CONTENTS

STRATEGIC REPORT

GOVERNANCE REPORT

FINANCIAL STATEMENTS

OTHER INFORMATION

Use of underlying performance measures in the Annual Report
All figures in the narrative of the Strategic Report are underlying from continuing businesses unless otherwise stated. We believe this is the most appropriate basis to measure our in-year performance as this reflects the substance of trading activity, including the impact of the Group's foreign exchange forward contracts, which lock in transactions at predetermined exchange rates. In addition, underlying results exclude the accounting impact of business acquisitions and disposals, certain impairment charges and exceptional items. A full definition of underlying and the reconciliation to the statutory figures can be found on pages 215 and 216. All references to organic change are at constant translational currency and exclude M&A.

Forward-looking statements
This Annual Report contains forward-looking statements. Any statements that express forecasts, expectations and projections are not guarantees of future performance and guidance may be updated from time to time. This report is intended to provide information to shareholders, and is not designed to be relied upon by any other party or for any other purpose, and the Company and its Directors accept no liability to any other person other than that required under English law. Latest information will be made available on the Group's website. By their nature, these statements involve risk and uncertainty, and a number of factors could cause material differences to the actual results or developments.

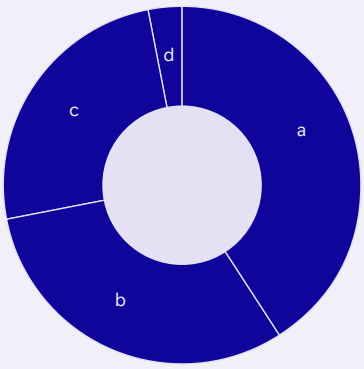
PIONEERS OF POWER

Rolls-Royce pioneers cutting-edge technologies that deliver clean, safe and competitive solutions to meet our planet's vital power needs. Our purpose is to pioneer the power that matters to connect, power and protect society.

FREE CASH FLOW [1,2,3]	STATUTORY CASH FLOW	UNDERLYING REVENUE [1,2,3]	STATUTORY REVENUE [1,2]
£(1,485)m	**£(775)m**	**£10,947m**	**£11,218m**
2020: £(4,255)m	2020: £(995)m	2020: £11,430m	2020: £11,491m

UNDERLYING OPERATING PROFIT/(LOSS) [1,2,3]	STATUTORY OPERATING PROFIT/(LOSS) [1,2]	UNDERLYING PROFIT/(LOSS) BEFORE TAX [1,2,3]	STATUTORY (LOSS) BEFORE TAX [1,2]
£414m	**£513m**	**£36m**	**£(294)m**
2020: £(2,008)m	2020: £(1,972)m	2020: £(3,993)m	2020: £(2,799)m

UNDERLYING EARNINGS PER SHARE [1,2,3]	STATUTORY EARNINGS PER SHARE [1,2]	NET DEBT [4]	LIQUIDITY [5]
0.11p	**1.48p**	**£(5,157)m**	**£7.1bn**
2020: (67.48)p	2020: (51.81)p	2020: £(3,576)m	2020: £9.0bn



UNDERLYING REVENUE BY BUSINESS IN 2021

a. Civil Aerospace	**41%**
b. Defence	**31%**
c. Power Systems	**25%**
d. New Markets and Other businesses	**3%**

ORDER BACKLOG	GROSS R&D EXPENDITURE [3,6]	COUNTRIES WITH ROLLS-ROYCE PRESENCE	EMPLOYEES (MONTHLY AVERAGE)
£50.6bn	**£1.2bn**	**49**	**44,000**

[1] 2021 figures represent the results of continuing operations.
[2] 2020 figures have been restated, where relevant, to show ITP Aero as a discontinued business in line with 2021 reporting.
[3] A reconciliation of alternative performance measures to their statutory equivalent is provided on page 215 to 216.
[4] Net debt (including lease liabilities) is defined on page 113.
[5] Liquidity is defined as net funds plus any undrawn facilities, as listed on page 59.
[6] See note 3 on page 139 for a reconciliation of gross R&D expenditure to total R&D expenditure.

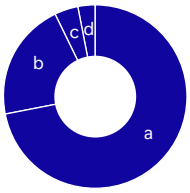
See note 2 on page 131 for a reconciliation between underlying and reported results.

OUR BUSINESSES IN 2021

CIVIL AEROSPACE

Civil Aerospace is a major manufacturer of aero engines for the large commercial aircraft, regional jets and business aviation markets. The business uses its engineering expertise, in-depth knowledge and capabilities to provide through-life support solutions for its customers.

UNDERLYING REVENUE MIX



a. Large Engines	**72%**
b. Business Aviation	**21%**
c. Regional	**4%**
d. V2500	**3%**

UNDERLYING REVENUE [7,8]

£4,536m

2020: £5,068m

UNDERLYING OPERATING LOSS [7,8]

£(172)m

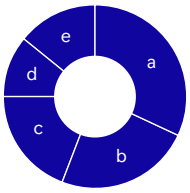
2020: £(2,535)m

See page 26

DEFENCE

Defence is a market leader in aero engines for military transport and patrol aircraft with strong positions in combat and trainer applications. It has significant scale in naval and also designs, supplies and supports the nuclear propulsion plant for all of the UK Royal Navy's nuclear submarines.

UNDERLYING REVENUE MIX



a. Transport	**32%**
b. Combat	**24%**
c. Submarines	**19%**
d. Naval	**11%**
e. Other	**14%**

UNDERLYING REVENUE [8]

£3,368m

2020: £3,355m

UNDERLYING OPERATING PROFIT [8]

£457m

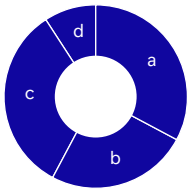
2020: £461m

See page 28

POWER SYSTEMS

Power Systems, with its product and solutions brand, *mtu*, is a world-leading provider of integrated solutions for onsite power and propulsion, developing sustainable, climate-friendly solutions to meet the needs of its customers.

UNDERLYING REVENUE MIX



a. Marine	**33%**
b. Industrial	**25%**
c. Power Generation	**33%**
d. Defence	**9%**

UNDERLYING REVENUE [8]

£2,749m

2020: £2,735m

UNDERLYING OPERATING PROFIT [8]

£242m

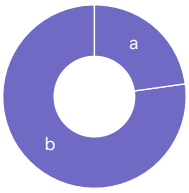
2020: £188m

See page 30

NEW MARKETS

New Markets are early-stage businesses, with high growth potential, focused on addressing the opportunities being created by the transition to net zero. The businesses leverage our existing, in-depth engineering expertise and capabilities to develop new sustainable products for new markets.

R&D EXPENDITURE



a. Rolls-Royce SMR	**23%**
b. Rolls-Royce Electrical	**77%**

UNDERLYING REVENUE [8]

£2m

2020: £5m

UNDERLYING OPERATING LOSS [8]

£(70)m

2020: £(45)m

See page 32

[7] The underlying results for Civil Aerospace have been restated to reflect the transfer of the Hucknall site with associated fabrications activities from Civil Aerospace to ITP Aero during 2021.
[8] The underlying results of Civil Aerospace, Defence and Power Systems for 31 December 2020 have been restated to reclassify the results of the Group's small modular reactor (SMR) and new Electrical power solutions activities as New Markets and UK Civil Nuclear as Other businesses.

DELIVERING ON OUR COMMITMENTS

We have made significant progress on the path to recovery by focusing upon the elements within our control, in the face of the continued impact of the COVID-19 pandemic in 2021. We are emerging as a better quality business with significant long-term business opportunities presented by the global energy transition.

ANITA FREW, CHAIR

This is a challenging but incredibly exciting time to join Rolls-Royce as Chair and I do so with a strong sense of purpose and the determination to realise the tremendous potential of our business. I would like to extend the Board's heartfelt thanks to Sir Ian Davis for the leadership, dedication and perseverance he showed throughout his tenure as Chairman. To that, I would add my sincerest thanks for the assistance he gave me as Chair designate, upon my arrival at the start of July. Since then, I have visited as many of our sites as COVID-19 pandemic restrictions have allowed and met with colleagues from all levels, as well as numerous external stakeholders. What has struck me everywhere I go within the Group is the pride and passion of our people, their sense of purpose and desire not only to secure and protect Rolls-Royce but to see it flourish and thrive.

I share that sentiment and have watched Rolls-Royce closely for years. Like many people within our business, I have a family connection. My father was what you might term a Rolls-Royce lifer. He had been a pilot in the Second World War and then trained as an engineer at the Rolls-Royce site in Hillington, Glasgow, where he spent the rest of his career. From my early childhood in Scotland, I have a very clear memory of the day my father came home and told us that the Company had been nationalised. That was a real shock, not just for us but for the whole community. We felt it for all of the Rolls-Royce family. The causes of that dramatic event half a century ago are well documented and when I now hear colleagues talk of the RB211 engine – which forms the basis of today's Trent engines – it brings back to me the importance of making Rolls-Royce a business with sustainable foundations; of ensuring that never again are we reliant on just one product.

During 2021, we have focused on execution to deliver on our commitments to investors, having taken transformative action in the previous year to secure our future following the unprecedented impact of the pandemic. We have delivered on our fundamental restructuring; we are completing our disposal programme; and our results are testament to the progress achieved in the year. There remains, however, much hard work still to be done to return to strong cash generation and create sustainable long-term value.

We have engineering excellence at our heart and an incredible focus on innovation, research and development activity that creates opportunities for significant value creation. Despite the financial impact of travel restrictions as a result of COVID-19 on Civil Aerospace, we have continued to invest in the new technologies that our customers across all our businesses will require in the future. This positions us well as economic recovery increases in the shorter term for Power Systems and over the longer term in civil aviation, where we firmly believe the societal and economic need for flight remains strong. We have also innovated to successfully capture new business in Defence, which has remained resilient throughout the pandemic.

This year has also seen us take significant steps to widen the scope of our activities through new business ventures that give us significant long-term opportunity. After many years of hard work, our Rolls-Royce SMR venture is now up and running. We have both UK Government and third-party financial support, and we are progressing through the required regulatory processes before the construction of the first power stations and zero carbon energy production around the turn of the next decade. The new, emerging areas of all-electric and hybrid-electric aviation also give us the opportunity to take our very strong track record in aerospace engineering and safety into new markets, such as urban air mobility and commuter aviation. Our work with these exciting new technologies also gives us a potential route to return to the regional aviation market, where we can pioneer new solutions unencumbered by the need to protect any significant market share that relies on existing technology.

As I said earlier, there remains much hard work still to be done to return to strong and sustainable cash generation and we must continue to focus on the management of the risks associated with delivering on our

commitments. There also remains a high level of operational complexity within our business, which we are addressing through the restructuring (see page 26). It is imperative that the gains made through the, at times painful, decisions taken during this programme are embedded within the business, providing us with a solid foundation as we return to growth. Costs must be kept under control and capital invested in opportunities which represent the greatest potential return for stakeholders. We are world leaders in the provision of complex, safety-critical power and propulsion systems for our customers. We must achieve similar pre-eminence in our business processes and operations.

Shareholder payments

Our results represent a marked improvement over the nadir that was 2020 and the return to positive free cash flow during the third quarter of 2021 shows our general upward trajectory. However, we have some considerable way still to go on our journey to the sustainable level of cash generation which would provide us with a stronger balance sheet and ability to return to shareholder payments in due course. In addition, some of our loan facilities place restrictions and conditions on payments to shareholders until 2023. The restrictions mean no shareholder payment will be made for 2021. From 2023, the Board may recommend shareholder payments, subject to satisfaction of the conditions and our consideration of progress made to strengthen the balance sheet. Further information can be found in Shareholder Information on page 220.

Board developments

During the year, we strengthened the Board's skills and experience in aerospace, engineering, operations, technology and digital transformation with the appointments of Paul Adams, Mike Manley and Wendy Mars as Non-Executive Directors. In May, Panos Kakoullis took up his post as Chief Financial Officer. Previously, he led the audit and assurance practice of Deloitte where he worked with a wide range of multinational corporations.

During 2022, we will see some departures from the Board. Lee Hsien Yang will have completed his nine-year term of office at the end of 2022. In addition, Irene Dorner has indicated her intention to step down and will not be standing for re-election at this year's Annual General Meeting on 12 May. Irene is currently Chair of the Remuneration Committee and Employee Champion. Irene has been a valued member of the Board, a thoughtful Chair of the Remuneration Committee through some challenging periods for the Group and a very engaged Employee Champion, ensuring the voice of the employee is heard in the boardroom. On behalf of my colleagues, I would like to thank her for her dedication during her time with Rolls-Royce.

As a result, we are strengthening the Board's international, geopolitical and remuneration experience and we are pleased to announce the appointment of Jitesh Gadhia, who will join the Board on 1 April 2022. Upon his appointment to the Board, Jitesh will become a member of the Nominations & Governance and Remuneration Committees (see pages 80 and 87 for more detail).

Sir Kevin Smith, now in his seventh year on the Board, has indicated his wish to relinquish his roles, both as Senior Independent Director and as Chair of the Science & Technology Committee. With effect from the conclusion of this year's AGM, George Culmer will be appointed Senior Independent Director and Paul Adams will be appointed Chair of the Science & Technology Committee.

Early in 2022, Warren East informed the Board that he had decided to step down at the end of this year, after nine years on the Board and almost eight years as Chief Executive. As a result, the Board is conducting a thorough and extensive search for his successor. I know that during this time, Warren will continue to lead Rolls-Royce with all the dedication he has shown throughout his tenure. He is an exceptional leader and has set a pioneering vision and strategic direction for Rolls-Royce to lead the transition to net zero across our markets. He has led Rolls-Royce to a point where we have substantially delivered on our recent commitments to investors and are now firmly set on the path to a more prosperous and sustainable future.

Looking forward

Our markets are fundamentally attractive, and our customers are increasingly requiring more sustainable solutions within these markets so they are able to play their part in the global energy transition. The need to combat climate change represents a challenge for us (see page 40) and, more importantly, a significant commercial opportunity which we are firmly grasping, as we operate in some of the most critical systems of the global economy where decarbonisation is particularly complex. Leading the transition to net zero by enabling our customers to use our products – both existing and future – in a way that is compatible with emissions reduction is firmly embedded within our purpose and strategy (see page 10). It is also a mission which resonates very strongly with our people and has provided a rallying cry during the recent tough times. The work we are doing on net zero (see page 36) is positioning us as part of the solution to climate change, a point perhaps best demonstrated during the year by the fact that we were one of only a handful of companies chosen to participate in the 26th UN Climate Change Conference of the Parties (COP26).

I am proud to be taking my place among the leaders of a Group which is not only pushing the boundaries of technology and innovation but pioneering new solutions to help the world achieve net zero by 2050. While there is much work to do to return Rolls-Royce to sustainable growth as a better quality and more balanced business, significant progress has been made this year and we have very exciting opportunities now and into the future, which will deliver value for all our stakeholders. Finally, I would like to take this opportunity on behalf of the whole Board to thank everyone in Rolls-Royce for their continued dedication and hard work during the year.

Anita Frew
Chair

GENERATING POSITIVE MOMENTUM

We improved our financial performance, delivered our near-term commitments, won new business opportunities and took important strategic steps forward during the year. While challenges remain, we can look with increasing confidence to the future and the significant commercial opportunity presented by the transition to net zero.

