for selected chemical processes in which conditions might generate excess flammable gas.

Embracing digital ways of working to address process safety

The pandemic has made it difficult to carry out in person hazard identification, risk assessments and group level site audits. So, we have adapted, using digital tools to assess process safety on some of our biggest projects while keeping progress on track through our metrics reporting. We also:

- Continued running one day process safety leadership training with 100 new senior managers online.
- Offered online process safety training, with 4,000 operational employees trained so far.
- Ran a three week virtual global process safety conference, with employees attending 2,700 sessions.
- Started rolling out a new programme that assesses individual competencies for critical operational roles against 18 key process safety areas, such as knowledge, competency, engineering and design, following a successful two year pilot with 60 participants.

During 2021/22, we will continue to implement our process safety strategy as part of our overall EHS roadmap, with plans that include further training, competency assessments, managing safety critical equipment and further embedding our leading and lagging metrics.

People continued

Occupational health and safety performance in 2020/21

We use leading and lagging indicators to track our occupational health and safety performance and saw improvements in both during 2020/21.

In our indicators for employee health and safety we reduced our:

- Lost time injury and illness rate (LTIIR) by 20%, falling from 0.35 to 0.28. We have set ourselves a target to reach 0.20 by 2025.
- TRIIR by 28%, falling from 0.79 to 0.56. This is lower than our previous target for 2025 of 0.6. We have a new target for 2030, covering both employees and contractors, of 0.25.
- Reduced our OSHA severity rate[1] by 15% to 15.7 (at end of March 2021 compared with the 12 months to March 2020).[1]
- Reduced the number of lost and restricted days by 847, down from 3,053 in 2019/20.

2020/21 was another year without a fatal accident on any JM facility. It is now five years since our last fatality.

Our occupational health statistics remain relatively low, falling to only two cases in 2020/21 and a rate of 0.01 per 200,000 working hours in a rolling year. By comparison, we recorded 14 cases and a rate of 0.09 in 2019/20. These are exceptional reductions and could, in part, be due to fewer employees on site during pandemic restrictions.

We have not identified any transport related incidents among our employees during the year.

Reporting and learning from our near misses, narrowly avoided injuries and unsafe practices is as important in occupational safety as it is in process safety. This year the number of near misses rose by 26%. This is the second year running that the number has risen and reflects a good reporting culture which has helped us to reduce injuries. Currently 36% of our sites have ISO 45001 / ISO 18001.

We received an administrative penalty notice from the local emergency bureau for our site in Yantai, China, for CNY 135,000 on 29th June 2020 for over storage of hazardous chemicals and failure to conduct a physical hazards assessment. We were also fined CNY 25,000 for the lack of an emergency plan drill during the period of 13th June 2020 to 18th January 2021. All actions from these notices have been completed and closed to the satisfaction of the local emergency bureau.

Encouraging a culture of safety from the top

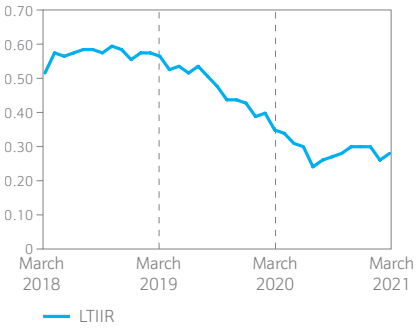
We expect leaders at all levels – from the GMC to the front line – to have a personal safety action plan in place. This plan includes practical safety activities to encourage safety behaviours and promote a proactive safety culture. During the year, our leaders carried out regular communications on safety and also conducted reviews for serious incidents.

[1] Severity rate (as defined by the US Occupational Safety and Health Administration, OSHA) measures the average number of lost or restricted work days per injury event in the workplace.

At a glance

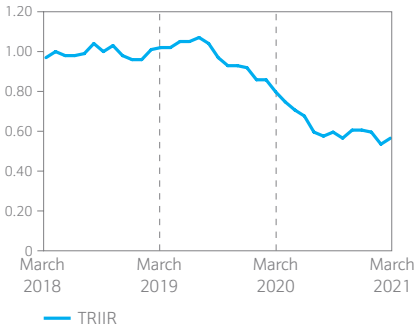
Lost time injury and illness rate (LTIIR)[2]

per 200,000 working hours in a rolling year

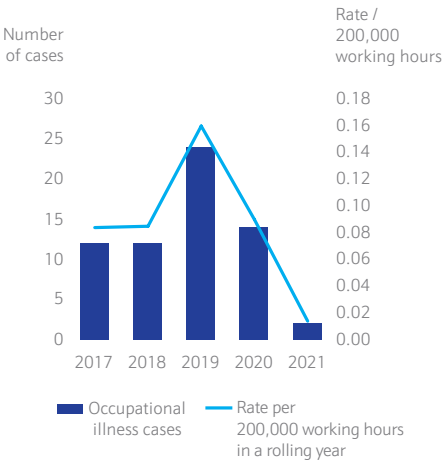


Total recordable injury and illness rate (TRIIR)[2]

per 200,000 working hours in a rolling year



Occupational illness cases[2]



[2] Data relates to employees only.

We have launched a global EHS induction programme for new leaders and managers. The interactive training includes videos, personal action plans and discussion forums so that participants can discuss safety issues with other employees.

Raising health and safety awareness among employees

During 2020/21, we increased the frequency and quality of our health and safety communications with campaigns that raised awareness and increased engagement and personal ownership.

For example, we launched a six month 'Work Safe Home Safe' campaign to inform employees about the common musculoskeletal disorders that represent our highest injury rates, and how, for example, good desk ergonomics can help prevent them. We issued ergonomic guidance regarding correct set up of equipment to employees working at home due to COVID-19.

As part of the campaign we ran a competition to find out which site had made the most changes thanks to the campaign. We received more than 60 entries and the campaign prompted more than 100 local improvement actions.

Managing chemical hazard exposure risks

Some of the materials we use to make our products are hazardous and must be handled carefully. To help assess, monitor and reduce employee and contractor exposure to these hazards, we have developed a series of EHS standards and guidance. These cover a range of issues, such as exposure management to chemical, physical and biological agents, and set out our requirements when planning to work with hazardous materials.

Every site also has its own exposure monitoring plans to help identify potential exposure against regulatory or internal JM limits and lays out the control measures in place to reduce or eliminate exposure.

Our Group EHS team regularly audits against our EHS standard requirements to ensure we continuously improve our operating practices. The team also works closely with other functions to share guidance on good practice and provide tools to continuously improve safety standards, and they conduct frequent reviews of our industrial hygiene exposure risk evaluation and control programmes to make improvements.

Our Group Industrial Hygiene and Occupational Health team runs regular reviews with sites to make sure they have a strong programme of health management in place and help develop improvement action plans when needed. In the UK, we have partnered with a single national occupational health service provider to help drive consistency, efficiency and cost savings.

We also work with our industry peers as a member of metal associations like the International Platinum Group Metals Association and European Precious Metals Federation. When needed, we proactively participate in and promote sector wide health studies and reviews.

Keeping our contracting community safe

We are currently working on several large capital investment projects around the world, which means we have more contractors on site than in a typical year. We work with our contracting partners to help them understand our EHS expectations and regularly monitor their compliance. As a result, we have seen a reduction in our contractor LTIIR over the past 12 months from 0.27 to 0.23 and in TRIIR from 0.80 to 0.45. Our five year contractor LTIIR and TRIIR performance is on page 269.

Product stewardship

Some of the materials we use to make our products and the products themselves are inherently hazardous – and if not managed correctly, could present an environmental risk or negatively affect someone's health. We extend our responsibility beyond our manufacturing sites, to think about the complete lifecycle of the products we make and ensure that risks are managed at every stage.

Reassuring customers on product safety

Naturally our customers expect to see evidence that we understand these inherent hazards and we provide accurate information on how to manage any risks appropriately. We assess all potential chemical hazards in our products and create legally compliant safety data sheets. These provide information on the chemical, the hazards it presents, how to handle it safely and what to do in the event of a spill or an emergency. We also submit this information to national poison centres around the world.

Meanwhile, other external stakeholders want assurance that we are managing any potential risks to the environment, our employees and customers. As such our product stewards, toxicologists and industrial hygienists meet regularly to review new hazard and exposure data and identify ways to reduce operational risks. This may include reducing, eliminating or replacing hazardous materials in our processes and products. And our businesses use a robust new product introduction process to make sure we're always pushing our standards in this area.