WARREN EAST, CHIEF EXECUTIVE

We have improved our financial and operational performance, continued to deliver on our commitments and created a better balanced business capable of sustainable growth. We have achieved the benefits of our restructuring programme a year ahead of schedule, positioning Civil Aerospace to capitalise on increasing international travel. In Defence, we have seen growth driven by strong demand in all our markets and in Power Systems we achieved record order intake in the last quarter. The positive momentum we are generating gives us confidence as we look to the future. We have also made significant progress with our new businesses in electrical power and small modular reactors, both of which have the potential to create very significant long-term value. We are continuing to make disciplined investments to develop new and existing technologies, which will enable us to seize the significant commercial opportunity presented by the global energy transition driving sustainable returns.

During the year, we continued to invest prudently in the new technologies, products and services our customers will need for their future success and saw our more recent investments deliver new growth opportunities. We attracted new customers, secured our place on new aerospace platforms and pushed our existing products into new markets. Our Defence business continued to perform well with strong demand for OE and services driving growth in all our end markets: combat, transport, submarines and naval (see page 28) and we won a strategically important contract with the US Air Force.

In Power Systems, the effects of COVID-19 on our end markets lessened over the course of the year and we recorded a strong increase in order intake in the second half, especially in power generation with orders for data centres and infrastructure projects. The transition to net zero power is a significant opportunity for us in Power Systems with mission critical power for data centres, power for construction and infrastructure, and marine solutions leading the demand for net zero carbon solutions (see page 30).

Notwithstanding our crucial focus in Civil Aerospace on completing the restructuring, we secured new customers and our place on new aircraft platforms in the widebody and business jet markets (see page 26). Within our New Markets reporting segment, which we have introduced to provide greater clarity for stakeholders on our early-stage businesses with high growth potential, Rolls-Royce Electrical saw pre-orders announced for a key urban air mobility customer, a new platform partner unveiled and passed a number of significant development milestones, including securing the world all-electric aircraft speed record (see page 32). Five years after our programme to develop a small modular nuclear reactor business was created, we established as a special purpose vehicle. We have attracted not just UK Government funding but capital from external investors (see page 32). We will now proceed through the regulatory process and identify sites for the factories, which will manufacture the modules that will enable the on-site assembly of SMR power plants, as well as focusing on securing our first orders.

There remain challenges and risks around the pace of growth in the global civil aviation market and there is additional uncertainty caused by rising inflation and ongoing global supply chain disruption, especially in areas such as semi-conductors which are becoming ubiquitous in modern technology solutions. The potential for further variants of the COVID-19 virus to create future disruption also cannot be discounted. Recovery from the pandemic is unlikely to be a simple linear trajectory but we are a different business going into 2022 than we were when the pandemic hit. Looking further back, we are also culturally and strategically a dramatically different business from the one I joined, and we have a clear vision and direction – to lead the transition to net zero. With the advances we have made, this is now the time to look to the future. As a result, I have informed the Board of my intention to step down at the end of 2022. I am thoroughly committed to leading this business while we work towards a smooth leadership transition.

Improved financial performance

The progress made in 2021, particularly on our restructuring programme in Civil Aerospace, resulted in a return to underlying operating profit from continuing operations. This was bolstered by continued resilient performance in Defence and strong growth in Power Systems, as it benefited from recovering end markets. Group underlying revenue, meanwhile, reflected a more balanced contribution from the business units compared with the prior year and was obviously impacted by lower widebody engine deliveries as a result of reduced demand for new aircraft from our airline customers. Free cash outflow was substantially improved on the prior year helped by robust progress on cost reduction, stronger operating performance including higher flying hour receipts in Civil Aerospace and reduced capital expenditure.

Across the Group, we seized new opportunities throughout the year. We were very proud to secure the contract with the US Air Force to power its fleet of 76 iconic B-52 aircraft. This was a tremendous success and the result of intense effort and hard work by the team in Defence. In the UK, the Ministry of Defence announced our role in the next generation of nuclear-powered submarines, which will replace the Astute class in the future. Towards the end of the year, we agreed to work with Japan's IHI Corporation to develop and deliver a future fighter engine demonstrator. Using our unparalleled expertise in the generation of energy from nuclear sources at small-scale, we also began exploring the potential of space, signing an innovative contract during 2021 with the UK Space Agency for a study into future nuclear power options for space exploration.

Technology is the lifeblood of our business and we must ensure we create, through prudent investment, the cutting-edge technologies that our customers will need for the future.

Power Systems is at the vanguard of the drive to net zero as customers look to transition from traditional diesel-powered engines, and as a result much of our activity in 2021 was centred around new sustainable power solutions (see page 8). We are also increasing our sales of complete system solutions, including gensets, battery storage systems and automation, generating even closer customer relationships. In Civil Aerospace, despite the impact of the pandemic, we were able to continue to build on the success of our existing technology portfolio. The Pearl 10X became the third member of our family of Pearl business jet engines, after being chosen by Dassault, to exclusively power its new flagship aircraft, the Falcon 10X. This was a particularly significant achievement as it is the first time that Dassault has chosen our engines to power a member of its business jet fleet. During the year, another key new business jet engine, the Pearl 700 for Gulfstream's new G700 aircraft, successfully passed a number of important test milestones on its way to certification and entry into service in 2022. In the widebody market, our Trent XWB – the world's most efficient large aero engine in service today – will now be powering the new Airbus A350F fleet of freighters, with Singapore Airlines agreeing, during the year, to take seven of the new aircraft. The introduction of the Airbus A350F into the growing freighter market represents a significant opportunity for us. Finally, we welcomed new widebody customers including Vietnamese airline Vietjet Aviation for the Trent 700, a further example of our success in the market for aircraft transitions, and German airline Condor Flugdienst for the Trent 7000.

Delivering on our commitments

I said in last year's Annual Report that unprecedented times had called for unprecedented action and we have delivered on the commitments that we made in order to secure the funding for the decisive action we needed to take. The restructuring programme we launched in 2020 has now largely been completed. The investment we made before the pandemic to improve productivity and efficiency has enabled us to act at pace and realise the benefits of the restructuring ahead of schedule. We have met our £1.3bn run-rate savings target a year ahead of schedule and delivered on our Group restructuring commitment with the removal of more than 9,000 roles from continuing operations. Our focus now is on ensuring the benefits are sustained. Our restructuring programme has fundamentally changed the way we work in our Civil Aerospace business, reducing the size of the business by around a third and creating a more productive, more efficient business poised for future growth. We are also delivering on our commitment to raise around £2bn of proceeds from disposals, with four agreements announced. Three have already completed: two in 2021 and the other one since the start of 2022. The final and largest of the disposals, ITP Aero, is progressing well and we expect completion in the first half of 2022. Disposal proceeds, together with underlying free cash flow generation from the Group, will be used to reduce net debt, in line with our ambition to return to an investment grade credit profile in the medium term.

Investing to create long-term growth and sustainable value

Technology is the lifeblood of our business and we must ensure that we create, through prudent investment, the technologies that our customers are going to need for the future. Our continued prioritisation of targeted investment, even in the most challenging of years, has driven commercial wins in 2021, and we are increasingly pivoting our activity towards supporting our mission to lead the transition to net zero. We pioneer the power that matters, power which is central to the successful functioning of the modern world. To combat the climate crisis, we know that power must be made compatible with net zero carbon emissions. Our technology and engineering expertise gives us a critical role in enabling the transition to a low carbon global economy. We are focused on producing the technology breakthroughs society needs to decarbonise the global economy and capture the economic opportunity this transition represents.

During 2021, we laid out our technology pathway to net zero and committed to ensuring our new products will be compatible with net zero operation by 2030, and all our products compatible by 2050 (see page 37). We aim to meet our net zero ambitions in part by working towards enabling our products to be used in a way which is compatible with net zero emissions. We have already made considerable progress on the testing of sustainable fuels and the development of new products and engine architectures, which will further increase fuel efficiency and help improve the economics of new forms of energy storage. During 2021, we set out clear short-term targets, connected to senior management remuneration, to make all the commercial aero engines we produce, and our most popular reciprocating engines in Power Systems, compatible with sustainable fuels by 2023 and to work with our armed forces customers to achieve the same goal for the Rolls-Royce engines they use. We are actively testing 100% Sustainable Aviation Fuels (SAF) in our Trent engines right now, while Power Systems is developing engines, and upgrade kits for existing products, for new fuels such as hydrogen, methanol and synthetic e-diesel.

The transition to net zero is both a societal imperative and one of the greatest commercial opportunities of our time.

At the same time we are pioneering new breakthrough technologies that can enable our customers to achieve net zero. Our Power Systems portfolio has already expanded into microgrids and battery storage and during the year we added hydrogen fuel cells for the climate-neutral generation of emergency power for the data centre market, an area where we are already among the world's top three suppliers. We are increasingly bringing our technologies together to provide complete solutions such as for the German Port of Duisburg where we are creating a first-of-a-kind microgrid that combines renewable power, battery storage, fuel cells and hydrogen combustion engines to meet the clean energy needs of a new container terminal. Such a combined solution has potential applications for our Defence customers as they look to decarbonise their estates, which make up a significant proportion of government-owned emissions.

Our innovation is also taking us into exciting new areas, with novel technologies opening up new markets and significant growth opportunities: from all-electric Urban Air Mobility (UAM) and regional aviation to hybrid-electric systems. Perhaps one of the most high-profile technology milestones we passed during the year on our journey to net zero was the success of the Spirit of Innovation, which secured the record for the world's fastest all-electric aircraft. It was powered on its record-breaking runs by the most power-dense propulsion battery pack ever assembled in aerospace. The advanced battery and propulsion technology developed for this programme has exciting applications for the emerging advanced air mobility market. Our customers in this field are already announcing orders, with Vertical Aerospace claiming the largest conditional pre-order book in the electric vertical take-off and landing (eVTOL) industry during the year. Towards the end of 2021, we also announced our involvement with Eve, the UAM business created by Embraer. Our innovation with SMRs, meanwhile, has seen us develop existing technology to enter new markets and sectors where we can offer technological solutions that can provide further growth opportunities.

Executive leadership

During the year, I was pleased to be joined by Panos Kakoullis as our new Chief Financial Officer. He is already having a significant positive impact on our Finance function and has clearly laid out his near-term priorities (see page 19). During the year, Paul Stein announced his intention to step down as Chief Technology Officer (CTO) though he will remain as Chairman of Rolls-Royce SMR; Harry Holt took the decision to leave his role as Chief People Officer (CPO) to take up a post with one of our partners in the UAM market; and Ben Story, Strategic Marketing Director, decided to leave us to pursue new opportunities. I would like to extend the thanks of all of us at Rolls-Royce to the three of them for their hard work and dedication. From the start of 2022, I am delighted to have been joined on the Executive Team (ET) by Grazia Vittadini as CTO. She has extensive expertise, from her career at Airbus, in the emerging and disruptive technologies that will help us on our journey to net zero. Sarah Armstrong, who led the restructuring in Civil Aerospace as People Officer, has joined the ET as CPO. Finally, Rob Watson, who has been instrumental in creating Rolls-Royce Electrical, has joined the ET as President - Electrical.

2022 Outlook and longer-term prospects

As I said earlier, the positive momentum we are generating, along with the growth we can see in our end markets, gives us confidence that we will see further improvement in our performance in 2022 (see page 19). Looking further ahead, our technology and engineering expertise gives us a critical role in enabling the transition to a low carbon global economy. For us, this is a societal imperative as well as one of the greatest commercial and technological opportunities of our time although not without risk. The early-stage businesses, with high growth potential, within our New Markets segment are focused on addressing exactly these opportunities. They are leveraging our existing, in-depth engineering expertise and capabilities to develop new sustainable products. The desire to be part of the solution to climate change is strong throughout Rolls-Royce. The ambition, ingenuity and skill of our people will be instrumental to our success and I would like to thank all of them for their hard work during 2021. There are few companies better placed than us to pioneer the vital solutions we need to create a net zero carbon future. Success in this endeavour will also play a key role in the creation of a more sustainable – in all senses of the word – and prosperous Rolls-Royce.

PIONEERING THE POWER THAT MATTERS

Our **purpose**...	Purpose, Vision and Mission, page 10
...guides our **near-term areas of focus** and **strategic priorities**, which are informed by our **business environment**.	Near-term Areas of Focus, page 11 Strategic Priorities, page 12 Business Environment, page 13
Our strategy is delivered by our **people**, enabled by our **business model**, enacted by our **business units** and measured through our **KPIs**.	People and Culture, page 46 Business Model, page 14 Business Review, page 26 Key Performance Indicators, page 16
Our strategy is underpinned by strong **governance** and leadership...	Governance, page 67
...which manages **risk** and uncertainty...	Principal Risks, page 52
...and creates **value for all our stakeholders**.	Financial Review, page 18 Stakeholder Engagement, page 61

OUR PURPOSE, VISION AND MISSION

We pioneer the power that matters. Power that has an impact and is central to the successful functioning of the modern world. As a broad-based power and propulsion provider, we operate in some of the most complex, critical systems at the heart of global society.

Purpose

We pioneer the power that matters. Power that is vital to the success of our customers and which drives the functioning of the modern world. We harness the potential of cutting-edge technologies to create safe, cleaner and more efficient power and propulsion solutions. We push the boundaries of what is possible as pioneers.

We operate in some of the most complex and critical parts of the global economy, from transport and energy to the built environment. Our products and services enable our customers to connect people, societies, cultures and economies together; they meet the growing need for power generation across multiple industries; and enable governments to equip their armed forces with the power required to protect their citizens.

Vision

We create industrial technologies using expertise built over many years, that puts us in a leadership position. We combine distinct engineering disciplines to deliver highly complex power and propulsion solutions in the air, at sea and on land, building long-term relationships with our customers through service packages. The thread linking the Group together is the technical and engineering expertise needed to create power for very challenging applications. We share this expertise across the Group and create value through deployment in our multiple markets as required by customer demand.

Mission

Global economic growth and rising prosperity are expected to lead to increased demand for travel, trade and energy. As demand for power rises, so are calls from customers for that power to be more compatible with combatting climate change. We believe there are significant business growth opportunities to come from Rolls-Royce playing a leading role in the transition to net zero. At the same time, climate change poses a potentially significant risk to our business to which we must respond with the appropriate governance, risk management, strategic resilience and metrics. We are well positioned to capture the structural growth opportunity presented by the global energy transition and we are excited to be playing a leading role in enabling our customers make the move to net zero (see page 36).

Our values and behaviours

Trust: We strive to outperform the expectation of key stakeholders. We have to earn trust every day and always remember it is easy to lose.

Integrity: We live up to all of our ethical principles and we demonstrate this by being true to ourselves and showing honesty and good judgement in all we do.

Safety: We put health and safety first. We care about the health and safety of our people and our products.

Embrace Agility: We explore different ways of doing things, we respond quickly and adapt to challenges.

Be Bold: We believe in ourselves, push boundaries and speak up.

Pursue Collaboration: We find strength in working together, both inside and outside of our business, and value the diversity of people and perspectives.

Seek Simplicity: We keep it simple and remove complexity, in how we communicate and the way we work.

Near-term areas of focus

The unprecedented times caused by the COVID-19 pandemic, particularly in the civil aviation market, called for unprecedented action in 2020 as we secured our future through the launch of the largest restructuring in our history, a fund raising and a disposals programme. Since then we have made significant progress on the path to recovery, by focusing upon the elements within our control. We are emerging as a better quality business, due largely to the restructuring in Civil Aerospace, and a more balanced one as Defence has remained resilient and Power Systems sees a strong recovery in demand, primarily for sustainable solutions. Our overall strategic direction is unchanged as we capitalise on the opportunities presented by our long-term customer relationships and installed product base; grow our capabilities in sustainable power; harness new digital technologies and create new business opportunities. Many of these individual elements, such as the drive for sustainable power, are now fundamental to our future direction. Our journey to creating a better quality and more balanced business, however, is far from over. As we look at the near term, there are three areas upon which we will focus.

Delivering on our commitments

We made clear commitments alongside the fund raising in late 2020, which we must deliver and which will assist us in rebuilding our balance sheet and achieving our mid-term ambition of returning to an investment grade credit rating. Very significant progress has been made on the restructuring (see page 26), assisting us in meeting our pledge to turn cash flow positive sometime during the second half of 2021. We must protect the savings that have been made and ensure value and cost consciousness remain a central tenet of the whole business as we look to future growth. During the year, we also announced a series of agreements as a result of our programme to raise around £2bn from disposals (see page 77) and we aim for completion in the first half of 2022.

Maximise value from existing capabilities

We are the beneficiaries of years – in some cases decades – of hard work to build up our market share, especially in Civil Aerospace, and now our focus is on optimising the returns from these positions. The current restructuring is a key enabler of this optimisation. We are also moving beyond a period of unprecedented investment in new Civil Aerospace engine programmes, with four new widebody engines and three new business jets launched in the last decade, to a period in which we must realise the benefits of that effort and investment. This means we must remain focused on our services strategy, increasing the opportunity to generate value from the installed product base, and supporting our products by innovating to extend their service life. Extending the life of our products in service also means enabling our customers to use them in a way that is compatible with net zero. We can pull the technology levers in our control through testing our existing products with new lower carbon and net zero fuels (see pages 37 and 42) and creating upgrade kits, where necessary, to assist adoption.

Across all our business units, the underlying driver of services revenues will continue to be the size of our installed product base – that is the number of assets in the market. This provides resilience against Original Equipment (OE) sales volatility and allows us to continuously increase the scope of our aftermarket reach and to maximise value from the whole system life of our solutions. Some areas of the business, such as Power Systems, are at an earlier stage in this process than others, notably Civil Aerospace.

Seizing opportunities for growth

There are opportunities for growth, both within our existing businesses and from new areas which are emerging. In our Defence business, for instance, governments around the world are exploring approaches to reduce the carbon footprint of their armed forces, which means demand for newer, more efficient, powerplants and for sustainable fuels. Our airline and business jet customers are keen to address the same issues, as are our customers in the multiple sectors addressed by Power Systems. The context in which we are creating one of the world's leading industrial technology companies is that of a world which is taking on the challenge of achieving net zero by 2050. It represents a significant commercial opportunity for Rolls-Royce as some of our core applications are hard to decarbonise and require deep domain knowledge, which reduces the potential for the emergence of disruptive new entrants. The sectors in which we operate sit at the heart of modern society. As other parts of the global economy decarbonise, they will contribute a more significant proportion of remaining emissions. As a result, our innovation in sectors where reducing emissions is tough, has a fundamental role to play in enabling and even accelerating the overall global transition to a net zero carbon future.

OUR STRATEGIC PRIORITIES

Our purpose, vision and mission provide an overall framework within which our strategic focus for the next several years sits. To complete the picture, we have a priorities framework which provides our people with clear guidance on our in-year priorities across five areas.

Secure a sustainable future

Our priorities framework is used by our business units in the setting of individual in-year targets. Our overall theme for 2022 is to secure a sustainable future for our business, not just in terms of making progress on our continued journey towards net zero but making significant strides towards meeting our ambition of creating a better quality and more balanced business. The five priority areas expand beyond what each part of the business needs to achieve in order to meet our in-year financial targets (see page 19).

Key Performance Indicators

Financial Performance Indicators

A Order backlog
B Underlying revenue
C Underlying operating profit/(loss)
D Capital expenditure as a proportion of underlying revenue
E Self-funded R&D as a proportion of underlying revenue
F Free cash flow from continuing operations

Non-financial Performance Indicators

G Customer metric
H Employee engagement

See Key Performance Indicators on pages 16 and 17.

Strategy

All our people have clear line of sight not just to the strategic priorities of their team but to their business unit and the Group as a whole. Leaders are charged with helping individual employees understand the role they play in meeting our strategy. As we play our part in enabling the transition to net zero we have also tied part of our senior management remuneration to meeting our sustainability targets introduced in 2021 (see page 42).

Customers

Links to KPI G

Our customers are vital to our success and we must ensure we continually strive to provide the best possible service by delivering the value and quality we promise, at the time we promise, for the price we promise. Increasingly, our customers are requiring us to develop more sustainable solutions. We track customer engagement and success across the business, including for our internal support functions.

Efficiency

Links to KPIs C F

To ensure that we can maintain and improve our competitiveness, fund future growth and meet our promises to investors we must ensure we continue to champion efficiency across our whole business. For instance, we must retain the benefits of the restructuring programme as civil aviation recovers and returns to growth. We track cost metrics across the business and take effective action swiftly.

People

Links to KPI H

Our people and culture are vital to our long-term success (see page 46) and we have a platform for engagement tracking which operates across the Group, allowing individual businesses to create action plans and set targets which roll-up to an overall score against which a proportion of senior management remuneration is set annually (see page 88).

Financial

Links to KPIs A B C D E F

We must deliver on the financial commitments that we have made. We must continue our journey to rebuild strength in our balance sheet by meeting our financial goals, including driving positive net cash flow and increased profitability. This will play a vital role in assisting us in our ambition to return to an investment grade credit profile (see page 19).

BUSINESS ENVIRONMENT

Climate change

We recognise that human behaviour is increasing the levels of greenhouse gas in the atmosphere and accelerating global climate change. This is one of the world's greatest and most urgent challenges and has the potential to undermine every nation's ability to achieve sustainable development. Many of the countries we operate in, as well as a number of our customers, have made commitments to significantly reduce or reach net zero carbon emissions by the middle of the century. For example, our Defence customer, the RAF, our airline customers through IATA, and our Power Systems customers in the marine sector represented by the International Maritime Organization have published far-reaching commitments. Transitioning the essential, but difficult to decarbonise industries in which we operate to net zero is a tremendous challenge, but also provides business opportunities for bringing cutting-edge technologies to market.

Our response

To us, being sustainable means understanding the impact our business has on the world around us, and the impact climate has on our Group. We use this understanding to inform our purpose, strategy, and the decisions we make. Reducing the carbon impacts of our product portfolio and accelerating the decarbonisation of the sectors in which we operate is the most significant contribution Rolls-Royce can make to a more sustainable future; it is our mission to lead the transition to net zero. To that end, we are increasing our investment in lower carbon and net zero technologies. There are already tangible results of our efforts in advancing the efficiency of our existing portfolio, making new and existing products compatible with net zero operation, and pioneering new technologies in electric flight, SMRs, fuel cells, and microgrids.

Digitalisation

The digital revolution has already transformed ways of living, working, and entire industries. As a consequence of the COVID-19 pandemic, investment in digitalisation and the adoption of digital technologies has increased. This trend has been evident in industries like entertainment, where digital players have been able to outpace traditional rivals; and is increasingly reaching industries that have remained largely immune to digital disruption until recently. In our end markets, the US Department of Defense (DoD) for example, has more than doubled its budget for cyber in the last ten years, large players in the aviation industry are increasingly offering digital services, and the Internet of Things (IoT) platforms have been established to enable energy management and automation for power generation and consumption. Vast amounts of data are being generated by the over ten billion IoT connected devices globally today – forecast to reach over 30 billion by 2025. To draw insights, big data analytics and artificial intelligence are increasingly used, which require tremendous amounts of processing – now increasingly done via cloud computing services. As these technologies converge and become increasingly accessible and affordable, further innovation and disruption is sure to occur in all industries, including our own.

Our response

Having pioneered engine health monitoring for aircraft engines over 25 years ago, we have a heritage in data innovation. Pursuing our Civil Aerospace IntelligentEngine vision, we continue to utilise digital twins to maximise aircraft availability; and increasingly for product innovation, advanced manufacturing and for enabling the journey to electric flight. Our TwinAlytics digital services allow Defence customers securely to gather and analyse data and simplify decision-making processes; we are also extending our digital capabilities as part of the Tempest programme. In Power Systems, we operate the *mtu* Go platform, which enables users to quickly analyse system data, determine important action steps and plan them efficiently. Through our R² Data Labs team, which focuses on data innovation within Rolls-Royce, we have been able to deliver over 60,000 hours of learning on digital and AI to our employees, connected to hundreds of companies through our ecosystem, and were able to complete transformative digital projects in a wide range of areas. Finally, we are positioning Rolls-Royce as a thought leader in the space of AI ethics, having published and refined The Alethia Framework that guides developers, executives and boards through ethical considerations surrounding artificial intelligence.

Population and economic growth

As the global population is set to increase to over 9.7 billion people by 2050 (a rise of more than 20% from 2020) and global gross domestic product is set to roughly double by that time, investment in clean power will also increase significantly. This will be particularly evident in the markets served by Power Systems, including power generation, commercial marine and industrial applications. Demand for Defence products is determined by national defence budgets – these are closely linked to economic growth and are expected to increase at low single digit rates in real terms each year. Further, as more people reach middle and higher income levels, it is expected that revenue passenger kilometres will increase; by some estimates more than double by 2050, a key driver for the growth of our Civil Aerospace business.

Our response

Addressing diverse end markets through our Defence and Power Systems businesses has helped us be more resilient to the short-term shocks caused by COVID-19. At the same time, we are positioning ourselves for growth by directly addressing key growth markets that will particularly benefit from increased population and economic activity, for example, by establishing dedicated business units for China and for sustainable power solutions within Power Systems. Through Rolls-Royce SMR, we seek to bring to scale a low-carbon source of power and have obtained significant government and partner funding. In pioneering electric flight, we see the potential for us to disrupt in the commuter aircraft and urban air mobility markets – both of which will increasingly become relevant in a more urban and densely populated world.

BUSINESS MODEL

We believe we have a sustainable business model which will create value for all our stakeholders over the long term.

Our cross-cutting capability and assets that support our strategy

Brand and heritage

Our brand has global appeal; is enduring; engages a wide range of stakeholders; and is a powerful tool for attracting customers, partners and talent.

People and culture

We create an environment where all our people can be at their best. We work hard to release their full potential.

Innovation and technology

Delivering highly complex systems solutions has enabled us to build a significant breadth of disciplines; while the nature of our products means we have acquired extraordinary depth.

Partnerships

We build meaningful relationships with partners across the value chain.

Global network and infrastructure

Our geographic footprint ensures we are able to serve customers where they need us.

Digitalisation

We use digital tools and skills across our business to enable growth without a commensurate increase in costs.

Business excellence

We drive a culture of continuous improvement.

See our Viability Statement on page 60 and Stakeholder Engagement on page 61.

Our competitive advantage comes from:

Cutting-edge technologies
Our technologies ensure that our customers have the vital power that meets their emerging needs in an increasingly sustainable manner.

System solutions
We integrate individual enabling technologies into complete systems and power solutions, providing customers with the ability to work with a single partner.

1 Anticipate the needs of our customers

Link to risks: b, d, e, h, i, j, k

2 Develop cutting-edge technologies

Link to risks: a, b, d, e, f, g, j, k

3 Design solutions

Link to risks: a, b, d, e, f, g, k

4 Develop world-class production capability

Link to risks: a, b, c, d, e, f, g, k

DISCIPLINED CAPITAL ALLOCATION

1. Anticipate the needs of our customers
Our focus on building complete power solutions provides the basis for strong customer relationships. Increasingly, our customers are requiring us to develop more sustainable solutions as they look to make the transition to net zero. Our aftermarket model of through-life support further deepens our connection with customers.

2. Develop cutting-edge technologies
Our products rely upon cutting-edge technologies, which are generated from intellectual property developed over decades and often in collaboration with our long-term partners.

3. Design solutions
We harness the potential of digital technologies and design thinking to create solutions that generate the greatest value from our cutting-edge technologies.

4. Develop world-class production capability
We use our production expertise and network of partners to harness new manufacturing techniques and technologies.

System life
Our products have significant aftermarket requirements during their lengthy operating lives and we provide complete through-life support.

5
Grow installed original equipment base
Link to risks:
a, b, c, d, e, f, g, i, j, k

6
Capture through-life value of in-service products
Link to risks:
a, b, c, d, e, f, g, i, j, k

7
Generate stakeholder value
Link to risks:
a, b, c, d, e, f, g, h, i, j, k

See page 19

5. Grow installed original equipment base
Increasing our installed product base generates both in-year growth and the potential for our business to capture long-term service revenue.

6. Capture through-life value of in-service products
We believe our substantial installed product base provides a large, captive, visible, and long-term revenue, profit and cash flow stream.

7. Generate stakeholder value
Our activities worldwide generate value for a wide range of stakeholders.

Principal risks
- a Safety
- b Strategic transformation
- c Business continuity
- d Climate change
- e Competitive environment
- f Compliance
- g Cyber threat
- h Financial shock
- i Market shock
- j Political risk
- k Talent and capability

See Principal Risks page 52

Value creation for our stakeholders

Customers
We develop product solutions that improve the competitiveness of our customers and assist them in their journey to net zero.

See Business Review page 26

Investors
We aim to generate attractive returns for investors over the long term.

See Remuneration Committee Report page 87

Employees
To help our people be at their best, we enable them to learn and develop in a style and at a pace that suits them, at every point of their career.

See People and Culture page 46 and Non-financial KPIs page 17

Partners
We create partnerships based on collaboration where each partner benefits from the relationship.

Communities
We improve the communities that we impact locally, nationally and globally.

See People and Culture page 46

GROSS R&D EXPENDITURE
£1.2bn

2021 TOTAL SHAREHOLDER RETURN
10.45%

INVESTMENT IN LEARNING AND DEVELOPMENT (HOURS)
263,840

SPEND WITH EXTERNAL SUPPLIERS
£7.9bn

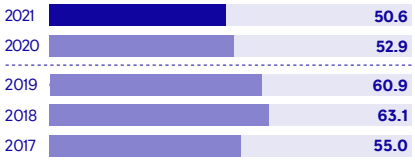
HOURS OF EMPLOYEE TIME VOLUNTEERED
26,427

See Stakeholder Engagement page 61

KEY PERFORMANCE INDICATORS

FINANCIAL PERFORMANCE INDICATORS [1,2,3]

ORDER BACKLOG (£BN)

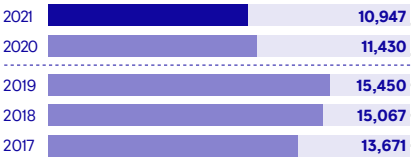


How we define it
Total value of firm orders placed by customers for delivery of products and services where there is no right to cancel. This KPI is the same as the statutory measure for order backlog. See note 2 on page 136 for more information.

Why it is important
Order backlog provides visibility of future business activity.

Link to remuneration
Customer orders drive future revenue growth which in turn, enables profit and cash flow growth. Profit and free cash flow performance are key financial metrics in the Rolls-Royce incentive plan, accounting for 75% of the metrics in 2021.

UNDERLYING REVENUE (£M)

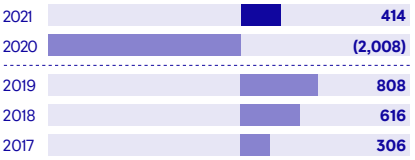


How we define it
Revenue generated from operations at the average exchange rate achieved on effective settled derivative contracts in the period that the cash flow occurs. See note 2 on page 132 for more information.