Setting a high standard for product stewardship

Our licence to operate depends on high standards of product stewardship. At its simplest level, that means we comply with all relevant chemicals regulations in the regions where we operate. We have procedures in place that help us identify our current and future regulatory obligations and our group wide policies are written in line with the Strategic Approach to International Chemicals Management's (SAICM) global framework. These product stewardship policies are an important part of our EHS audits to ensure compliance at a site level.

We also encourage voluntary stewardship activities across our value chain. We work with customers to understand how they use our products to see if we can further control and minimise safety risks and any adverse effects on human or animal health and on the environment. We also look at opportunities to develop products with improved health and environmental attributes. We're proud of this work, and we want to add more rigour to the way we measure progress.

To help increase understanding, and encourage proportionate regulation, of our chemistries and products, we are actively involved in several trade associations and organisations. We are a signatory of voluntary European industry initiatives set up to improve the quality of hazards and risk management information submitted under the EU's Registration, Evaluation, Authorisation and Restriction of Chemicals (EU-REACH) regulation. To support those initiatives, we updated more than 20 of our EU-REACH registrations in 2020.

People continued

Finding safer alternatives for hazardous substances

We seek to replace 'high hazard' substances – chemicals with significant potential, if poorly managed, to harm human health or the environment – where safer and economic alternatives are available, and always when legally required. In our Fuel Cells business, for example, we substituted a key chemical in our manufacturing processes with a less hazardous one, avoiding costly regulatory consequences for JM and a key energy customer in the US.

Sometimes, however, it simply isn't currently possible to replace a substance. In those instances, we carry out a detailed risk assessment and ensure both our operations and customers have robust risk management processes in place.

Designing risks out of new products

Whenever we develop a new product, we assess all the materials we need to make it against internal guidelines and regulations. We do this early in the development process and, in line with our policies, always investigating the availability of safer alternatives. Higher hazardous chemistries are subject to risk assessments and require senior level approval for their time limited use.

The number of substances we use that are 'regulated'[1], or are considered to be 'of international concern'[2] is limited. Approximately 5% of our sales come from products that are manufactured using or containing these substances.

Meanwhile, a very small proportion of our products (less than 0.01% of sales) are made using genetically engineered microorganisms. These are found in our biocatalysts (enzymes) but do not contain live organisms at the point of supply. Biocatalysts are highly selective and can help us produce more of the desired chemical products and fewer undesirable byproducts.

Complying with regulation

We operate in a number of regulated industries, with some of our products subject to strict rules on their use. Our regulatory teams actively monitor and assess any changes to these regulations and their potential impact on our supply chain and make sure we always meet our obligations.

Meanwhile, we track our operational and product performance every year through our product stewardship reporting programme. This year the programme found no reports of significant health effects from use of our products, and confirmed full compliance with health and safety, labelling and marketing regulations and voluntary codes. There were no significant transportation incidents reported either.

Putting our Brexit plans into action

During 2020/21, we put into practice our readiness plans for the post-Brexit regulatory regimes. This included transferring more than 90 UK registrations to EU legal entities to ensure the products we export to the EU remain compliant with EU-REACH. In addition, we hit the first UK-REACH deadline for 'grandfathering' our relevant EU-REACH registrations so that we can maintain our access to the UK market.

Management of the regulatory environment

We are a member of a number of industry bodies, including the Chemical Industries Association (CIA) in the UK, the European Chemical Industry Council (CEFIC) and Eurometaux in Europe. These industry bodies allow us to take part in government consultations whereby we can review and comment on upcoming environmental policy proposals or legislation that could affect our business. This allows us to understand the impact of the change being proposed either for new or existing legislation early and subsequently make plans to ensure we deliver compliance with government regulations and policy.

[1] e.g. SVHCs (substances of very high concern) 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.

Upholding high ethical standards in our value chain

In addition to maintaining the highest standards in our own operations, we are committed to ensuring that our whole value chain upholds the highest environmental, social and governance standards.

As part of our new sustainability framework our goal is to uphold human rights throughout our value chain. Our target for 2030 is to:

Assess

100%

of value chain partners for human rights risks and put remedial plans in place where high risks are identified

We will use a risk based approach in our assessments and where high risks are identified we will work closely with our value chain partners to put any necessary action plans in place.

What we mean by upholding human rights

- We support the principles set out in the UN Universal Declaration of Human Rights, UN Guiding Principles on Business and the International Labour Organisation Core Conventions, including the conventions on child labour, forced labour, non-discrimination, freedom of association and collective bargaining.
- We support the principles endorsed under the UN Global Compact and have committed to formal membership by the end of 2021.
- We have also made a commitment to encourage greater diversity across our value chain through the introduction of a structured supplier diversity programme during 2022.
- We ensure we carry out a full human rights risk assessment whenever we enter a new territory, make an acquisition or enter into a joint venture.

Transparent supply chains founded on strong partnerships

Our commitment to developing a sustainable ecosystem is critically important to our customers. Raw materials such as nickel, cobalt and lithium are forecast to be in deficit over the coming years due to increasing numbers of EVs. Through our strategic partnerships with SQM and Nornickel we are providing long term security of supply while delivering sustainable and responsibly sourced critical raw materials. We have also formed a strategic partnership with mining group Sibanye-Stillwater to secure supplies of critical pgms required to accelerate new technologies for a low carbon future. The partnership will drive circularity and reduce carbon footprints in critical metal supply chains for customers across many global industries.

Due to the varied nature of our businesses, the principal risks in our supply chains are complex. To manage our key relationships and risks we have policies and processes in place within our procurement function and as part of our ethics and compliance framework. In March 2021 we issued an enhanced Supplier Code of Conduct, which sets out the standards we expect all our supply partners to share with us. It forms the foundation of our new supplier due diligence programme, which will roll out in phases during 2021/22. This programme will help us strengthen our supplier relationships, support our goal to reduce our Scope 3 GHG emissions and address human rights risks across the lifecycle of our products.

We expect our supply partners to complete self assessments under our Code of Conduct to demonstrate activity that already meets our expectations, any elements that they have committed to adopting or areas they are unable to support in the foreseeable future. This creates a level of transparency that helps us work with our partners to identify and address areas of risk and agree future action plans.

Responding to COVID-19

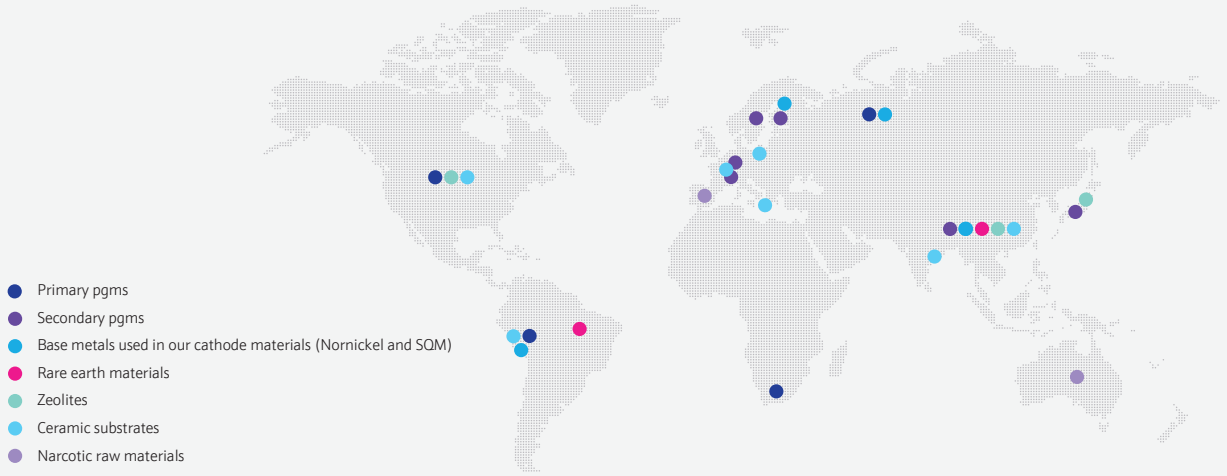
We have global, multi tiered supply chains, so it was essential to react quickly to COVID-19. This was possible thanks to strong supply partner relationships and contracts, and the positive way that our people adapted to remote working. Together, this helped us avoid COVID-19 related costs worth £19 million. As part of our response, we:

- Identified the suppliers critical to business continuity, such as logistics and facilities management, and worked closely with those delivering services to our sites to manage supplies as different lockdown measures hit different geographies.
- Put contingency plans in place, including supplier and services risk mapping, and kept in regular contact with critical suppliers to secure continuity of supply.
- Offered extra support to smaller or niche suppliers, such as paying invoices early.
- Worked with our key travel providers to track employee locations and arrange travel and repatriation where necessary.
- Sourced critical personal protective equipment through strategic supply partners when supplies were tight.