Why it is important
Underlying revenue provides a measure of business growth and activity.

Link to remuneration
Underlying revenue growth maximises the opportunity to improve profit and free cash flow performance in the year, both of which are financial metrics in the Rolls-Royce incentive plan.

UNDERLYING OPERATING PROFIT/(LOSS) (£M)

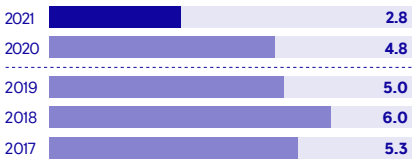


How we define it
Operating profit generated from operations at the average exchange rate achieved on effective settled derivative contracts in the period that the cash flow occurs. It excludes exceptional and one-off items. See note 2 on page 132 for more information.

Why it is important
Underlying operating profit indicates how the effect of growing revenue and control of our costs delivers value for our shareholders.

Link to remuneration
Profit is a key financial performance measure for our Rolls-Royce incentive plan.

CAPITAL EXPENDITURE AS A PROPORTION OF UNDERLYING REVENUE (%)

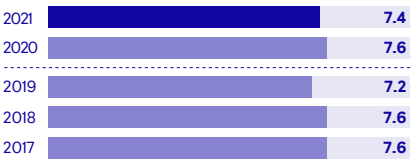


How we define it
Cash purchases of PPE in the year for continuing operations relative to underlying revenue.

Why it is important
This measure demonstrates the balance between essential investments in infrastructure and delivering short-term shareholder returns.

Link to remuneration
Disciplined allocation of capital expenditure optimises in-year profit and cash flow performance without compromising longer-term growth. Long term metrics in the Rolls-Royce incentive plan in 2022 and 2023 reward strong financial performance.

SELF-FUNDED R&D AS A PROPORTION OF UNDERLYING REVENUE (%)

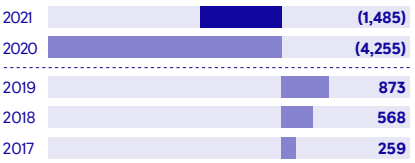


How we define it
In-year self-funded cash expenditure on R&D before any capitalisation or amortisation relative to underlying revenue.

Why it is important
This measure demonstrates the balance between long-term strategic investments and delivering short-term shareholder returns.

Link to remuneration
Disciplined control and allocation of R&D expenditure optimises in-year profit and cash flow performance without compromising long-term growth through innovation. There is a balance of long term metrics which reward strong financial performance and also relative returns to our shareholders through total shareholder return (TSR) in the 2023 incentive plan.

FREE CASH FLOW FROM CONTINUING OPERATIONS (£M)



How we define it
Free cash flow is the change in cash and cash equivalents excluding: transactions with ordinary shareholders; amounts spent or received on activity related to business acquisitions or disposals; financial penalties paid; exceptional restructuring payments; proceeds from increase in loans; and repayment of loans. Cash flow is our statutory equivalent, see note 28 on page 183.

Why it is important
Free cash flow is a key metric used to measure the performance of our business and how effectively we are creating value for our shareholders. It enables the business to fund growth, reduce debt and make shareholder payments.

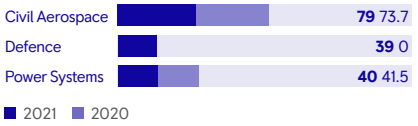
Link to remuneration
Free cash flow is a key financial metric in the Rolls-Royce incentive plan.

[1] Following the adoption of IFRS 15 *Revenue from Contracts with Customers* in 2018, the 2017 figures were restated.
[2] The adoption of IFRS 16 *Leases* in 2019 had no material impact on our financial KPIs, see page 214 for more information.
[3] 2021 figures represent the results of continuing operations. 2020 figures have been restated, where relevant, to show ITP Aero as a discontinued operation in line with 2021 reporting. 2017, 2018 and 2019 figures have not been restated.

A reconciliation from the alternative performance measure to its statutory equivalent can be found on pages 215 and 216.

NON-FINANCIAL PERFORMANCE INDICATORS

CUSTOMER METRIC (%)



How we define it
In 2019, we introduced a new balanced scorecard of metrics for each business. The business scorecards include on-time delivery, engine availability and quality amongst other indicators. The focus for 2021 has been on the individual business performance against the scorecards.

Why it is important
Customer satisfaction demonstrates whether we are meeting our commitments to our customers across our businesses. This, in turn, drives our cash and profitability.

Link to remuneration
This metric accounts for up to 15% of the individual business incentive outturns.

EMPLOYEE ENGAGEMENT (SCORED 1 TO 5) [4]

How we define it
In 2019, we introduced a new survey, Gallup Q12. Responses are scored on a scale of one to five. The employee engagement score averages the responses to all 12 questions in the survey. See pages 48 to 49 for more information.

Why is it important
Our people are crucial to delivering future business success. This is an objective way to assess how engaged our employees are with the business and its leaders.

Link to remuneration
Employee engagement performance against our target accounts for 10% of our incentive plan.

SUSTAINABILITY

In 2021, sustainability was 5% of the Rolls-Royce incentive plan. Going forward we expect sustainability to become a more prominent metric in our incentive plans.

See Reconciliation of Alternative Performance Measures (APMs) to their Statutory Equivalent on pages 215 and 216 for additional commentary on our financial KPIs.

[4] External assurance over the employee engagement score is provided by Bureau Veritas. See page 211 for their assurance statement.

FINANCIAL REVIEW

We have focused on the elements within our control to deliver on our commitments and improve our financial performance. As a result, we are building a better and more balanced business.

PANOS KAKOULLIS, CHIEF FINANCIAL OFFICER

We can be proud of our performance in 2021. We have focused on the elements within our control, delivered on our commitments and driven improving cash flow and profits. We have also invested prudently in the products and programmes that are key to the transition of our markets to net zero carbon emissions by 2050.

I joined Rolls-Royce in May 2021, attracted by the opportunity to make a difference and to be a part of a company that is right at the heart of the energy transition with the technology and engineering excellence to transform the way we provide the power the world needs. I am excited by the journey ahead and encouraged by what we have achieved so far, while remaining very focused on the challenges ahead.

Delivering on our commitments

As a result of the actions we have taken, we are a better quality and more balanced business. We have strong order books and revenue growth in Power Systems and Defence and a structurally lower cost base in Civil Aerospace. As a result, we are more able to withstand macro uncertainties and we are well positioned to benefit from the return to pre-pandemic levels of activity.

Our fundamental restructuring programme to remove over 9,000 roles from continuing operations, has largely been completed, reducing our Civil Aerospace headcount by around a third. This rapid action delivered more than £1.3bn of run-rate cost savings by the end of 2021, one year earlier than our 2022 target. These are sustainable cost savings that are supported by better ways of working as well as automation and digitalisation to keep cost increases proportionately low when activity levels rise.

A strong balance sheet and liquidity position are important. We ended 2021 with £7.1bn of liquidity with no debt maturities due before 2024. We repaid €750m maturing bond and the £300m Covid Corporate Financing Facility (CCFF) commercial paper in the first half of the year and extended the duration of the unused £1.0bn loan facility to 2024.

In line with our 2020 commitment to rebuild our balance sheet, we have announced disposals to generate around £2bn of proceeds and retained cash that will be used to strengthen our financial position. Two of these disposals completed in 2021 and one more completed early in 2022. The final agreed disposal, ITP Aero, is expected to complete in 2022. We remain focused on reducing our net debt and aim to return to an investment grade credit profile in the medium term.

Improving financial performance

We generated £414m of underlying operating profit from continuing operations in 2021, recovering from a loss in the prior year as the benefits of our actions to restructure the business along with growth in Power Systems and Defence helped to deliver a substantial improvement in our financial performance.

Our 2021 free cash outflow from continuing operations of £1.5bn was significantly better than the £2bn outflow guided at the start of the year, despite a slower than expected recovery in international travel. This was driven by fast delivery of cost and efficiency savings and also the benefit from the delayed timing of around £300m concession payments. The sequential £2.8bn improvement in 2021 was a huge step forward and we are aiming to continue in 2022 with guidance to deliver a modestly positive free cash flow outcome.

Our end markets improved in 2021, helping to drive better performance and order intake across the Group. In Civil Aerospace, business aviation flying hours returned to pre COVID-19 levels of activity while large engine flying hours saw a gradual recovery. This drove increased cash receipts on our long-term service agreements. In Power Systems, our order intake increased significantly reflecting recovery in our industrial and power generation markets in addition to continued resilience in both yachts and governmental demand. Defence, which was resilient throughout the pandemic, continued to perform well and contributed significantly to Group profitability and cash flow.

Investing to drive growth and deliver sustainable value

Balancing the opportunity to invest with the need to strengthen our balance sheet is critical to our long-term vision as a leading industrial technology company.

In 2021, we spent £1.2bn on research and development, £366m of which was paid for by funding from third parties. We are an innovative company with deep and broad engineering and technology capability. Our continued prioritisation of targeted investment, even in the most challenging years, drove commercial success in 2021, including commercial wins of our Pearl engine on new airframes, the B-52 engine replacement contract, a first-of-a-kind hydrogen micro-grid, a world speed record for all-electric flight and entry into the UK GDA for our SMRs.

Our technology and engineering expertise gives us a critical role in enabling the transition to a low carbon global economy. The creation of our New Markets segment, bringing together Rolls-Royce Electrical and Rolls-Royce SMR, reflects the strategic importance and future financial potential of these businesses and increases the visibility of the early-stage investment we are making to create long term value from high potential opportunities for sustainable growth.

Our financial priorities

In the near term, I have three clear priorities for Finance. Firstly, to ensure we deliver on our promises. We will strengthen our balance sheet by completing our programme of disposals. We will finish the actions related to our restructuring with the closure of the final sites and associated role reductions and stay focused on sustaining the productivity improvements, keeping cost increases proportionately low as activity levels rise. Secondly, to simplify our reporting. We want to make our financial communications easier to understand. We intend to simplify our reporting, break down the complexity and focus on the key value drivers and targets in a more balanced and straightforward way. Thirdly, to invest wisely for the future. We are at an exciting point in our journey with the opportunity to lead our markets in our transition to net zero. Choosing the right investments and balancing the development of new solutions with investment in our established businesses is critical to generating good returns today and in the longer term.

2022 Outlook

We are well positioned for the anticipated growth in our end markets as the impact of the COVID-19 pandemic eases. This, along with consistent good performance in Defence, gives us confidence that we will see positive momentum in our financial position in 2022, despite the challenges and risks around the pace of market recovery, global supply chain disruption and rising inflation. We expect low-to-mid-single digit revenue growth and we expect our operating profit margin to be a low-to-mid single digit percentage as we increase our engineering spend to support sustainable growth opportunities. We expect to generate modestly positive free cash flow in 2022, seasonally weighted towards the second half of the year.

Our framework for capital allocation and investment

It is key that we optimise our investments in order to deliver our strategy most effectively, maximise our returns and achieve our net zero commitments. In 2021, our approach to analysing investment cases was updated to place a greater focus on sustainability as well as other ESG considerations. We use an investment appraisal process that considers all Group-wide investment cases against a balanced set of criteria. This has been designed to ensure we both develop as well as adopt the most appealing investment choices which best deliver against our commitments and goals.

The approval process for investments fits within our overall governance framework. All projects must demonstrate alignment with the criteria identified. Smaller scale projects are approved at the business level. Above a defined threshold, approval is sought through the Investment Review Committee, a sub-committee of the Executive Team, chaired by the Chief Financial Officer. The Board has approval rights over our largest investments.

Our levels of investment will be prudently managed, enabling us to deliver on our strategy whilst generating improved levels of free cash flow. This will enable us to reduce net debt and return to an investment grade credit profile in the medium term. We remain restricted on making shareholder payments until 2023, after which we will revisit our shareholder payment policy as cash flow further improves and our balance sheet strengthens.

Four primary factors are taken into account when making investment decisions:

1. Returns
Does it add shareholder value through explicit financial returns?

2. Risks
Is the proposal inside or outside our risk appetite?

3. Carbon
How does it contribute towards the transition to net zero?

4. Other ESG
What is the impact on the wider community? Is it required to protect our employees and stakeholders?

DEFINING OUR ALTERNATIVE PERFORMANCE MEASURES

Business performance is reviewed and managed on an underlying basis. These alternative performance measures reflect the economic substance of trading in the year, including the impact of the Group's foreign exchange activities.

The tables below and to the right summarise the adjustments between reported and underlying results for cash flow, revenue, and operating profit.

For more information on the reconciliation of alternative performance measures (APMs) to their statutory equivalent, including the definition of APMs, please see pages 215 to 216.

Free cash flow

£m	2021	2020
Statutory cash flow	**(775)**	(995)
Net cash flow from changes in short-term investments, borrowings & lease liabilities	**(658)**	(1,636)
Movement in net funds from cash flows	**(1,433)**	(2,631)
Exclude: capital element of lease payments	**(374)**	(284)
Rights issue	**–**	(1,972)
Payments to shareholders	**4**	92
Business acquisitions and disposals	**(49)**	119
Penalties paid on agreements with investigating bodies	**156**	135
Restructuring exceptional cash flow	**231**	323
Other underlying adjustments	**23**	33
Free cash flow	**(1,442)**	(4,185)
Less: discontinued operations free cash flow	**(43)**	(70)
Free cash flow from continuing operations	**(1,485)**	(4,255)

Revenue from continuing operations

£m	Notes	2021	2020
Statutory revenue		**11,218**	11,491
Derivative & FX adjustments	2	**(271)**	(61)
Underlying revenue		**10,947**	11,430

Operating profit/(loss) from continuing operations

£m	Notes	2021	2020
Statutory operating profit/(loss)		**513**	(1,972)
Derivative & FX adjustments	2	**40**	(1,003)
Programme exceptional charges	2	**(105)**	(620)
Restructuring exceptional charges	2	**(45)**	470
Acquisition accounting & M&A	2	**50**	85
Impairments and asset write-offs	2	**(9)**	1,336
Pension past-service credit	2	**(47)**	(308)
Other underlying adjustments	2	**17**	4
Underlying operating profit/(loss)		**414**	(2,008)

GROUP STATUTORY RESULTS

Statutory income statement

£ million	2021	Restated 2020	Change
Revenue	**11,218**	**11,491**	**(273)**
Gross profit/(loss)	**2,136**	**(187)**	**2,323**
Operating profit/(loss)	**513**	**(1,972)**	**2,485**
Gain/(loss) on disposal/acquisition of businesses	56	(14)	70
Net financing costs	(863)	(813)	(50)
Loss before taxation	**(294)**	**(2,799)**	**2,505**
Taxation	418	(302)	720
Profit/(loss) for the year from continuing operations	**124**	**(3,101)**	**3,225**
Earnings per share from continuing operations (p)	**1.48**	**(51.81)**	**53.29**

Statutory revenue of £11.2bn was 2% lower compared with 2020 driven by a decline in Civil Aerospace revenue, due to lower OE deliveries and shop visit volumes. Revenue included a £214m positive LTSA catch-up in Civil Aerospace compared with a £(1.1)bn negative revenue catch-up in the prior year. Defence benefitted from increased spare parts and spare engine sales. Power Systems revenues were driven by our more resilient end markets, with increased demand for Services from our defence and industrial customers.

Gross profit returned to profit of £2.1bn compared with a prior year loss of £(187)m reflecting growth and cost discipline as well as substantial cost savings and productivity gains delivered by the restructuring programme. Gross profit also included a £105m provision reversal in relation to the Trent 1000 engine programme (2020 £620m) and a £256m positive LTSA catch-up in 2021. The prior year comparative included £(1.8)bn of net charges relating to negative LTSA catch-ups, impairments and write-offs.