People continued

Where we source strategic raw materials

We procure goods and services globally and our supply chains are multi tiered. Supply failure is a principal risk (see page 93). Monitoring and understanding that risk is challenging but essential. Some of our strategic raw materials are only available from a limited number of countries. The countries we rely on for these materials are highlighted in the map below.



Doing business in higher risk jurisdictions

We don't just want to abide by the laws in the regions where we operate, we want to help raise industry standards within them. The requirements and expectations that we set other businesses help us do that and that's why, in April 2020, we introduced a new Doing Business in Higher Risk Jurisdictions Policy. This formalises our approach to third party risk management and due diligence in regions that represent the highest risk for our operations.

Since then, we have reviewed 426 counterparties against legal, compliance and reputational criteria and taken risk based decisions on their suitability as a JM business partner.

Reducing the risk of modern slavery in our supply chains

In line with the UK Modern Slavery Act 2015, we publish an annual public statement that demonstrates the actions we've taken that year to ensure modern slavery and human trafficking do not occur in our businesses or supply chains. There were no human rights grievance reports made against Johnson Matthey during the year. Our 2020 Modern Slavery Statement is available on our website.

Creating ethical supply chains for battery materials

We rely on critical raw materials such as lithium, nickel and cobalt to make our battery materials, some of which are often mined in parts of the world where human rights abuses, including modern slavery and child labour, are well documented. For example, the Democratic Republic of Congo (DRC) holds about 50% of the world's cobalt reserves and, while some mines are operating ethically, there is a significant amount of illegal artisanal mining in uncontrolled conditions.

We are committed to only using ethically sourced raw materials in our Battery Materials business. To help us do that we have implemented an enhanced due diligence programme for battery materials designed with third party experts RCS Global. This gives us full 'back to mine' transparency on all our raw materials that contain lithium, cobalt and nickel.

RCS Global audits are carried out in line with the OECD's Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. In September 2021 we will publish our annual statement in line with this guidance. COVID-19 restrictions meant we had to pause onsite supplier audits in 2020. However, we were able to continue self assessment audits and introduce several virtual audits of new strategic partnerships.

As the market for high performance batteries for EVs takes shape, we want to help instil high ethical standards across the whole industry from the outset. To that end we are active members of the Global Battery Alliance and are committed to its ten guiding principles to create a sustainable battery supply chain by 2030. We are also members of the Cobalt Institute and intend to align our corporate reporting framework and policies with the Cobalt Industry Responsible Assessment Framework guidance later this year.

Responsible sourcing of our platinum group metals

Our Platinum and Palladium Supply Chain Policy Statement, available on our website, sets out our commitments and actions to the responsible sourcing of pgms. Johnson Matthey Plc and Johnson Matthey Inc are accredited as good delivery refiners on the London Platinum and Palladium Markets (LPPM). This means that all the materials that pass through our UK and US refineries are subject to the LPPM's responsible platinum and palladium guidance. In 2020, we achieved third party assurance, from LPPM accredited auditors from RCS Global, that our pgms due diligence programme complies with the standard. The audit report is published on LPPM's website.

We also work with our customers through the International Platinum Group Metals Association (IPA) to ensure that we source our pgms in an ethical manner. All mining members of the IPA have committed to obtaining third party assurance of their ethical mining practices to independently recognised standards, such as IRMA and ICMM.

Conflict minerals

The term 'conflict minerals' refers to tin, tungsten, tantalum and gold (3TG). They are found in the DRC and surrounding countries, particularly areas of military conflict where mining is often illegal and linked to serious human rights abuses, including modern slavery and child labour. Johnson Matthey uses small quantities of these metals in some of our products, most notably tungsten in some of our automotive catalysts.

Because of the problems associated with conflict minerals we have enhanced our due diligence process based on OECD guidelines, in line with the European Union Conflict Mineral Regulation. This includes keeping records that allow us to track the suppliers of all the raw materials we use and identify which smelter the conflict minerals came from. We only use materials from refiners and smelters that meet the Responsible Minerals Assurance Process (RMAP) assessment protocols and that are listed on the Responsible Minerals Initiative database.

We keep an in house database on the provenance of our 3TG supplies so that we can answer any specific questions our customers might have about the minerals in our products. In 2020/21, we responded to 104 customer requests for information, an increase of 21% on the previous year.

We revised our global Conflict Minerals Policy during 2020 and it is available on our website. We train our employees annually on this policy as part of our ongoing ethics and compliance e-learning programme. In September 2021, we plan to publish our first annual conflict minerals statement on our website.

Our communities

We have a long tradition of supporting our local communities through our global volunteering programme, which grants employees two paid volunteering days a year. This allows them to give something back to organisations that they care about. Meanwhile, our match funding programme doubles the money that our people raise for charity, up to £1,000 a year per employee.

Now we are going further, with a commitment to invest at least £1 million every year in community engagement. This investment will be used to address the needs of our local communities, and fund the core elements of our flagship programme, Science and Me.

We will also introduce a new key performance indicator to measure the impact of Science and Me. And because we're so proud of the voluntary work that our employees do, we have set a target for 2030 to:

Achieve

>6,000

days of corporate volunteering a year

Bringing science to life for the next generation

The COVID-19 pandemic has been extraordinarily challenging for young people and created major uncertainty for the next generation. But what it has shown is that science is a key part of the solution to this and many of the other global challenges we're facing, like climate change. We're going to need many more scientists, engineers and technologists to help tackle those challenges.

That's why we've created Science and Me, using a £1 million fund created as part of our COVID commitments made last year. There are two parts to the programme. The first gives our sites access to funds to run science education projects in their communities with local partners through a grant scheme. And because science inclusion is at the heart of Science and Me, the programme will target students who typically miss out or don't engage with science because of factors such as socioeconomics, gender or ethnicity. Widening participation is essential to a widespread change of attitude towards science and science careers. The second part will increase our global impact through a new corporate level charity, which we plan to announce later this year.

Despite the pandemic, we were able to run our first set of projects online, connecting with young people. These included volunteer activities in which our colleagues connected with students through online chat forums to answer their science questions and developed science activity packs for disadvantaged children to use at home.

We also continued to provide mentoring, and skills and careers talks for young people around the world. Throughout the year over 200 employees took part in our online activities and we reached more than 1,500 students. We will continue to run virtual events to supplement face to face activities, as they've proved highly effective.

We were delighted to win the Best Online External Event Award at the 2020 COVID Comms Awards for our Virtual Work Experience Week. During that week, more than 100 UK students worked online, completing team and individual activities set and run by our people. More than 45 employees took part, including our Chief Executive, Robert MacLeod, who discussed 'a day in the life of the Chief Exec' and took part in a Q&A with the students.

Employee generosity despite COVID-19

We are proud of our employees' generosity despite the challenges of the pandemic. In 2020/21, employees volunteered 431 days. COVID-19 restrictions meant that our volunteer contribution was significantly lower than the 2,682 days volunteered in 2019/20. Nevertheless, it still represents hundreds of hours of activity. We shifted many activities online, such as our virtual volunteer week, which helped to maintain all important connections with our local communities.

Johnson Matthey also donated £80,000 to match funds raised and donated by our employees, up from £77,000 in 2019/20. As a response to the pandemic, we extended our match funding programme to cover employees' personal donations to COVID-19 relief efforts.

Community investment summary

	Investment in 2020/21 £'000	Investment in 2019/20 £'000	% change
Direct expenditure	**1,374***	940	+46%
Indirect expenditure	**98**	573	-83%
Employee volunteering time	**98**	573	-83%
Total group	**1,472**	1,513	-3%

* includes £1 million earmarked for the Science and Me programme.

Taskforce on Climate-related Financial Disclosures

This year we have continued to embed the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) into our management and reporting frameworks.