Operating profit improved significantly to £513m from a prior year £(2.0)bn loss. Research & Development costs were £(778)m down 35% from 2020 as a consequence of one-off impairments in the prior year. Commercial & Administrative costs of £(890)m were 15% higher than the prior year (2020:£(771)m), which benefitted from a one-off pension credit partly offset by a restructuring provision.

Loss before taxation of £(294)m included £(538)m net fair value losses on derivative contracts, £(245)m net interest payable and a net £56m profit from disposals.

Profit from continuing operations of £124m included a tax credit of £418m, (2020: tax charge £302m), which mostly related to movements in deferred tax balances due to the impact of the UK tax rate change from 19% to 25%, effective from April 2023. The tax charge in 2020 was mostly driven by the derecognition of some of the deferred tax asset on UK losses previously recognised, partly offset by a credit relating to the change in the UK tax rate from 17% to 19%.

Earnings per share of 1.48p (2020: (51.81)p) reflected the improvement in profit and an increase in weighted average number of shares compared with the prior year to reflect the full year impact of the bonus element of the rights issue completed in November 2020.

Statutory balance sheet

£ million	Statutory 2021	Adjusted 2020	Held for sale [1]	Statutory 2020	Change excluding HfS [1]
Intangible assets	4,041	4,191	954	5,145	(150)
Property, plant and equipment	3,917	4,103	412	4,515	(186)
Right of use assets	1,203	1,390	15	1,405	(187)
Joint ventures and associates	404	386	8	394	18
Contract assets and liabilities	(8,836)	(8,945)	23	(8,922)	109
Working capital [3]	1,458	464	106	570	994
Provisions	(1,582)	(1,907)	(38)	(1,945)	325
Net debt [4]	(5,110)	(3,556)	(71)	(3,627)	(1,554)
Net financial assets and liabilities [4]	(3,034)	(3,077)	(34)	(3,111)	43
Net post-retirement scheme deficits	(225)	(673)	–	(673)	448
Taxation	1,787	1,240	55	1,295	547
Held for sale	1,305	1,490	(1,430)	60 [2]	(185)
Other net assets and liabilities	36	19	–	19	17
Net liabilities	**(4,636)**	**(4,875)**	**–**	**(4,875)**	**239**
Other items					
US$ hedge book (US$bn)	22			25	
Civil LTSA asset	915			726	
Civil LTSA liability	(7,129)			(6,841)	
Civil net LTSA liability	(6,214)			(6,115)	

[1] 2020 figures have been adjusted to reflect ITP Aero being classified as a disposal group held for sale since 30 June 2021; the Group's investment in Airtanker Holdings Limited being classified as a non-current asset held for sale since 13 September 2021; and certain tangible assets related to the Group's site rationalisation activities being classified as held for sale at 31 December 2021.
[2] Relates to Bergen Engines AS and the Civil Nuclear Instrumentation & Control business which were classified as disposal groups held for sale at 31 December 2020. Both disposals were completed in 2021.
[3] Net working capital includes inventory, trade receivables and payables and similar assets and liabilities.
[4] Net debt includes £37m (2020: £251m) of the fair value of derivatives included in fair value hedges and the element of fair value relating to exchange differences on the underlying principal of derivatives in cash flow hedges. Net debt has been adjusted to exclude net debt held for sale.

Key drivers of balance sheet movements, adjusted for assets held for sale, were:

Intangible assets: Net decrease of £(150)m included additions of £223m primarily related to programme development in Civil Aerospace and Power Systems, and investment in the development of software applications across the business. There was an adverse foreign exchange impact of £(146)m and amortisation for the year was £(281)m.

Property, plant and equipment: Net decrease of £(186)m included additions of £299m, more than offset by £(439)m of depreciation and a foreign exchange impact of £(63)m. Additions were £254m lower than prior year as a result of focus on prioritisation of business critical infrastructure projects and focus on reducing capital intensity.

Right-of-use assets: Net reduction of £(187)m was driven by £(272)m depreciation charged in the year partly offset by additions of £82m.

Contract assets and liabilities: The £109m movement in net liability balance was mainly driven by the utilisation of deposits, foreign exchange movements and invoiced LTSA receipts in Civil Aerospace exceeding revenue recognised in the year, partly offset by £214m LTSA catch-ups.

Working capital: The £1,458m net current asset position was £994m higher than prior year, due to a £0.7bn reduction in payables driven mostly by Civil Aerospace, including a £0.5bn reduction in concessions payable as payments significantly exceeded new concessions accrued in the year, alongside a modest reduction in trade payables due to the timing and volume of supplier payments. We also made the final financial penalty payment of £156m related to agreements reached in January 2017. Inventory increased by £0.2bn, mostly in Power Systems and Defence, to support 2022 sales.

Provisions: The £325m decrease primarily reflected the utilisation and reversal of restructuring provisions of £212m as the restructuring programme nears completion, utilisation of Trent 1000 provision of £199m, partly offset by £82m of contract loss provision net of reversals.

Net debt: Increased from £(3.6)bn to £(5.1)bn primarily driven by free cash outflow of £(1.5)bn.

Net post-retirement scheme surpluses/deficits: £448m movement driven by an increase in the UK scheme surplus reflecting company contributions and actuarial gains and a decrease in the overseas schemes deficit mainly attributable to actuarial gains and foreign exchange.

Taxation: The net tax asset increased by £547m, most of which (£344m) related to remeasurement of the opening UK deferred tax balances due to the UK tax rate change from 19% to 25% effective from April 2023. In addition, there was an increase in the deferred tax asset on unrealised losses on derivatives (£96m) and certain other UK deferred tax assets (£126m) reflecting tax relief that will be taken in the future, based on profit forecasts.

GROUP UNDERLYING [3] RESULTS

Underlying income statement

£ million	2021	Restated 2020	Change	Organic Change [1]	M&A [2]	FX
Underlying revenue	**10,947**	**11,430**	**(483)**	**(214)**	**19**	**(288)**
Underlying OE revenue	4,911	5,626	(715)	(598)	19	(136)
Underlying services revenue	6,036	5,804	232	384	–	(152)
Underlying gross profit/(loss)	**1,996**	**(613)**	**2,609**	**2,672**	**6**	**(69)**
Gross margin %	*18.2%*	*(5.4)%*	*23.6%pt*	*23.8%pt*		
Commercial and administration costs	(899)	(866)	(33)	(45)	(8)	20
Research and development costs	(774)	(708)	(66)	(79)	(1)	14
Joint ventures and associates	91	179	(88)	(82)	(1)	(5)
Underlying operating profit/(loss)	**414**	**(2,008)**	**2,422**	**2,466**	**(4)**	**(40)**
Underlying operating margin	*3.8%*	*(17.6)%*	*21.4%pt*	*21.8%pt*		
Financing costs	(378)	(1,985)	1,607	1,605	–	2
Underlying profit/(loss) before taxation	**36**	**(3,993)**	**4,029**	**4,071**	**(4)**	**(38)**
Taxation	(26)	(46)	20	15	–	5
Profit/(loss) for the period	**10**	**(4,039)**	**4,049**	**4,086**	**(4)**	**(33)**
Underlying earnings per share (p)	**0.11**	**(67.48)**	**67.59**	**67.94**		

[1] Organic change at constant translational currency (constant currency) applying full year 2020 average rates to 2021, excluding M&A. All commentary is provided on an organic basis unless otherwise stated.
[2] M&A includes 2020 Power Systems acquisitions comprising of Kinolt Group S.A. and Servowatch Systems Limited (SSL).
[3] Underlying performance excludes the impact of year-end mark-to-market adjustments, the effect of acquisition accounting and business disposals, impairment of goodwill and other non-current and current assets, and exceptional items. Adjustments between the underlying income statement and the statutory income statement are set out in note 2 in the Consolidated Financial Statements on page 137.

Underlying revenue of £10.9bn reflected a more balanced contribution from our business units. Services revenue increased 7% while OE fell 11%. Services revenue included a £214m Civil Aerospace LTSA revenue catch-ups compared with £(1.1)bn in the prior year.

Underlying gross profit of £2.0bn reflected the benefit of cost reductions and a £256m Civil Aerospace LTSA catch-up. The prior year loss of £(613)m included £(1.3)bn of one-off COVID-19 related charges, mainly relating to negative Civil Aerospace LTSA catch-ups.

Underlying operating profit was £414m, with a return to profit reflecting the higher gross profit in the year partly offset by lower contribution from JVs and associates.

Underlying profit before tax of £36m reflected net financing costs of £(378)m with higher charges relating to interest bearing debt compared with the prior year. In 2020, a £(1.7)bn one-off underlying finance charge was taken to close out over hedged positions on the USD hedge book.

Underlying profit for the year of £10m included a tax charge of £(26)m (2020: £(46)m). The tax charge reflects the tax arising on overseas profits and increases in other deferred tax assets. Deferred tax has not been recognised on current year UK tax losses. The tax charge in 2020 included the impact of derecognising some of the deferred tax asset previously recognised on UK tax losses.

Underlying earnings per share of 0.11p reflected the improvement in profit and an increase in weighted average number of shares compared with the prior year to reflect the full year impact of the bonus element of the rights issue completed in November 2020.

Group funds flow statement *

£ million	2021	2020	Change
Underlying operating profit/(loss)	414	(2,008)	2,422
Operating loss from discontinued operations	(43)	(109)	66
Depreciation, amortisation and impairment	971	1,048	(77)
Lease payments (capital plus interest)	(403)	(379)	(24)
Expenditure on intangible assets	(185)	(316)	131
Capital expenditure (PPE)	(311)	(579)	268
Change in inventory	(169)	588	(757)
Movement in receivables/payables/contract balances (excluding Civil LTSA)	(641)	(2,115)	1,474
Civil Aerospace net LTSA balance change	66	479	(413)
Movement on provisions	(136)	(195)	59
Cash flows on settlement of excess derivative contracts	(452)	(202)	(250)
Net interest and fees on undrawn facilities	(259)	(172)	(87)
Cash flow on financial instruments net of realised losses included in operating profit	(85)	(105)	20
Other	68	(49)	117
Trading cash flow	**(1,165)**	(4,114)	2,949
…of which relates to continuing operations	*(1,211)*	*(4,198)*	*2,987*
Contributions to defined benefit pensions (in excess of)/less than that of underlying operating profit charge	(92)	160	(252)
Taxation paid	(185)	(231)	46
Group free cash flow	**(1,442)**	(4,185)	2,743
…of which relates to continuing operations	*(1,485)*	*(4,255)*	*2,770*
Shareholder payments	(4)	(92)	88
Rights issue	–	1,972	(1,972)
Disposals and acquisitions	49	(119)	168
Exceptional Group restructuring	(231)	(323)	92
Payment of financial penalties	(156)	(135)	(21)
Other underlying adjustments	(23)	(33)	10
Movement in net funds from cash flows (excluding lease liabilities)	**(1,807)**	(2,915)	1,108
Capital element of lease repayments	374	284	90
Movement in net funds from cash flows	**(1,433)**	(2,631)	1,198
Movement in short-term investments	(8)	6	(14)
Net cash flow from changes in borrowings and lease liabilities	666	1,630	(964)
Statutory cash flow	**(775)**	(995)	220

* The derivation of the summary funds flow statement from the statutory cash flow statement is included on page 182.

Key changes in the funds flow items are described below:

Expenditure on intangible assets: Expenditure of £(185)m included £(104)m capitalised Research & Development (2020: £(232)m), which was lower than prior year reflecting the mix of spend across Civil Aerospace engine programmes.

Capital expenditure: Investment of £(311)m was £268m lower than prior year as a result of continued focus on prioritisation of business critical infrastructure projects and focus on reducing capital intensity in Civil Aerospace in line with the cost reduction programme.

Increase in inventory: The £169m increase in the year was primarily driven by planned inventory build in Defence and Power Systems to meet expected sales volumes, and the impact of global supply chain disruption on Power Systems.

Movement in receivables/payables/contract balances (excluding Civil LTSA): The movement of £(641)m was primarily driven by Civil Aerospace and included a significant volume of concession payments during the year as well as a reduction in trade payables driven by timing and volume of supplier payments. In addition, deposits were utilised in Civil and Defence as we continued to execute on customer contracts.

Movement in underlying Civil Aerospace net LTSA creditor: In 2021, there was a £66m increase in the net LTSA balance as invoiced flying hour receipts exceeded revenues recognised. This reflected an improvement in invoiced flying hour receipts as air traffic recovered during the year offset by higher revenues due to materially improved LTSA catch-ups compared to the prior year.

Movement on provisions: The £(136)m movement primarily reflected a decrease in the Trent 1000 provision driven by provision utilisation, including customer disruption costs settled and remediation shop visit costs.

Cash flows on settlement of excess derivative contracts: Relates to the cash settlement costs in the year for the offsetting foreign exchange contracts that were entered into to reduce the size of the US Dollar hedge book in 2020. The cash settlement costs of £1.7bn occur across 2020-2026, of which £1.0bn remains to be paid in future years.

Fees and interest: The net payment of £(259)m in the year was higher than the prior year, reflecting £(197)m of net interest paid (2020: £(75)m).

Contributions to defined benefit pensions: In 2021, cash contributions were £92m higher than the pensions charge in the income statement (2020: £160m lower) reflecting payment deferrals from 2020 into the first quarter of 2021.

Taxation: Net cash tax payments in 2021 were £(185)m (2020: £(231)m). The decrease is mainly due to timing, with additional payments arising in 2020.

Disposals and acquisitions: The £49m inflow related to proceeds associated with disposal activity partly offset by the costs incurred on acquisition and disposal activity.

Exceptional restructuring: Payments of £(231)m related to the restructuring programme and associated initiatives.

Payment of financial penalties: The final payment of £(156)m relating to the deferred prosecution agreement (DPA) in the UK was made in January 2021.

Other underlying adjustments: Outflow of £(23)m includes timing of cash flows on a prior period disposal where we retain the responsibility for collecting cash before passing it on to the acquirer, along with other smaller items.

Net cash flow from changes in borrowings and lease liabilities: During the year, we drew down on a £2.0bn loan which is supported by an 80% guarantee from UK Export Finance. £300m of commercial paper under the Covid Corporate Financing Facility and €750m (£639m) loan notes were repaid in line with repayment terms.

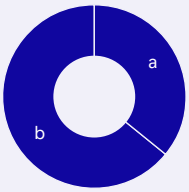
BUSINESS REVIEW

CIVIL AEROSPACE

Civil Aerospace is a major manufacturer of aero engines for the large commercial aircraft, regional jets and business aviation markets. The business uses its engineering expertise, in-depth knowledge and capabilities to provide through-life support solutions for its customers.

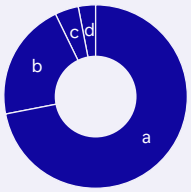
UNDERLYING REVENUE [1,2]	UNDERLYING OPERATING (LOSS) [1,2]	ORDER BACKLOG
£4,536m	**£(172)m**	**£41.1bn**
2020: £5,068m	2020: £(2,535)m	2020: £42.4bn

UNDERLYING REVENUE MIX



a. OE	**36%**
b. Services	**64%**

UNDERLYING REVENUE MIX BY SECTOR



a. Large Engines	**72%**
b. Business Aviation	**21%**
c. Regional	**4%**
d. V2500	**3%**

2021 market overview

The market for Civil Aerospace in 2021 continued to be impacted by the ongoing COVID-19 pandemic. Widespread border restrictions and short notice changes discouraged travel for both business and leisure. International travel recovery was gradual and uneven, particularly for countries with lower vaccination rates. Business aviation and domestic travel recovered more quickly, with both exceeding 2019 levels during the first half of 2021, reflecting the underlying desire to travel and connect where restrictions allow. According to industry forecasters, global international passenger traffic is expected to reach 2019 levels in late 2024.

Orders for new widebody passenger aircraft remained at very low levels. Original Equipment (OE) deliveries were low across the industry, with reduced build rates, as aircraft deliveries were rescheduled. Orders for new business aviation aircraft were strong as new airframes helped to further stimulate good underlying demand.

Financial performance

— Underlying revenue of £4.5bn, down 10% on the prior year. OE revenue of £1.6bn was down 29% reflecting the reduction in engine deliveries. Services revenue of £2.9bn was up 6% on the prior year and included £214m positive LTSA catch-ups (2020: £(1.1)bn), partly offset by lower shop visit volumes and reduced contribution from the V2500 engine programme.

— Underlying gross profit of £474m improved from a £(2.0)bn loss in 2020, driven by strong operating cost performance resulting from restructuring savings as well as positive LTSA catch-ups of £256m. The prior year loss included £(1.3)bn of one-off charges and £(0.6)bn relating to USD purchases and under recovery of fixed costs.

— Underlying operating loss of £(172)m was significantly better than the prior year. This improvement reflected the increase in gross profit partly offset by the higher R&D charge and lower contribution from JVs and associates.

— Trading cash outflow was £(1.7)bn, a substantial improvement on 2020 reflecting higher EFH receipts, lower operating costs, capex and working capital as well as the non-repeat of £(1.0)bn from invoice factoring cessation in 2020. Working capital cash flow included large engine OE concession payments that reduced the concession liability by £474m (2020: £219m increase).

Operational and strategic review

In Civil Aerospace, we have a large installed product base of more than 5,700 large engines and around 9,700 business aviation and regional engines. Around two thirds of these are covered by LTSAs, providing long-term embedded value for the Group. We also have a large order book with more than 1,500 new large engines due to be delivered over the next few years, representing 52% market share and supporting our fleet growth expectations in the medium term.

Our priority for Civil Aerospace is to maximise value from existing capabilities and position the business for the transition to net zero. In 2021, we largely completed the role reductions associated with our fundamental restructuring programme, reducing the size of our Civil

[1] The underlying results for Civil Aerospace have been restated to reflect the transfer of the Hucknall site with associated fabrications activities from Civil Aerospace to ITP Aero during 2021.
[2] The underlying results for 31 December 2020 have been restated to reclassify the results of the Group's small modular reactor (SMR) and new electrical power solutions as New Markets and UK Civil Nuclear as Other businesses.

£ million	2021	Organic Change [1]	FX	2020 [2,3]	Change	Organic Change [1]
Underlying revenue	**4,536**	**(491)**	**(41)**	**5,068**	**(10)%**	**(10)%**
Underlying OE revenue	1,612	(654)	(12)	2,278	(29)%	(29)%
Underlying services revenue	2,924	163	(29)	2,790	5%	6%
Underlying gross profit/(loss)	**474**	**2,477**	**(16)**	**(1,987)**	**–**	**–**
Gross margin %	10.4%			*(39.2)%*	*49.7%pt*	*49.9%pt*
Commercial and administrative costs	**(297)**	11	2	(310)	(4)%	(4)%
Research and development costs	**(434)**	(35)	8	(407)	7%	9%
Joint ventures and associates	**85**	(82)	(2)	169	(50)%	(49)%
Underlying operating loss	**(172)**	**2,371**	**(8)**	**(2,535)**	**(93)%**	**(94)%**
Underlying operating margin %	**(3.8)%**			**(50.0)%**	**46.2%pt**	**46.4%pt**

	2021	2020 [2,3]	Change
Trading cash flow	**(1,670)**	**(4,510)**	**2,840**

Key operational metrics:

	2021	2020	Change
Large engine deliveries	195	264	(69)
Business jet engine deliveries	114	184	(70)
Total engine deliveries	**309**	**448**	**(139)**
Large engine LTSA flying hours (million)	**7.4**	**6.6**	**0.8**
Large engine LTSA major refurbs	208	272	(64)
Large engine LTSA check & repairs	402	559	(157)
Total large engine LTSA shop visits	**610**	**831**	**(221)**

[1] Organic change at constant translational currency (constant currency) applying full year 2020 average rates to 2021, excluding M&A. All commentary is provided on an organic basis unless otherwise stated.
[2] The underlying results for Civil Aerospace for 31 December 2020 have been restated to reflect the changes to activity during 2021 due to the transfer of the Hucknall site and associated fabrications activities to ITP Aero.
[3] The underlying results for 31 December 2020 have been restated to reclassify the results of the Group's small modular reactor (SMR) and new electrical power solutions as New Markets and UK Civil Nuclear as Other businesses.

Aerospace workforce by around a third since the start of 2020. We also reduced our global operational footprint by around a third with the closure of sites in Crosspointe in the USA, and Singapore and significant consolidation activities in sites such as Barnoldswick, Inchinnan and Hucknall in the UK. These actions, and work to simplify our operating model, improved productivity in both our OE and aftermarket processes.

We have worked closely with all customers to support them during the COVID-19 pandemic and to protect their engine and aircraft availability. We are also reducing shop visit costs by re-using more parts, repairing more parts and by implementing new engine overhaul technologies. For our newer large engine programmes we are focused on improving time on wing by releasing life extensions and rolling out technical modifications. Throughout this work we are using ever more digital technology to give us new customer, engine and service insights. These actions are focused on improving cash generation and margins from our LTSA contracts while delivering a better experience for our customers.

Our 2021 operational performance was driven by delivery of cost reductions, significantly increased productivity and efficiency, and the gradual recovery of our EFH. We delivered fewer new large engines than the prior year as delivery schedules were adjusted in response to the impact of COVID-19 on the industry. Deliveries of business aviation engines were down on the prior year due to the transition to newer engine programmes in the fleet, with the Pearl engine fleet building share from a low base. Build time per engine reduced as we implemented productivity improvements and benefited from the footprint optimisation. Large engine LTSA flying hours were 7.4m in the year, up 11% on the prior year driven by over 57% year-on-year improvement in the second half.

We are also seizing new opportunities for growth. In 2021, our Pearl family of business jet engines achieved new successes, with the Pearl 10X chosen by Dassault for its brand-new flagship aircraft, the Falcon 10X, and the Pearl 700 selected by Gulfstream to power its latest ultra-long-range jet, the G800. The introduction of the Airbus A350 freighter created a great opportunity for the Trent XWB engine in a market that has long been dominated by the Boeing 777.

Our strategy for net zero focuses on improving engine efficiency, enabling the use of SAFs and being at the forefront of developing innovative propulsion technologies. In 2021, we started to build an UltraFan engine which will demonstrate increases in efficiency of up to 25% compared with early Trent engines. We have tested our engines for use with 100% SAF and we aim to demonstrate that all Trent engines are 100% SAF compatible by 2023. We also worked with Airbus on a world-first in-flight study into the benefits of 100% SAF. We are an active member of the UK's Fly Zero initiative and a prime proponent of research to understand the entire hydrogen landscape. We are also focused on reducing our own emissions and those of our supply chain (see page 44).

Outlook

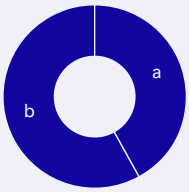
Industry forecasters expect a continuation of the gradual improvement in international travel in 2022 with an acceleration in flying hours as COVID-19 related border restrictions are lifted. We will remain focused on actions within our control, keeping costs low and maintaining the recent productivity gains as shop visits increase. This, along with an expected increase in spare engine sales, would support modest revenue growth and improved profitability in 2022, as well as a substantial improvement in trading cash flow.

DEFENCE

Defence is a market leader in aero engines for military transport and patrol aircraft with strong positions in combat and trainer applications. It has significant scale in naval and also designs, supplies and supports the nuclear propulsion plant for all of the UK Royal Navy's nuclear submarines.

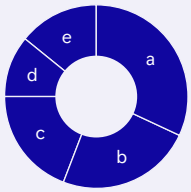
UNDERLYING REVENUE *	UNDERLYING OPERATING PROFIT *	ORDER BACKLOG
£3,368m	**£457m**	**£6.5bn**
2020: £3,355m	2020: £461m	2020: £7.5bn

UNDERLYING REVENUE MIX



a. OE	**42%**
b. Services	**58%**

UNDERLYING REVENUE MIX BY SECTOR



a. Transport	**32%**
b. Combat	**24%**
c. Submarines	**19%**
d. Naval	**11%**
e. Other	**14%**

2021 market overview

Our Defence business provides governments with the power to protect, enabling them to preserve peace, and underpin economic and social stability. In 2021 Rolls-Royce products have powered critical military assets that have deterred threats and saved lives, including in major humanitarian operations, around the world. We operate in a tightly regulated and controlled industry with key suppliers, like Rolls-Royce, chosen by governments for long-term partnerships to develop, manufacture and maintain their countries' defences.

The market for Defence in 2021 remained robust, and our business performance was strong despite the COVID-19 pandemic. Defence spending in the US and the UK, our largest end markets, is mostly driven by economic expansion and growing at low single digit compound rates. Budgets are increasingly focused on technology-led solutions that enhance capability. Sustainability is growing in importance in the defence market as governments identify militaries as their biggest opportunity to reduce their carbon emissions. We are well positioned to meet this need, harnessing our Group-wide capabilities in highly efficient gas turbines, nuclear and electrical capability and enabling the use of synthetic fuels in our applications.

In addition to our home markets in the US, UK and Germany, we export to customers in the Middle East, Korea, Japan, Canada, India and elsewhere. Export products are tightly regulated and subject to strategic export control (military and dual-use items). To serve these markets our home market governments assess export licensing criteria that include international obligations and applicable sanctions; respect for human rights and international humanitarian law; preservation of internal and global peace and security; as well as other geo-political criteria. We respect the capability and authority granted to elected government officials to determine whether to do business with other nations' governments and abide by their decisions. In addition, we work closely with government and trade associations to raise awareness and advise on the need for mechanisms to promote responsible arms trade including significant support of the UN Arms Trade Treaty.

Financial performance

- Order intake was £2.3bn with a book-to-bill of 0.7x. Our order book is strong following several years' of high intake with a five year average book-to-bill of 1.1x and 85% order cover for 2022. In 2021 we secured a key award with the US DoD for the replacement engine programme for the B-52 aircraft, with an initial value of $0.5bn and total OE programme value of $2.6bn.
- Underlying revenue increased by 5% to £3.4bn, with services revenue up 6% and OE revenue up 3%. Sales benefitted from strong sales of parts in our export markets in Asia and Middle East.
- Underlying gross profit of £721m was 9% higher than the prior year and the gross margin expanded 0.9%pt to 21.4%. This was driven by a positive mix towards higher margin spare parts and spare engine sales.

* The underlying results for 31 December 2020 have been restated to reclassify the results of the Group's small modular reactor (SMR) and new electrical power solutions as New Markets and UK Civil Nuclear as Other businesses.

£ million	2021	Organic Change [1]	FX	2020 [2]	Change	Organic Change [1]
Underlying revenue	**3,368**	**155**	**(142)**	**3,355**	**–**	**5%**
Underlying OE revenue	1,411	42	(59)	1,428	(1)%	3%
Underlying services revenue	1,957	113	(83)	1,927	2%	6%
Underlying gross profit	**721**	**63**	**(26)**	**684**	**5%**	**9%**
Gross margin %	*21.4%*			*20.4%*	*1.0%pt*	*0.9%pt*
Commercial and administrative costs	(161)	(19)	4	(146)	10%	13%
Research and development costs	(105)	(24)	5	(86)	22%	28%
Joint ventures and associates	2	(7)	–	9	–	–
Underlying operating profit	**457**	**13**	**(17)**	**461**	**(1)%**	**3%**
Underlying operating margin %	***13.6%***			***13.7%***	***(0.1)%pt***	***(0.2)%pt***

	2021	2020 [2]	Change
Trading cash flow	**377**	**298**	**79**

[1] Organic change at constant translational currency (constant currency) applying full year 2020 average rates to 2021, excluding M&A. All commentary is provided on an organic basis unless otherwise stated.

[2] The underlying results for 31 December 2020 have been restated to reclassify the results of the Group's small modular reactor (SMR) and new electrical power solutions as New Markets and UK Civil Nuclear as Other businesses.

— Underlying operating profit was £457m, an increase of 3% compared with 2020. This profit growth occurred despite a 28% increase in R&D spend to support the UK Future Combat programme and targeted investment in growth opportunities in North America to support continued long-term product development.

— Trading cash flow was £377m, representing a cash conversion of over 80%. The prior year trading cash flow included adverse impact from the timing of cash deposit receipts.

Operational and strategic review

With over 16,000 Defence engines in service, we are a leading provider of military aircraft engines and aero-derivative gas turbines for naval use, and the sole provider of powerplants for the UK's nuclear submarine fleet. We do not provide or manufacture weapons.

In 2021, we were chosen by the US Air Force as the new provider of power for its fleet of 76 eight-engine B-52 aircraft. The testing and development phase of the award, valued at around $500m commenced in 2022 with the total OE contract valued at $2.6bn over the next 16 years to 2038. In the UK, the Ministry of Defence announced our continuation as the sole supplier of propulsion systems for its next generation of nuclear-powered submarines, which will replace the Astute class in the future. The UK Government also signed an agreement with its Japanese counterpart to develop and deliver a future combat aircraft engine demonstrator. This builds on Team Tempest, the UK-led next-generation fighter programme we are a member of, in which the MoD has committed £2bn of initial investment spending.

Protecting people around the world is central to our mission in Defence. In 2021, our engines that power the C-130J, A400M and Voyager transport aircraft aided the critical humanitarian effort in Afghanistan, evacuating thousands of people from Kabul.

Disciplined investment in long-term sustainable growth opportunities shape our Defence business for decades to come. We are maximising the value from our existing capabilities by using digital technology and data analytics to unlock further potential from services and managing our costs to maintain margin as older products are phased out over time. We will also support our Defence customers in achieving net zero by showing compatibility with SAF in all products by 2023, subject to customer engagement. We are seizing strategic growth opportunities for our established products, as well as developing future opportunities and research into novel applications for our technologies such as hypersonics, small engines, directed energy and power in space.

In 2022, the US DoD is due to select its Future Long-Range Assault Aircraft (FLRAA) solution. A win for the V-280 Valor, on which we are partnered with Bell Textron, would secure a new vertical lift market for us totalling over 5,000 engines with production through the coming decades.

Our strong position in the US is supported by our world-class facilities in Indianapolis. In 2021, we concluded a multi-year revitalisation programme at our Indianapolis facility, creating a high-tech, revolutionary advanced manufacturing campus. The new facilities feature advanced manufacturing equipment, including digital engineering and robotics capabilities on a smaller but more efficient footprint. In addition, we made significant investment in several other Defence sites and have partnered with Purdue University in Indiana, US to establish an industry leading hypersonic test facility. In the UK, we will be reducing our carbon footprint by installing a microgrid at our main Defence facility in Bristol in 2022.

Outlook

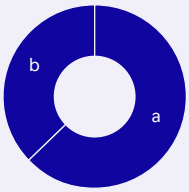
We expect continued modest revenue growth in 2022 with a strong order book cover securing near term activity in all our end markets. Our increased investment will support growth in programmes related to future projects and recent awards, as well as product development to help the transition to net zero. We do expect a return to more usual levels of spare engines and spare parts sales in 2022.