Our leadership team owns our sustainability 'journey' and they have engaged the global sustainability consultancy Environmental Resources Management (ERM Ltd) to undertake a robust review of JM's internal processes and external reporting against the TCFD framework to help us align it with best practices by the end of 2021. The review includes a detailed assessment of JM's approach to identifying and managing both risks and opportunities related to the low carbon transition and physical climate change. ERM will also evaluate JM's climate scenarios and how they are used to assess the potential implications for our business strategy. Adapting to climate change is an ongoing journey. We will continue to integrate it into our strategy, systems and processes and will be ready to be fully compliant with upcoming UK regulation on TCFD reporting for our annual report 2022.

Here is a summary of our current progress under each of the **four pillars** of the TCFD framework:

1. Governance of climate-related impacts

The board is responsible for oversight of our strategic direction and progress against our strategic priorities to ensure we are positioned to deliver long term sustainable business performance. During discussions on strategy, the board considers the market drivers we are exposed to in our diverse business portfolio, including market responses to climate change, the resulting opportunities and challenges that can impact our business strategies and how we are responding. A number of board sub committees play a key role in determining how JM governs climate change.

Read more: Corporate Governance report pages 108 to 121

In May 2021 the board set up the **Societal Value Committee** to provide direction and oversight of our ESG strategy, goals and performance against targets, which includes our climate management activities. The committee is chaired by an independent director, Jane Griffiths, and will meet three times per year. This committee will review the governance of all aspects of climate change across JM, include implementing the TCFD recommendation. During 2021/22 the committee will consider the benefit to JM of setting an internal price of carbon.

Read more: Societal Value Committee on pages 107 and 112

The **Audit Committee** supports the board and the Group Management Committee (GMC) by conducting regular reviews of our risk processes, and controls against our principal risks. As part of this work they will ensure that our disclosures are aligned with the requirements of TCFD in 2022.

Read more: Audit Committee Report on pages 126 to 135

The **Remuneration Committee** implements our Remuneration Policy approved by shareholders at our annual general meeting in 2020, where we committed to introduce a third performance that focuses on sustainability into our long term incentive plan. This metric will represent no more than one third of the overall award and will be included in awards from August 2022. In order ensure we prepare for this change we will be running a small trial in 2021.

Read more: Remuneration Report pages 136 to 163

The **Group Management Committee** is responsible for implementing the sustainability strategy and programme and ensuring the delivery of our net zero commitment and other sustainability goals and targets.

During the year we appointed a new Chief Environment, Health and Safety & Operations Officer, who is the GMC member with overall accountability for delivery of sustainability strategy and climate change targets. He chairs the newly formed Sustainability Council, an internal council of business sector and functional leaders who advise on adjustments to the sustainability programme and strategy, and who drive the internal focus on delivering our sustainability goals, including those related to climate management. The Sustainability Council is responsible for ensuring we deliver on our net zero commitments and science based greenhouse gas (GHG) reduction targets.

2. Climate strategy

During the year a substantial business review has been undertaken to identify climate related opportunities for JM over the next decade.

Read more: Our strategy on pages 24 and 25

Transition risks

Our largest transition risk is the rate at which the automotive powertrains will transition from internal combustion engine vehicles to battery electric and fuel cell vehicles. We are carefully managing the transition as tighter regulations for vehicle tailpipe emissions are debated to ensure we maintain a profitable business in autocatalysts for as long as the market requires these products. At the same time we are developing our new businesses in high performance cathode active materials for electric vehicles, membrane electrode assembly components for fuel cell vehicles and technology for hydrogen production used to power those vehicles, in order to be prepared for the transition at whatever pace it occurs. We are also investing in a broader portfolio of low carbon solutions linked to clean energy, decarbonising chemicals production and circularity.

Read more: Technologies to drive down transport emissions on pages 4 and 5

Read more: Clean energy, decarbonising chemicals production and circularity on pages 6 to 11

The rate and extent of change in our key markets in response to climate change is the subject of extensive ongoing scenario planning. We have developed four in house scenarios for the mobility sector, including one which is closely aligned with the 2DS scenario of the Paris agreement; other scenarios are aligned with rates of market evolution informed by customer announcements and driven by progressive tightening of regulatory standards, and we also include a 'business as usual' scenario. We have also taken into account the variance of regulatory tightening in different geographies and other market factors such as car sharing and urbanisation.

Physical risks

Climate change increases the risk of extreme weather events which can impact our operations or supply chains. We manage this disruption via our business continuity plans which detail actions and alternate supply routes for various situations. We have completed an assessment of climate risk on all our facilities in partnership with our insurance providers. Where there is an exposure to extreme weather events, such as hurricanes on the eastern seaboard of the USA, we have designated shelter areas for employees. The impact of climate change on water availability is also important and we periodically assess our sites for water risks using the World Resources Institute's Water Risk Atlas tool.

Read more: Managing water responsibly on page 69

3. How we manage climate-related risks

Climate change is incorporated into our risk management process as a driver of certain principal risks, especially 'Future growth', 'Environment, health and safety' and 'Asset failure' and is considered when compiling those risks. We recognise that effective management of climate change risks is crucial to deliver our growth strategy and inspire confidence in our stakeholders. Our risk governance framework is described in detail on page 90.

Read more: Risk and uncertainties on pages 88 to 96

Future growth risk on page 92, Environment, health and safety risk on page 93 and Asset failure risk on page 95

Our programme of work with ERM will particularly focus on how to ensure climate risk is integrated into our overall risk management framework.

4. Metrics and targets to manage climate-related impacts

Johnson Matthey is committed to net zero by 2040 across its GHG footprint. In April 2021 we joined the Business Ambition for 1.5C and committed to setting science based GHG reduction targets for Scope 1, 2 and 3. Our proposed targets for 2030 and baseline performance are outlined in our sustainability goals table on page 63 and we will proceed with independent verification of these targets according to the SBTi methodology during the next year. In addition, we will continue to monitor our progress towards our renewable energy target, where 60% of our electricity must be certified renewable by 2025, and our progress towards our reduction in net water usage.

Read more: Renewable energy on page 68

Read more: Managing water responsibly on page 69

We have disclosed our GHG performance against all Scope 3 categories for the first time on page 267. We developed our Scope 3 methodology during 2020 in partnership with third party experts Avieco Ltd. As part of the launch of our revised Supplier Code of Conduct and supplier relationship management programme during 2021, we will launch activities to engage with our suppliers on the subject of net zero target setting and building understanding of their contribution to JM's goals.

It remains the case that the greatest contribution Johnson Matthey makes towards combating climate change is through the positive impact of the products we make when in use with our customers and consumers. A key pillar of our business strategy is investing in growth opportunities targeting climate change and circularity. As such, we will also be setting ambitious targets to increase the positive impact our products have on the carbon footprint of our customers.

Read more: Products and services for a cleaner, healthier world on pages 64 and 65

Risks and uncertainties

Reflection of the previous year – managing risks effectively

This year really proved the value of our risk management process. COVID-19 had a significant impact on business and society, and JM was no exception. We also felt the consequences of the economic changes caused by Brexit. Nonetheless, we were able to navigate these uncertainties well, thanks to the strength of our risk management framework which guided our approach. It helped us understand the risks better, and shape the actions we took to mitigate them.

As a result, we were not distracted from rolling out our key business transformation programmes. These programmes will help us respond more quickly, driving growth as we enable the four global transitions the world needs in transport, energy, decarbonising chemicals production and circularity, through our scientific knowhow, products and technologies.

These key strengths, and the products we are developing to help our customers decarbonise, are at the heart of how we will help the world achieve the goal of net zero. But within this context we also need to do more ourselves – as set out in our new sustainability commitments (pages 62 and 63). We have therefore also increased our commitment to reducing our own greenhouse gas emissions. As part of this, we have set up a new Working Group for the Task Force on Climate-related Financial Disclosures (TCFD) to ensure that our enterprise risk framework incorporates all relevant requirements and addresses our own climate scenarios, and that we have the right business processes in place to deliver our sustainability commitments.

Managing JM's risks

JM applies a holistic approach to risk management which enables the business to protect value, proactively manage threats to the delivery of strategic and operational objectives while enhancing the realisation of opportunities. We have a risk management and internal controls framework to identify, assess, mitigate and monitor the risks and uncertainties we face as a business. It helps deliver a balance between risk and opportunity underpinned where appropriate by other tools available to us such as insurance.

We have a culture of continuous improvement; our risk environment continues to be enhanced as we embed stronger risk management practices and make positive progress to reaching our desired level of maturity. To fully embed risk management practices, we have focused on our risk culture through a series of workshops with risk owners and sponsors, clearer definitions of risk causes and sharing of this understanding across the group.