POWER SYSTEMS

Power Systems, with its product and solutions brand, mtu, is a world-leading provider of integrated solutions for onsite power and propulsion, developing sustainable, climate-friendly solutions to meet the needs of its customers.

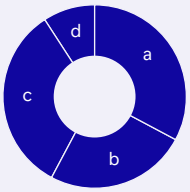
UNDERLYING REVENUE *	UNDERLYING OPERATING PROFIT *	ORDER BACKLOG
£2,749m	**£242m**	**£2.8bn**
2020: £2,735m	2020: £188m	2020: £2.4bn

UNDERLYING REVENUE MIX



a. OE	**63%**
b. Services	**37%**

UNDERLYING REVENUE MIX BY SECTOR



a. Marine	**33%**
b. Industrial	**25%**
c. Power Generation	**33%**
d. Defence	**9%**

2021 market overview

The effects of COVID-19 on our end markets lessened over the course of 2021 as vaccination programmes were rolled-out and pandemic-related risks were balanced with economic needs. Governmental demand in land defence and marine end markets continued to be resilient. Across the different applications, we had a strong increase in order intake in the second half of 2021 and record order intake in the fourth quarter.

Along with many manufacturing businesses, global supply chain disruption impacted the availability of some parts and components in the second half of 2021. Challenges are likely to persist into 2022 until additional capacity has been created.

Financial performance

- Order intake of £3.3bn was 24% higher than the prior year, with record order intake in the fourth quarter and a book-to-bill ratio of 1.2x in the year. Order growth was strongest in marine, defence and power generation end markets. The customer interest in net zero carbon solutions is accelerating and our investment in decarbonising our solutions is critical to our future growth.
- Underlying revenue of £2.7bn was up 3%. Aftermarket services grew 10% as product utilisation increased in our end markets, and OE was broadly flat. Sales were strongest in industrial and power generation end markets, partly offset by lower activity in China.
- Underlying gross profit grew by 18% to £778m and gross margin increased by 3.6%pt. This included an increase in higher-margin aftermarket spare parts as well as improved utilisation in our manufacturing facilities and lower warranty costs.
- Underlying operating profit was £242m, up 37%. Operating margin of 8.8% was 2.2%pts higher than the prior year, reflecting the positive mix of activity and increased volumes. The increase in commercial and administrative costs reflected an increase in employee costs, partly due to the non-repeat of government support received in the prior year.
- Trading cash flow was £219m (2020:£162m), representing a cash conversion of about 90%.

Operational and strategic review

In Power Systems, we are focused on expanding our position as an industry leader in mission critical power and propulsion solutions in our end markets. To achieve this, we are maximising the value from existing capabilities by transitioning from supplying standalone products to fully integrated systems, as well as increasing our penetration in countries with high-growth economies. We are also seizing strategic growth opportunities by developing the solutions our customers need to support them in their transition to alternative power with net zero carbon emissions.

* The underlying results for 31 December 2020 have been restated to reclassify the results of the Group's small modular reactor (SMR) and new electrical power solutions as New Markets and UK Civil Nuclear as Other businesses.

£ million	2021	Organic Change [1]	M&A [2]	FX	2020 [3]	Change	Organic Change [1]
Underlying revenue	**2,749**	**89**	**19**	**(94)**	**2,735**	**1%**	**3%**
Underlying OE revenue	1,744	(2)	19	(60)	1,787	(2)%	-
Underlying services revenue	1,005	91	–	(34)	948	6%	10%
Underlying gross profit	**778**	**120**	**6**	**(26)**	**678**	**15%**	**18%**
Gross margin %	*28.3%*				*24.8%*	*3.5%pt*	*3.6%pt*
Commercial and administrative costs	(383)	(57)	(8)	13	(331)	16%	18%
Research and development costs	(157)	(1)	(1)	5	(160)	(2)%	1%
Joint ventures and associates	4	5	(1)	(1)	1	–	–
Underlying operating profit	**242**	**67**	**(4)**	**(9)**	**188**	**29%**	**37%**
Underlying operating margin %	***8.8%***				***6.9%***	***1.9%pt***	***2.2%pt***

	2021	2020 [2]	Change
Trading cash flow	**219**	**162**	**57**

[1] Organic change at constant translational currency (constant currency) applying full year 2020 average rates to 2021, excluding M&A. All commentary is provided on an organic basis unless otherwise stated.
[2] M&A includes 2020 Power Systems acquisitions comprising of Kinolt Group S.A. and Servowatch Systems Limited (SSL).
[3] The underlying results for 31 December 2020 have been restated to reclassify the results of the Group's small modular reactor (SMR) and new electrical power solutions as New Markets and UK Civil Nuclear as Other businesses.

We have a large installed product base with over 150,000 engines and around 40,000 active customers worldwide, generating revenues from both OE and aftermarket services. Our established portfolio of products consists of a range of high-speed reciprocating diesel and gas engines delivered within a complete system solution or as a standalone engine. We have been increasing sales of complete system solutions, including gensets, battery storage systems and automation to achieve greater value capture and closer customer relationships and have been exploring opportunities to provide energy-as-a-service. Our agreement with Sustainable Development Capital LLP (SDCL) to jointly work on energy-as-a-service is an example of how we are helping to accelerate the transition to more sustainable power.

In 2021, customer demand was particularly strong for data centres with an increase in orders for power generation solutions. In particular, our *mtu* branded standby power generation solution was key to an order for one of the largest hyperscale data centre customers, leading to expansion of our global footprint and market share. Governmental orders were also strong, including large orders for both land defence and marine solutions in the year. In marine we established a framework agreement with a leading luxury yacht building company to pioneer the adoption of our hybrid solutions and fully-integrated bridge, bringing together our complete propulsion and ship management system.

Our main objective is the transition to net zero power, which is a huge opportunity, and we are rising to the challenge. Our end markets are transitioning at different speeds. The three markets at the forefront of change are: mission critical power for data centres, power for infrastructure (including the transition of our own operating sites to clean energy), and marine solutions. To support the transition we are investing in new technology to replace internal combustion engines and further develop them to run on sustainable fuels such as green hydrogen and green methanol, and ensuring all our current engines are compatible with carbon-neutral e-diesel. These actions support our commitment to achieve a 35% cut in lifetime emission, compared with 2019, of new sold products by 2030 and for all our products to be compatible with net zero operations by 2050. Milestone achievements in 2021 included our partnership with cellcentric, a Daimler Truck and Volvo joint venture to develop hydrogen powered fuel cells for energy supply, mainly for data centres, which is targeting pilot installations by 2023 and full launch by mid-decade. A major step towards a carbon-neutral future in the infrastructure sector is the first-of-a-kind microgrid for the Port of Duisburg in Germany, which will combine fuel cells and hydrogen combustion engines to meet the clean energy needs of this new container terminal. In addition, we are adapting our mtu Series 500 and Series 4000 gas engines to run on hydrogen. Our gas engines for use in gensets can already run on a 10% hydrogen blend, by 2022 this will be increased to 25% and from 2023 conversion kits will be available for 100% hydrogen operation.

Throughout the year we have been monitoring and mitigating the global supply chain disruption reported across many manufacturing sectors. In the second half of 2021, shortage of a relatively small number of components slowed our production rate resulting in a modest increase in inventory and some delayed revenue recognition.

Outlook

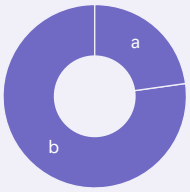
Looking ahead to 2022, we see continued strong demand growth from our customers supported by global economic growth and the transition to lower carbon solutions. We expect good revenue growth in 2022 helped by the strong order intake, partly offset by the current global supply chain constraints. Higher activity levels will drive improved profitability partly offset by increased Research & Development investment as we pursue net zero growth opportunities. Cash conversion is expected to be lower in 2022 as we focus on inventory and supply chain management to mitigate the impact of industry-wide disruption.

NEW MARKETS

New Markets are early-stage businesses, with high growth potential, focused on addressing the opportunities being created by the transition to net zero. The businesses leverage our existing, in-depth engineering expertise and capabilities to develop new sustainable products for new markets.

UNDERLYING REVENUE *	UNDERLYING OPERATING LOSS *	EMPLOYEES (FTE AT YEAR END)
£2m	**£(70)m**	**>570**
2020: £5m	2020: £(45)m	

VALUE R&D SPEND £68M



a. Rolls-Royce SMR **23%**
b. Rolls-Royce Electrical **77%**

2021 market overview

Our technology and engineering expertise gives us a critical role in enabling the transition to a low carbon global economy. We are focused on producing the technology breakthroughs society needs to decarbonise three critical areas of the global economy – transport, power, and the built environment – and capture the economic opportunity this transition represents. We are making our existing products compatible with net zero and pioneering new technologies that can meet accelerating demand for net zero power, as well as identifying additional applications for our current portfolio of technologies in new markets.

Nuclear power is central to producing the sustainable zero carbon power the world needs, both on grid and as a standalone power source. Our small modular reactors (SMRs) enable this power to be generated in a broader array of locations around the world, with a faster construction time and lower financing costs compared with the conventional nuclear power stations that exist today. Off grid end markets for small nuclear power stations include hydrogen and synthetic fuel production, data centres, desalination plants and electrolyser factories.

Electrification will contribute to decarbonisation of aviation and electrical technologies and capabilities can also be leveraged for civil, defence and marine applications. Smaller, all-electric aircraft will enable more efficient, quieter and zero-emission air mobility, while hybrid-electric systems increase range and enable more sustainable solutions for larger regional aircraft. The emerging market of advanced air mobility, which includes electrical vertical take-off (eVTOL) aircraft as well more conventional electric commuter aircraft, is aiming to enable a new way of using air mobility on urban and regional routes.

The potential new market opportunities are significant. Our New Markets businesses, Rolls-Royce Electrical and Rolls-Royce SMR, are well positioned to address these opportunities.

Financial performance

- Underlying revenue of £2m came from Rolls-Royce Electrical sales relating to marine engineering services and propulsion systems. Both Rolls-Royce Electrical and Rolls-Royce SMR are early-stage businesses in their investment phase, with significant future revenue generating potential in the 2030s.
- Underlying operating loss of £(70)m increased from the prior year comparative as we increased the pace of investment in both Rolls-Royce SMR and Rolls-Royce Electrical. The increased investment is critical to the development of the products that will drive our net zero growth in the future and is in line with our plans. R&D costs of £(68)m included £(16)m on the design development to ready our SMRs to enter the UK GDA process and £(52)m on electrical propulsion technology.
- Trading cash flow of £(56)m was lower than operating losses mainly due to the receipt of funding for the SMR programme.

* The underlying results for 31 December 2020 have been restated to reclassify the results of the Group's small modular reactor (SMR) and new electrical power solutions as New Markets.

£ million	2021	Organic Change [1]	FX	2020 [2]	Change	Organic Change [1]
Underlying revenue	**2**	**(2)**	**(1)**	**5**	**(60)%**	**(40)%**
Underlying OE revenue	–	(2)	(1)	3	(100)%	(67)%
Underlying services revenue	2	–	–	2	–	–
Underlying gross profit	**1**	**(1)**	**–**	**2**	**(50)%**	**(50)%**
Gross margin %	*50.0%*			*40.0%*	*10.0%pt*	*(6.7)%pt*
Commercial and administrative costs	(3)	(2)	–	(1)	200%	200%
Research and development costs	(68)	(24)	2	(46)	48%	52%
Underlying operating loss	**(70)**	**(27)**	**2**	**(45)**	**56%**	**60%**

	2021	2020 [2]	Change
Trading cash flow	**(56)**	**(55)**	**(1)**

[1] Organic change at constant translational currency (constant currency) applying full year 2020 average rates to 2021, excluding M&A. All commentary is provided on an organic basis unless otherwise stated.
[2] The underlying results for 31 December 2020 have been restated to reclassify the results of the Group's small modular reactor (SMR) and new electrical power solutions as New Markets.

Operational and strategic review

Our investment in SMRs and electrical propulsion create net zero solutions and seize the opportunities in new end markets, as we aim to maximise the future market potential for our technological and industrial solutions and products.

Rolls-Royce SMR takes our existing technology and experience in nuclear power, established over 60 years of powering the UK's fleet of nuclear-powered submarines, and applies this to the demand for affordable clean energy on and off grid. Rolls-Royce Electrical applies new technology and innovation to deliver all-electric and hybrid-electric power and propulsion. Both these businesses are supported by our extensive experience and long track record of delivering advanced technology in highly regulated markets.

Rolls-Royce Electrical achieved a number of key milestones in 2021:

- Spirit of Innovation became the world's fastest all-electric aircraft with a world speed record of 345.4 mph;
- we joined together with Tecnam and Widerøe to deliver the Tecnam P-Volt, an all-electric passenger aircraft for the commuter market, ready for revenue service in 2026;
- Vertical Aerospace, in which we have a minority investment, took $5.4bn pre-orders for VX4, their urban air mobility vehicle powered by a Rolls-Royce Electrical system;
- we announced our intention to take a minority position in Embraer spin-out Eve Urban Air Mobility Solutions (EVE) as they move to deliver eVTOL aircraft to a global market;
- we launched an £80m investment into energy storage systems that will enable aircraft to undertake zero emissions flights of over 100 miles on a single charge; and
- our power generation system (PGS1) for regional aircraft achieved more than 1 MW of power in 2021 on our newly renovated Testbed 108 in Bristol.

Rolls-Royce SMR was established as a special purpose vehicle in 2021, five years after the programme began. As a result of a successful equity raise, in which £230m was agreed in exchange for approximately 30% of the company to be received in tranches over the coming years, as well as £210m UK Research and Innovation (UKRI) grant funding and additional investment from Rolls-Royce, the programme has £490m of investment to help fund phase two of its development plan. Rolls-Royce SMR will now proceed rapidly with a range of parallel delivery activities, including entry to the UK GDA process and identifying sites for the factories which will manufacture the modules that enable on-site assembly of the power plants.

The development of SMRs is a core part of the UK Government's 10-point plan for a green industrial revolution. A Rolls-Royce SMR power station will have the capacity to generate 470MW of low carbon energy on a site around one tenth of the size of a conventional nuclear station. Costs will be competitive with sources of renewable energy and will not be subject to the intermittency challenges associated with other low carbon technologies.

Outlook

Our financial performance in 2022 will show a significant increase in Research & Development costs as we invest to develop our products and grow our businesses in these exciting new markets. Cash outflow is expected to be approximately £100m better than the underlying operating loss in 2022, mainly due to the phased receipt of secured third party equity investment in Rolls-Royce SMR.

SUSTAINABILITY

We have a significant opportunity to contribute to global sustainable development and create shared value for us and our stakeholders by conducting our business in an environmentally, ethically and socially responsible manner.

Our vision is to play a leading role in the global transition to a low carbon future by pioneering sustainable technology solutions. We start by understanding the impacts of our business activities on society and the environment and using that understanding to inform our decisions, creating shared value for Rolls-Royce and our stakeholders.

Our approach

Our sustainability framework defines the topics where we can make the most material contribution to a more sustainable future, intrinsically linked to our purpose and strategy. Our purpose is to contribute to global sustainable development through the provision of the power that matters, and our sustainability framework ensures we do so in an environmentally, ethically and socially responsible manner.