Effective risk management helps us:

- Pursue new opportunities while mitigating our risks in a rapidly changing external environment.
- Deliver our strategic objectives through prioritised planning.
- Focus our assurance resources on specific areas of risk and uncertainty.
- Implement relevant controls to mitigate or prevent risks from occurring.
- Drive continuous improvement and close collaboration between our corporate functions and sectors.
- Comply with UK Corporate Governance Code requirements.

2020/21 process developments

We have made several enhancements over the last 12 months in the way we address and monitor risks:

- Mitigating action prioritisation. Key activities identified as having the most significant impact in reducing JM's risk exposure will be tracked and monitored.
- Risk champion and sector risk forums have been established to provide practical support to the business in operationalisation of the risk process. We have also enhanced risk reporting through utilisation of supporting dashboard and visualisation of key risk information as well as the actions required to support achievement of desired outcomes.
- Further definition of improved key risk indicators (KRIs) framework. Expanded approach in detailing metrics which demonstrate when tolerance levels for each principal risk may be breached. This provides the board, risk sponsors and owners greater visibility and awareness of mitigating action effectiveness in driving the net positions towards the defined appetites.

Emerging risks and opportunities

Given the rapidly changing nature of the external environment, the process to determine emerging risks is included within our Group Risk Management framework. We have systematised our approach to tracking key signposts and indicators relating to decarbonisation policy and private sector commitments, which also includes consideration of JM's climate scenarios. We are using this to better understand the market context for our new growth opportunities, for example in hydrogen, and adjust our strategy as needed. Automotive / powertrain scenarios have been developed and will be expanded over the next financial year to provide a clearer view on oil demand and key chemical value chains while continuing to develop our thinking on other group wide macroeconomic drivers (e.g. carbon pricing). We have also reviewed internal and external environment changes / movements at the board and Group Management Committee (GMC) to ensure that the top down risk management process continues to be informed.

Determining our risk appetite

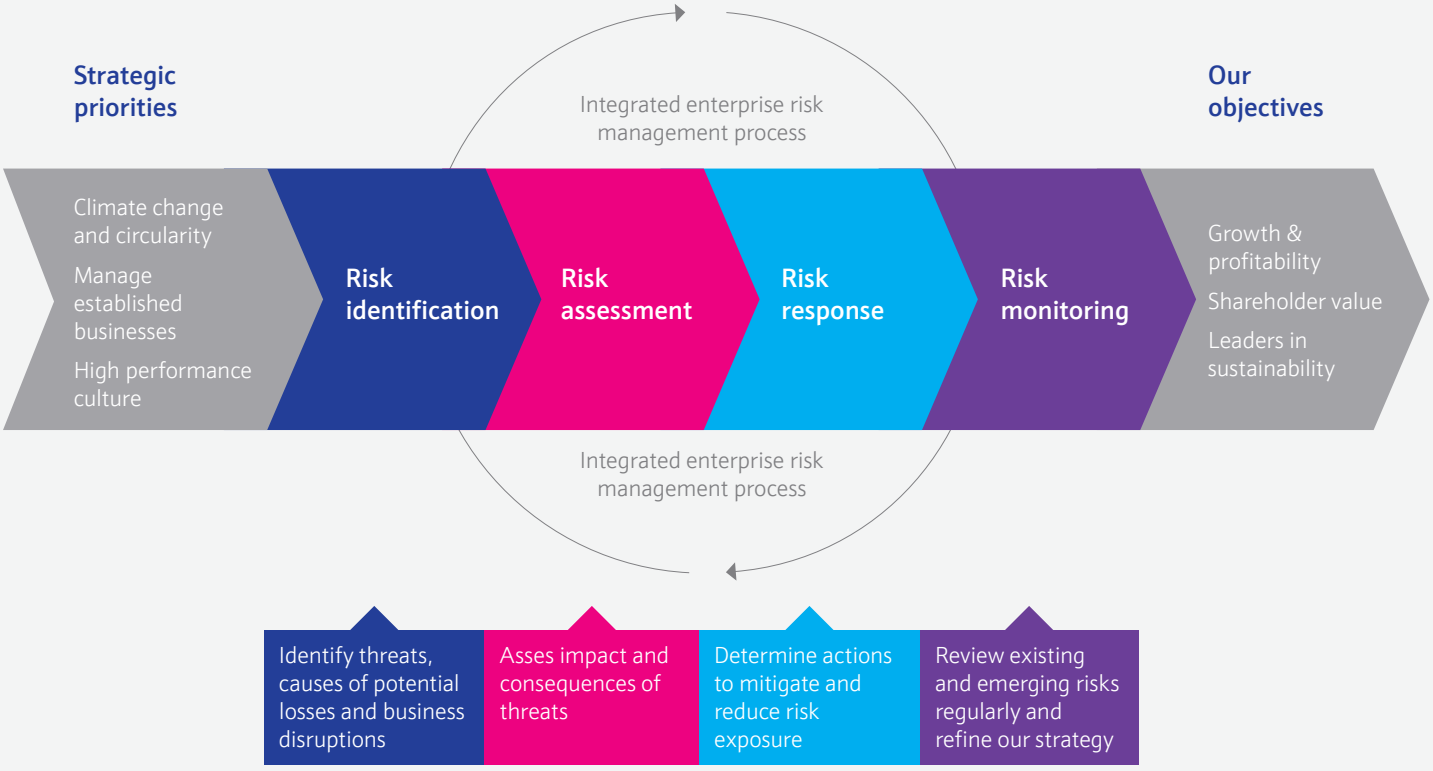
As part of our risk assessment process, our board and GMC consider the nature and extent of our risk appetite of the group's principal risks. The outcome of this exercise informs our strategic planning activities and helps us to set the level of mitigation needed to achieve our strategic objectives – accepting, of course, that some level of risk taking is necessary.

JM's Board of Directors has overall accountability for the risk management process. Supported by the GMC, assessments are carried out against the principal and emerging risks facing the business to ensure that the risks identified are relevant to JM's goals and strategic objectives. We recognise the emerging nature and velocity of some of the more dynamic aspects of emerging risks, which we are developing. Read more in our TCFD statement on pages 86 and 87. The Audit Committee assists the board in monitoring the effectiveness of the risk management and internal control policies, procedures and systems.

The risk management framework incorporates both a top down approach to identify the group's principal risks as well as bottom up to identify operational risks. They are run in parallel and we are improving the connection and alignment between them. The visibility of all risks is ensured through our group principal risk reporting dashboard, which includes a consolidated view of operational risks. We are working on the implementation of JM's risk universe and its digitisation will improve live visibility and comparability of risks across the sectors and sites as well as emerging themes.

Each principal risk is individually sponsored by a GMC member who drives progress through regular review considering related emerging risk factors, current responses and further mitigating actions to manage to our defined risk appetite. The GMC also periodically focuses on selected risks and performs deep dive reviews to support relevant strategic topics on the GMC agenda. The risk reviews are embedded within the relevant business and / or functional reviews to ensure that they are considered in the context of JM's values and strategic objectives.

JM's risk approach



Risks and uncertainties continued

How we manage risk

A standardised framework is used across the business to ensure risks are identified, analysed, monitored and reported in a consistent manner. Likelihood of occurrence and the potential impact on objectives are considered and scored using a broad range of impact measures. The effectiveness and adequacy of existing controls are assessed regularly with risk sponsors and owners. A subset of the most relevant controls are reported at least once a year via the key controls questionnaire process.

Functional leaders, sectors and site teams are responsible for identifying, assessing and prioritising their risks, considering the likelihood of occurrence and their potential impact on JM's objectives. This review includes assessing any movement in the risks, the strength of the controls we use to manage them and the status of mitigating actions.

Site risks are analysed for trends and anomalies which are reviewed by sector leadership teams. Risk insights are then incorporated into strategic planning and budgeting. The Group Risk Register is subject to a detailed review and discussion by GMC, and this includes discussion of emerging risks.

The board assesses the outputs from this process and is committed to further maturing JM's 'three lines of defence' risk assurance model. The first line represents operational management who own and manage risk on a day to day basis, utilising effective internal controls. Group functions and sectors monitor and oversee these activities, representing governance and compliance at the second line. The third line is the independent assurance over these activities provided by the Group Assurance function and other third parties. This model is subject to continuous improvement and requires further strengthening with the aim to mature management assurance functions and approaches.

We are currently enhancing our enterprise risk management structure to facilitate the implementation of a Governance, Risk and Compliance (GRC) tool which will support visibility of our processes, controls and risks and are developing JM's risk universe.

Risk management framework

Group Assurance

- Constructively challenges and assists the board, Audit Committee, GMC risk sponsors, sectors and functions in considering the range of risks identified and their materiality.
- Focus is provided to the progress of mitigating actions / projects in terms of their successful implementation and their likely effectiveness in reducing risk in line with our appetite.

Top down

Defines risk appetite; identify, monitor and mitigate risk at group level

Identify, monitor, report and mitigate risks at operational level

Bottom up

Board of Directors

Overall responsibility for sponsoring the approach to risk management and internal controls. Sets the tone on risk management culture and approves risk management policies, guidelines and processes.

Audit Committee

- Reviews the effectiveness of the group's risk management framework and internal controls system.

GMC

- Develops company strategy in line with board risk appetite.
- Reports on principal risks and uncertainties to the board and Audit Committee.
- Carries out top down, bottom up and emerging risk identification and review.
- Owns risk definitions, mitigation plans and monitors progress towards the appetite of our principal risks.

Sectors

Carries out a top down review of activities on a regular basis. Responsible for ensuring that sites and functional areas have developed risk registers in place. Reports to the GMC on sector risk and issues.

Sites / Functional Areas / Programmes / Projects

Reports top risks to sector. Carries out regular reviews on effectiveness of existing controls and progress with control implementation.

Insurance

Our risk management process allows us to respond to risks through the use of insurance to treat and manage risks. Our insurance strategy is to prioritise our mitigation resources on the most significant areas of risks and / or where JM has a legal or contractual requirement. We also consider using insurance cover as a risk mitigation tool where it is available on commercially reasonable terms from leading insurance companies. We currently have insurance programmes in place to cover a number of risks including employers' liability, workers' compensation, stock and transit, public and products liability, property damage, business interruption, and directors' and officers' liability. We utilise a captive insurance company to provide insurance cover for the portion of some of the risks we retain, ensuring there is an appropriate and economically beneficial balance of risks between JM and its external insurers.

The type and limit of insurance purchased from the external market is reviewed to ensure its alignment with our assessment of the relevant risks and with our external obligations. For example, we currently mitigate the potential financial impact of extreme weather events through our property damage and business interruption insurance programme.

JM's principal risks and uncertainties

Principal risks are regularly reviewed to ensure that JM meets the challenges facing the business and strategic objectives. To understand the current risk universe for JM, GMC risk sponsors have assessed changes to their risks, prioritising principal risks as required, with focused mitigation plans. This has been enabled by the risk management process facilitated by the Group Assurance and Risk function.

The following provide an insight into the way we have further shaped our risk coverage, and clarity on opportunities and relevant actions in 2020/21:

- Climate change is an important part of our risk management process, driving certain principal risks, such as 'Future growth', 'Environment, health and safety' and 'Supply failure'. We recognise that we must manage our climate change risks effectively if we are to deliver our growth strategy and inspire confidence in our stakeholders. The rate and extent of change in our key markets in response to climate change is subject to extensive scenario planning as part of our TCFD preparations and we are carrying out further analysis on the validity of a stand alone risk for this area.
- We refined our 'Failure of operations' risk to focus specifically on 'Asset failure'. This better reflects the primary cause of this risk and the level of potential exposure across the business. Following discussions with our sectors and other principal risk owners, we have put in place sector focused actions to reduce our exposure.
- We reviewed our 'Quality' risk and developed sector specific views to acknowledge the different applications of this risk. We continued to work with sectors to help them own the risk, monitor its likelihood and ensure any specific actions are tracked.
- Cyber attacks remain a significant risk because of the evolving external landscape and a rise in the number and sophistication of those attacks. Under our 'Information technology and cyber security' risk (previously Applications, systems and cyber) we continue to develop our controls in line with good industry practice to help us respond to these new challenges. We developed our ongoing programme of work with independent oversight and will track and report progress within this risk.
- Following an assessment of JM's legal risk landscape, we have introduced 'Customer contract liability' as a new principal risk. This risk recognises our potential exposure to loss or damage because of existing or future customer contracts having potentially unfavourable terms against the backdrop of increasing regulation and collective actions, particularly in the automotive and pharmaceutical sectors.
- The Precious Metal Management (PMM) team has continued to enhance the governance procedures over our metal management. Despite initial disruption caused by the pandemic it has not had an immediate impact on our supply positions and JM has benefited from the volatile and higher than average precious metal prices. In addition, significant advances have been made in reducing the amount of working capital which has been assisted by the advances made by reducing our refinery backlogs.

The table below sets out our principal risks and uncertainties and the actions we have put in place to mitigate them. The risks discussed below, either individually or in combination, could have a material adverse effect on our strategy, business, financial performance, operations, cash flows and liquidity, prospects, shareholders value and reputation. We analyse the extent of the mitigation plans we need, knowing that our risk profile and the potential impact of each risk changes over time. JM's strategic risks are listed first followed by operational risks. Each principal risk is also linked to one or more of our three strategic priorities:

- Invest in growth areas targeted at climate change and circularity
- Manage our established businesses to support growth
- Promote a fast paced, efficient business and high performance culture

Risks and uncertainties continued

Key

- Invest in growth areas targeted at climate change and circularity
- Manage our established businesses to support growth
- Promote a fast paced, efficient, high performance culture

- Increased since 2020 annual report
- No change
- Decreased since 2020 annual report
- n/a Risk movement not applicable as new risk

1 Existing market outlook

GMC sponsor: Robert MacLeod

Risks, opportunities and impact

Changing assumptions in our key markets could have an unplanned or unforeseen impact that we are not agile enough to respond to. This risk includes the potential impact of legislative changes, other market movements outside of our predictions, the extended impact of global pandemics, and emerging trends, such as tariffs, as well as regional and global slowdowns to which our business may be sensitive.

Key mitigations

- We continue to execute our strategic planning process to assess and understand external trends and the associated effects on our sectors. This includes the balance, scale and focus of our investments.
- We regularly review our portfolio to ensure that each part of the business is providing value to the group. In turbulent times the resilience of our portfolio demonstrates its benefits.
- We monitor key viability and liquidity metrics, such as balance sheet strength, as part of our budgeting and going concern testing.
- We monitor changes to key drivers, such as GDP and market assumptions, carry out scenario planning and adjust our business plans accordingly.
- We have developed response mechanisms to ensure that we can react quickly when unforeseen market events take place.

Changes since 2020 annual report

Coverage of this risk has evolved to reflect potential unforeseen changes in our key existing markets and our ability to respond at speed. We have split our risk scoring into two categories: 'normal' fluctuations in the business cycle that are identified through our strategic planning, and lower frequency 'black swan' events, such as COVID-19, which are intrinsically unforeseeable. As a result, we have strengthened our market intelligence across all sectors and we continue to monitor global macroeconomic factors and are improving our sensitivity analysis through our strategic planning and budgeting process. Furthermore, we have improved our ability to react to unexpected market changes.

2 Future growth

GMC sponsor: Christian Günther

Risks, opportunities and impact

Ineffective execution of our strategic initiatives and investments could lead to failure to deliver planned growth and create value.

Key mitigations

- We continually review our strategy in light of new information, and our Strategic Transformation Office tracks our execution via a business review process.
- We review and monitor new technologies and market competitiveness on an ongoing basis.
- We invest in research and development, capital projects and people with the specific skills we need to deliver our strategy.
- We work proactively with current and potential customers, as well as industry bodies, such as the Hydrogen Council, to understand future needs and potential product and market evolution.
- Our dedicated group capital projects team conducts regular reviews of all strategic capital projects.

Changes since 2020 annual report

We have further refined this risk to focus not just on the growth opportunities we see in our two main core businesses (Clean Air and Efficient Natural Resources) but also on the key growth platforms that relate to our Battery Materials, Hydrogen and Fuel Cells businesses.

Our future growth is in part driven by global macro trends, including climate change, acceleration of EV penetration and fuel cells, and an increase in the rate of decarbonisation that, on balance, create a suite of opportunities for JM.

To drive growth, we recognise that we need to leverage our core businesses to support our growth platforms, identifying opportunities, strengthening our IP positions, developing the products and services that customers need and building the skills we need to deliver our strategy. We also recognise the inherent level of risk that embarking on new growth areas creates, including securing customer platforms.

Overall, our net scoring (currently mitigated position) has reduced, recognising our regular monitoring and increased control through the Transformation Office. However, our appetite (desired position) has increased to reflect the alternative growth streams required and the higher percentage of revenue at risk as we balance our portfolio, expanding from our existing core businesses.

3 Competitive advantage

GMC sponsor: Maurits van Tol

Risks, opportunities and impact

Failure to maintain our competitive advantage in existing markets and, as a result, not meeting customers' evolving needs as effectively and profitably as our competitors.

Key mitigations

- We maintain strong customer relationships through our technical proposition, good market reputation and a high level of technical service.
- We conduct research and development and use our capital management process to ensure resources are prioritised against the areas of greatest opportunity.
- We maintain a strong innovation portfolio using our new technology platform and product development process.

Changes since 2020 annual report

We have processes in place to enable effective decisions to allocate innovation resource and capital. Through our innovation excellence programme, we continually improve the processes that further expand JM's product, application and technology toolbox.

We added further mitigating actions to ensure we have the capabilities to 'place the right innovation bets' and respond to emerging opportunities at pace.

4 Environment, health and safety (EHS)

GMC sponsor: Ron Gerrard

Risks, opportunities and impact

Like other high hazard manufacturing companies, our business operations are subject to a wide range of challenging health, safety and environmental laws, standards and regulations set by government and non-governmental bodies around the world.

If we fail to operate safely, we could injure our people or breach applicable laws, which could have a negative impact on our employees. This could result in lost production time and potentially attract negative interest from the media and regulators.

Key mitigations

- We have embedded a health and safety culture across the business. This includes clear policies, guidelines and standards, continual training and awareness activities and audits.
- We continue to conduct process safety reviews at applicable sites.
- We carry out investigations to determine the root cause of incidents and accidents and develop remediation plans to address the issue.
- We manage and report on environmental data associated with our sites.

Changes since 2020 annual report

The health and safety of our employees is our priority. COVID-19 has continued to affect the way in which many of our employees work and we have adapted our processes to ensure that training, online hazard studies and other assessments can continue despite the pandemic.

We have updated this risk to clearly articulate how we manage our exposure to health and safety risks, and to specifically include all relevant areas, such as our environmental impact.

5 Supply failure

GMC sponsor: Jane Toogood (metal) and Ron Gerrard (other sourcing)

Risks, opportunities and impact

The nature of JM's operations means there are 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 our products and satisfy customer demand.

Key mitigations

- We manage our supplier relationships through regular reviews and discuss their constraints and quality management processes.
- Where appropriate, we carry strategic stocks of raw materials and regularly monitor our levels against changes in the external landscape.
- We regularly investigate alternative materials as part of our research and development.
- We continue to invest in our pgm refining business to ensure access to recycled precious metals.
- We conduct ongoing market research to understand and monitor the impact of short term events on the longer term supply of metal.

Changes since 2020 annual report

We have continued to implement our procurement strategy and have further sharpened our supply chain understanding across the sectors, including our capital projects supply chain.

We continue reviewing critical direct raw material suppliers to meet our product portfolio strategies.

We have also continued to reduce the precious metal backlogs in our refineries, reducing pressure on our precious metal sources.

Risks and uncertainties continued

6 People

GMC sponsor: Annette Kelleher

Risks, opportunities and impact

To successfully execute our strategy and deliver growth, we need an appropriate culture and a breadth and depth of leadership skills to drive a motivated, inclusive and engaged workforce, underpinned by adequate people data.

Key mitigations

- Our values and behaviours are embedded in all our internal processes, including hiring and performance reviews.
- We run culture focused sessions with our leaders and have developed a culture statement roadmap.
- We run ongoing leadership development and wellbeing programmes for our employees.
- We conduct a global employee engagement survey every two years and intermediate pulse surveys. We then develop targeted action plans based on the feedback from them.

Changes since 2020 annual report

We have increased our scoring to reflect the pandemic and also the level of change we are currently undertaking.

We have continued to prioritise our employees' health and safety, maintaining social distancing measures and supporting many homeworking employees. We have a series of leadership engagement and employee communications planned on a regular basis to support colleagues in times of uncertainty and maintain motivation across the group.

7 Security of metal / highly regulated substances

GMC sponsor: Jane Toogood

Risks, opportunities and impact

We store and transport significant quantities of high value precious metals or highly regulated substances. Loss or theft due to a failure of our associated security management systems may result in financial loss and / or a failure to satisfy our customers, which could reduce customer confidence or result in legal action.

Key mitigations

- We have delivered the first year of a three year security improvement roadmap to further strengthen the function.
- We continue to implement and apply our Group Security policies across all sites.
- We regularly carry out security assessments and audits at sites.
- We are members of intelligence groups that help us carry out regular threat evaluation and horizon scanning.
- We run ongoing security awareness campaigns and training, including rigorous follow up of thefts and continuous learnings.

Changes since 2020 annual report

Our level of control continues to increase through the delivery of the security improvement roadmap, which includes implementation of control measures across our critical sites.

With the increase in metal prices comes a potential increase in the risk and we adapt our controls in line with the changing security risks to our materials.

8 Intellectual property management

GMC sponsor: Maurits van Tol

Risks, opportunities and impact

Failure to adequately manage our own, and third party, intellectual property, knowledge and information could lead to a loss in business advantage, loss of freedom to operate and reputational damage associated with litigation.

Key mitigations

- We carry out an annual review of our intellectual property portfolio against JM's strategic priorities to ensure continued alignment.
- We regularly review our sector level intellectual property strategy to ensure consistent monitoring of intellectual property activity.
- We actively manage our intellectual property portfolio and use digital tools to support governance.
- We continue to provide training on, and raise awareness of, our Information Classification Policy.
- Intellectual property lawyers provide specialist guidance, including on the use of intellectual property as a business tool.

Changes since 2020 annual report

The intellectual property landscapes for the technologies in which JM operates continue to be inherently challenging as, for example, sustainable technology development is a very dynamic space.

To continue reducing our risk exposure, we are developing and implementing a trade secret management policy to ensure JM has a register of all its trade secrets and key knowhow. This will allow us to better manage our intellectual property and guard against loss, either inadvertent or deliberate.

9 Asset failure

GMC sponsor: Ron Gerrard

Risks, opportunities and impact

We may experience critical asset failures resulting in a material impact on the supply, performance, share value and reputation of JM.

Key mitigations

- We are implementing robust asset management programmes and rigorous operational technology support systems.
- We have developed and embedded engineering standards.
- We are prioritising key insurance review actions and business continuity planning.
- We are detailing and prioritising critical spares and capital expenditure for ageing assets and infrastructure.
- We are delivering competency programmes.

Changes since 2020 annual report

We have changed 'Failure of operations' to 'Asset failure' to avoid duplication and reflect the level of our exposure if not mitigated.

Overall, even with mitigations in place, there is further work required to reach tolerance. Group scoring reflects the level of exposure within the PGM Services (PGMS) business due to the nature of the business with the highest potential impact. A multi year investment programme is underway in PGMS to renew assets that require replacing due to them approaching end of life. Part of this investment includes a new state of the art refinery at our PGMS Royston site.

10 Ethics and compliance

GMC sponsor: Nick Cooper

Risks, opportunities and impact

Failure to comply with ethical and regulatory standards could lead to reputational damage, and leave the company or individuals open to potential criminal or legal action.

Key mitigations

- We have shared our Code of Ethics and compliance policies with employees and provide regular training on them. Our senior leaders set the tone from the top.
- Internal and external subject matter experts identify risks, set standards and provide advice and training.
- Our third party due diligence programme assesses and manages the risks associated with various counterparty relationships.
- We continued the 'speak up' facility for employees to raise concerns. Our Ethics Panel investigates any reported issues and recommends actions to address the issue, as needed.

Changes since 2020 annual report

As the ethics and compliance landscape continues to evolve and risk management techniques become more sophisticated, we continue to adapt our programme. During the last 12 months we have continued to monitor the heightened compliance risk due to the additional financial pressures that people and companies may be suffering because of COVID-19.

In addition, we have increased our focus on ethical risks that may not have direct regulatory consequences by creating a new role of Head of Business Ethics.

11 Business transition

GMC sponsor: Robert MacLeod

Risks, opportunities and impact

Failure to manage and deliver change in a controlled manner to achieve expected business benefits.

Key mitigations

- The setup of the Strategic Transformation Office in April 2020 has ensured appropriate governance across key initiatives to coordinate and drive delivery of change in a controlled manner.
- We continue to monitor JM wide risks and interdependencies associated with our transformation.
- We carry out independent assurance on key change programmes.
- We have introduced a project management and business change framework across all key initiatives.

Changes since 2020 annual report

Our Strategic Transformation Office has driven delivery of the expected benefits in a controlled manner, thereby reducing the overall risk compared with last year.

We have put new processes, tools, controls, governance, and focus on business change in place this year, which has lowered the overall risk in our workstreams. This year we will continue to use these measures across our sectors and in new workstreams and across asset disposal and sustainability.

The model of the Strategic Transformation Office has been replicated in many of our sectors to manage the overall group risk.

Risks and uncertainties continued

12 Product quality

GMC sponsor: Joan Braca

Risks, opportunities and impact

Customers use our products in a wide range of their own end products, processes and systems. It is crucial, therefore, that our products work properly and meet the established quality criteria. Performance failure or quality defects could cause harm to consumers or leave us exposed to liability claims. This could lead to loss of future business, licence to operate and reputational damage.

Key mitigations

- We monitor and report on quality performance, taking corrective action where needed.
- We continue to develop robust manufacturing and preventative maintenance systems supported by standardised processes.
- We embed global quality management systems across our business and provide training and regular communications to help employees understand how to use them.
- We adopt 'quality by design' in our new product introduction and product change management processes.

Changes since 2020 annual report

The regulatory environment continues to tighten, and our customers are experiencing greater scrutiny.

We note an increase in risk profile due to better understanding of our sector quality programmes and relevant exposures. Our risk strategy has been to apply the highest exposure across our sectors which is driven predominantly by the Health Sector.

We have strengthened our ability to recognise continuous improvement opportunities and how we apply inherently different quality management systems across our sectors.

13 Information, technology and cyber security

GMC sponsor: Ron Gerrard

Risks, opportunities and impact

Failure to adapt our IT systems to changing business requirements, significant disruption to those systems or a major cyber security incident could adversely affect our financial position, harm our reputation and lead to regulatory penalties, or non-compliance with laws.

Key mitigations

- We continue to raise employee awareness and run technology training programmes.
- We have enhanced key cyber security technologies to increase our ability to predict, prevent, detect and respond to cyber threats.
- We continue to deliver our Cyber Security and Infrastructure Improvement Programme (CSIIP) to increase our organisational resilience. Controls have been increased in areas where we perceive a heightened risk.
- We have introduced key policies and standards across JM.
- We receive continued support and assurance from third party specialists.

Changes since 2020 annual report

We have refreshed this risk to reflect wider IT risks in line with good industry practices and it now includes innovation and digital areas.

We continue to invest heavily in our cyber security and IT general controls providing better visibility and governance to support a more efficient business.

We maintain a high level of communication and awareness activities ensuring our employees continue to be alert to the external risk associated with the exploitation of the COVID-19 pandemic.

14 Customer contract liability

GMC sponsor: Nick Cooper

Risks, opportunities and impact

Unfavourable customer contract terms could lead to significant loss or damage and expose us to high or unlimited liability, as well as other broader negative consequences.

Key mitigations

- Our in house legal team and commercial function work together to negotiate terms and liabilities within our customer contracts.
- We provide ongoing legal training and activities to raise awareness.
- Contracts that meet specific high risk triggers are subject to approval by our Legal Risk Committee.
- Sector General Counsels are part of Sector Executive Committees and advise senior leadership teams on legal risk within their sectors.

Changes since 2020 annual report

Following an assessment of our legal risks landscape and exposures we have concluded that the group's risk in relation to customer contract liability should be tracked.

This is primarily due to increasing regulation and collective actions, particularly in the automotive and pharmaceutical sectors, raising our overall risk exposure.

Viability

The directors have assessed the viability of the group over a three-year period in line with the annual planning horizon. During the year the board has carried out a robust assessment of the principal and emerging risks affecting the company and group, particularly those which could threaten the business model. The risks and the actions taken to mitigate them are described in the previous section on 'Risks and Uncertainties'. To reach the viability statement conclusion we have undertaken the following process:

The Directors along with the Audit Committee annually reviews the risk management process to ensure its continuing effectiveness and improvements to the process reflect the nature of the business and group's risk appetite;

- A rolling programme is in place of deep dives which allow the GMC and board to review the company's principal and emerging risks. In the case of board reviews, a presentation is made on the risk and the progress of mitigations, from the accountable GMC risk sponsor.
- In September and March, a presentation is made to the board by the Corporate Risk and Assurance Director, explaining the process followed by management to identify, assess and manage risks throughout the business. At this time, all our principal and emerging risks are considered along with the linkages between them.
- Throughout the year, the Corporate Assurance and Risk Team produce a risk based internal audit plan and presents results to the Audit Committee. 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 Group Chief Executive and CFO in conjunction with Sector Chief Executives. In addition, the board reviews the sector strategies throughout the year. During these reviews, the group's current position and its prospects over the forthcoming years is reviewed which allows reaffirmation of the group strategy and reassessment of risks that would impact successful execution. Climate change is not expected to have a near term impact on forward looking forecasts, however we will continue to review this. We do not anticipate any significant risk from climate change over the viability statement period.

In making the viability assessment, we have analysed each of the principal risks facing the group (as described in the previous section) and identified the items within each principal risk category which have a significant impact to cash flow and viability. We have then modelled these in four stress scenarios as shown in the table below:

Principal risk	Scenarios
1. Existing market outlook	Scenario 1
2. Future growth	Scenario 2
3. Competitive advantage	Scenario 3
4. Environment, health and safety 5. Supply failure 6. People 7. Security of metal / highly regulated substances 8. Intellectual property management 9. Asset failure 10. Ethics and compliance 11. Business transition 12. Product quality 13. Information, technology and cyber security 14. Customer contract liability	Scenario 4

Scenario 1: Existing market outlook – In the going concern analysis, the severe but plausible scenario showed additional headroom compared to the base case due to working capital benefits from lower volumes. For this viability scenario, we considered a more challenging combination of further stress-testing precious metal prices and metal holdings compared to the base case. Within this scenario, we have flexed individual metal prices by up to 64% within the basket of our key metals and increased key metal holdings by up to 50%.

Scenario 2: Future growth – this scenario models the failure to deliver growth in new markets and technologies, most notably battery materials. Within the three-year timeframe the impact of this risk on viability is not assessed to be significant as the sales and returns from new markets and technologies only become material to the group's profitability beyond this period. The risks around the capital expenditure are captured in scenario 3.

Scenario 3: Competitive advantage – this scenario considers the failure to maintain competitive advantage in existing markets principally as a result of ineffective execution of key initiatives or operations. Again, it considers the elements expected to have the most material impact on cash flow and viability. It includes the impact of failure to deliver the capital projects and delayed benefits in the period; failure to deliver the transformation savings and associated higher costs throughout the period; and a failure of a refinery leading to higher working capital and lower profits at the time of lowest cash flow during the period.

Scenario 4: Other risks – this scenario includes the impact of all the other risks identified in the group's principal risks outlined in the prior section. For each risk a financial impact has been estimated considering the impact and likelihood of the risk. Given the wide range of risks, we have then applied an overall probability weighting to this set of ten risks to derive a potential financial impact of this set of risks.

Our evaluation of viability under each of these scenarios takes account of the group's current financing arrangements (as outlined on page 41) and assumes no refinancing of maturing debt, although in practice we would fully expect to refinance these well ahead of maturity. Our stress testing shows that under each of the scenarios described above the group had headroom under its committed facilities and financial covenants. Furthermore, we also tested the extreme case of all four scenarios occurring simultaneously and there was still headroom.

As a final review, we have also undertaken a reverse stress test in order to identify what additional or alternative scenarios and circumstances would threaten our current financing covenants or headroom. This shows that the group has headroom against either a further decline in profitability well beyond the severe but plausible scenario or a very significant increase in borrowings. In this extremely unlikely scenario the group still has further mitigating actions available, including reducing capital expenditure, tightening payment terms and reducing the dividend. We also fully expect to be able to access additional funding from existing debt markets to refinance maturing debt and increase headroom if it were necessary.

Based on the results of our assessment, the directors have a reasonable expectation that the company and group will be able to continue in operation and meet its liabilities as they fall due over a period of at least three years.