2021 HIGHLIGHTS

Published decarbonisation strategy and pathway to net zero

•

Active participation at the UN Climate Change Conference of the Parties (COP26) in Glasgow, UK

•

Introduced ESG metric into remuneration policy

At its highest level, our framework sets out our key areas of impact and focus, building on our values and behaviours and taking into account the expectations of our key stakeholders, including our people, customers, investors and regulators. This is the result of a specific strategic review of our approach, overseen by the Safety, Ethics & Sustainability Committee (see page 105) completed in 2020. We have used the United Nations Sustainable Development Goals to articulate the primary contributions we can make to a more sustainable society.

Since introducing our framework in 2020 we have made considerable progress in both our overall sustainability strategy and against our primary aims. This is reflected in our continued strong performance in ESG assessments and indices, such as our position in the Dow Jones Sustainability indices.

OUR SUSTAINABILITY FRAMEWORK

Our purpose: pioneering the power that matters to connect, power and protect society

Our mission: leading the transition to net zero

Managing environmental impacts across our value chain	Creating a positive social impact for our people, partners and communities	Maintaining high standards of ethics and compliance
See pages 36–45	See pages 46–50	See page 51

Underpinned by our values and behaviours

Climate action and transition to net zero

Our mission is to play a leading role in the transition to net zero; of the focus areas in our framework, climate action, adaptation and the transition to net zero are the most significant. Given the scale and nature of our business, it is the biggest potential contribution that we, as an organisation, can make to a more sustainable future and is consequently one of the greatest potential risks to our business success. Mitigating our impact on climate change and decarbonising our product portfolio is intrinsically linked to our purpose and business strategy.

Since joining the UN Race to Zero and UN Business Ambition to 1.5°C campaigns in 2020, we have made substantial progress to ratify our commitment to play a leading role in the global transition to a lower carbon future. In 2021, we published a decarbonisation strategy and pathway to net zero setting out the technology levers we are pulling to transition towards net zero carbon. We have established new interim targets, some of which are linked to senior management remuneration (5% of the metrics for the 2023 annual incentive) and aim to introduce further Group targets in accordance with the Science-Based Targets Initiative during 2022, as per our commitment under the UN Business Ambition to 1.5°C pledge.

Implementing our approach

Guiding principles

Integrating sustainability into decision making often requires judgement to consider the interplay between complex factors. To guide us, we have a simple set of sustainability principles, underpinned by our values and behaviours:

- understanding and minimising our impact on the environment, particularly in the context of climate change;
- seeking opportunities to adopt circular business practices to promote responsible resource consumption;
- making a positive contribution to the communities within which we operate;
- acting with integrity and considering the potential and actual ethical implications of all business decisions;
- ensuring zero harm to the people who work for or with us and giving them the opportunity to be at their best; and
- reporting and communicating with our key stakeholders transparently and honestly.

For more information on our sustainability approach, including Group policies and performance data, see rolls-royce.com

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals provide a framework for action for business and society alike. We have identified the goals we are best placed to contribute to through a sustainability materiality assessment, which is reviewed on a regular basis. During 2021, we added Goal 7, Affordable and Clean Energy, to reflect the introduction of our New Markets businesses and the role our technologies can play in the energy transition.

SDG	PRIMARY CONTRIBUTION	2021 PROGRESS
7 AFFORDABLE AND CLEAN ENERGY	As a global power group, we have the opportunity to provide clean, affordable power for all. Our products and technologies will play an important role in accelerating the availability and affordability of reliable clean energy, in both grid and off grid application.	– Secured funding to establish the new business and invested in Rolls-Royce SMR – Partnered with cellcentric, a Daimler Truck and Volvo joint venture, to develop hydrogen powered fuel cell solutions
8 DECENT WORK AND ECONOMIC GROWTH	We foster an innovative culture, underpinned by our company values and behaviours. We are committed to creating a diverse and inclusive workplace where everyone can be at their best. We support communities local to our operations and actively promote STEM education and outreach.	– Launched a new learning brand called, Leatro, to support our always-learning culture – Continued focus on leadership enablement, talent, capability and creating a diverse and inclusive culture
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	We are committed to substantially reducing our social and environmental impact across our manufacturing and production activities and promoting responsible and sustainable procurement practices in our supply chain.	– Introduced new recovery and recycling rate target – Launched new sustainable procurement framework
13 CLIMATE ACTION	Our mission is to lead the transition to net zero. Operating in some of the most carbon-intensive sectors, we are committed to leading the transition of the global economy towards a net zero carbon future.	– Published decarbonisation strategy and pathway to net zero – Partnered with Vertical Aerospace to pioneer low carbon urban air mobility – Established interim targets linked to senior management remuneration – Active participation at COP26 in Glasgow, UK
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Our approach to being a responsible business is underpinned by our commitment to act with integrity. We aim to meet the expectations of all of our key stakeholders and support them in achieving their sustainability goals.	– Continued to progress human rights policy review and due diligence programme – Initiated programme to enhance sustainability due diligence measures in the supply chain

TRANSITION TO NET ZERO AND TCFD RECOMMENDATIONS

We believe in the positive, transforming potential of technology. We pioneer the power that matters. Power that has an impact and is central to the successful functioning of the modern world. To combat the climate crisis, we know that power must be made compatible with net zero carbon emissions.

These pages summarise our decarbonisation strategy and progress made in 2021. It also details our disclosures in line with the Taskforce on Climate-related Financial Disclosures (TCFD) recommendations. We have made considerable progress on the implementation of our net zero strategy and have undertaken our first quantified scenario analysis in 2021. We believe our approach is consistent with nine of the 11 TCFD recommendations (see page 43). The areas which we will continue to work on during 2022, are: strategy, part C, relating to the assessment of organisational resilience in the face of climate change; and metrics and targets, part B, relating to scope 3 emissions disclosure. Our explanation can be found on page 42.

Mitigating our impact on climate change and decarbonising our product portfolio are intrinsically linked to our purpose and business strategy; we believe there are significant business growth opportunities to come from Rolls-Royce playing a leading role in the transition to net zero. At the same time, climate change poses a potentially significant risk to our business, and we are working to ensure we have the appropriate governance, risk management, strategic resilience and metrics in place to respond.

In 2020, we joined the UN Race to Zero coalition and pledged to play a leading role in enabling the sectors in which we operate to reach net zero by 2050. We have taken significant steps to deliver against that commitment during 2021, including laying out our technology pathway to net zero and committing to ensuring our new products will be compatible with net zero operation by 2030, and all our products compatible by 2050.

Our decarbonisation strategy

Our decarbonisation strategy starts with the emissions in our own operations, extends to our value chain, and ultimately focuses on the contribution we can make to the global transition. Our decarbonisation strategy has three interconnected pillars:

1. making our operations net zero carbon;
2. decarbonising complex, critical systems at the heart of global society, by:
   a. enabling our products to be used in a way that is compatible with net zero, and;
   b. pioneering new breakthrough technologies that can accelerate the global transition to net zero; and
3. advocating for the necessary enabling environment, with public and policy support to achieve this ambition.

Our direct emissions (scope 1 + 2 emissions, see page 212), represent a small but important part of our footprint. The majority of emissions, arise from the use phase of the product lifecycle, hence this is the primary focus of our decarbonisation strategy and activities.

Making our operations net zero carbon

Delivering net zero carbon emissions from our operations and facilities is a vital step towards our 2050 target and will help ensure our business is more resilient for the future. By 2030, we will achieve net zero GHG emissions from all energy purchased and consumed in the operation of our buildings, facilities and manufacturing processes. This target is well aligned with the ambition and emissions reduction trajectory required to curb global temperature rise to 1.5°C.

We will meet our goal through continued investment in onsite renewable energy installations; the procurement of renewable energy; and continued investment in energy efficiency improvements to reduce our overall energy demands and operating costs. We expect our Bristol, UK, manufacturing site to be the first Rolls-Royce site to achieve net zero carbon operations during 2022, see page 42.

Decarbonising complex, critical systems

Achieving net zero carbon will require a wholesale transformation of the systems that make up the backbone of our global economy, including transport, energy and the built environment, some of the very sectors in which reducing emissions is the hardest. To decarbonise complex, critical systems we must continue to act across three areas: pioneering new low and zero carbon technologies and sustainable solutions; accelerating the availability and affordability of sustainable fuels; and continuing to improve engine efficiency and environmental performance.

OUR PROGRESS IN 2021

Published technology pathway and related targets linked to remuneration

•

Achieved world speed record for all-electric flight with our Spirit of Innovation aircraft

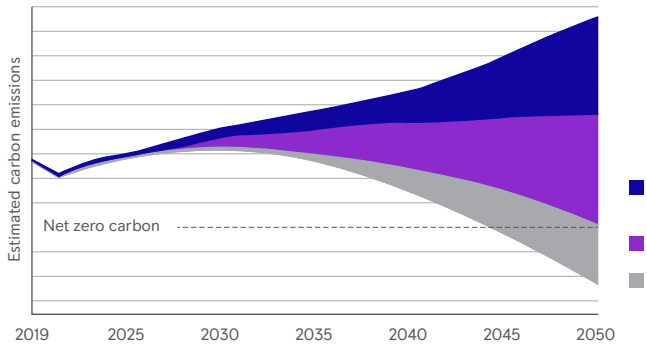
•

Established Rolls-Royce SMR to pioneer the rollout of small modular nuclear reactors in the clean energy transition

•

Initiated series of engine tests on 100% sustainable fuel across our gas turbine and reciprocating engine product portfolio

TECHNOLOGY PATHWAY TO NET ZERO



This indicative pathway depicts the positive contribution of key technologies towards reducing our future emissions, related to the use of sold products, to net zero in 2050. Without these actions, emissions would be expected to rise. The impact of new technologies is based on our current best understanding of the solutions available and potential future market applications. In this chart, we have also depicted the impact of the new businesses within our New Markets segment, which serve sectors in which we are not currently present (e.g. SMRs for large scale power generation), as additional compensation actions. These technologies do not abate emissions within our current footprint but instead support the decarbonisation of other sectors.

Enabling our products to be used in a way that is compatible with net zero carbon

To achieve net zero carbon we must ensure that all of our products are compatible with net zero carbon operation by 2050, at the latest. This will be achieved through further advancing the efficiency of our engine portfolio through next generation technologies and introducing new low or zero emission products, including fuel cells, microgrids, hybrid-electric and all-electric technologies. These new technologies represent a significant commercial opportunity. By 2030, all new products will be compatible with net zero operation.

Beyond that, the scale up of sustainable fuels will play a crucial role in reaching net zero carbon. To accelerate this, we will demonstrate that all the commercial aero engines we produce, and our most popular reciprocating engines, are compatible with sustainable fuels by 2023 and work with our armed forces customers to achieve the same goal for the Rolls-Royce engines they use. We are working in partnership with fuels manufacturers to encourage the ramp-up of sustainable fuels production and with policy makers to create the necessary environment to support this. Currently less than 1% of global fuel demand is met with sustainable fuels.

During 2021 we initiated and entered several strategic partnerships to accelerate the availability of sustainable fuels including; supporting the launch of the World Economic Forum SAF Ambassador Toolkit; partnering with Airbus, German research centre DLR and fuels producer Neste on a world first in-flight sustainable fuels emissions study; and entering a memorandum of understanding with Shell which aims to support the decarbonisation of the aviation industry and progress towards net zero emissions.

Pioneering new breakthrough technologies that can accelerate the global transition to net zero

As we pivot to become a net zero carbon business, we will enter new markets and sectors where we can offer technological solutions that can abate emissions outside of our current emissions footprint. This will help further drive our future innovation and growth. These technologies are depicted as additional compensation actions as they do not abate emissions within the Group's current emissions footprint but instead support the decarbonisation of other sectors.

Our strategy includes the development and deployment of SMRs which will play a vital role in supporting the decarbonisation of the energy grid and meeting increased demand for clean electricity. SMRs also have potential application as a route to the production of sustainable fuels, including SAFs for aviation, hydrogen or other e-fuels, through the provision of low cost, reliable and clean power. More detail on our New Markets business can be found on pages 32 to 33.

We are also actively researching new technologies that can deliver net negative carbon emissions, for example direct air capture (DAC). During 2021, we initiated a pilot study, with support from Australian scientific research centre CSIRO, on DAC technology. At COP26 in November, we announced a strategic partnership with the Qatar Foundation to invest, develop, and scale-up climate-tech businesses in the UK and State of Qatar. The partnership will create a centre for climate-tech innovations that will combine R&D, accelerator activities and venture capital funding in a new global hub. Rolls-Royce will provide research, engineering and high-end manufacturing support.

These new technologies and partnerships, when scaled, have the potential to deliver further carbon benefits to society beyond decarbonising our current product portfolio.

Advocating for the necessary enabling environment

Our ability to deliver on our decarbonisation roadmap hinges on an external environment that enables us to successfully transition to a net zero carbon future. To support this we continue to actively engage policy makers and others to advocate for the necessary conditions society needs to achieve its net zero target.

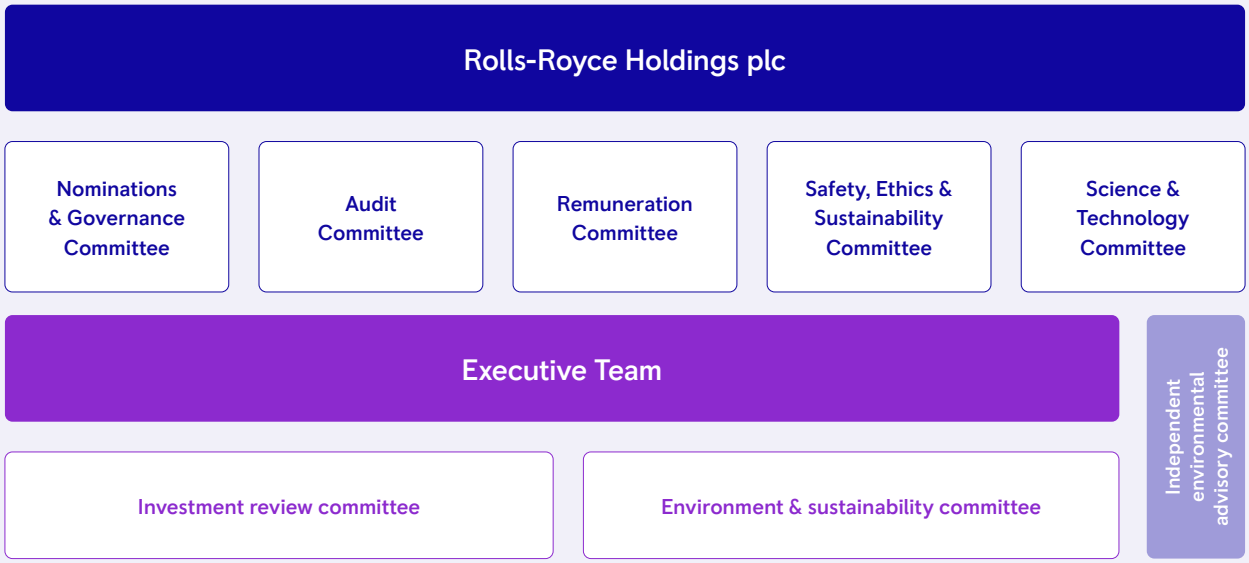
During 2021 this included:

- hosting our Maritime Summit, bringing together all parties in the maritime sector, including operators, policy makers, and suppliers, to consider decarbonisation levers for the marine industry;
- participating in COP26 in Glasgow, UK;
- reaffirming our commitment to work in partnership with competitors and customers across the aerospace value chain through the aviation Chief Technology Officer Forum; and
- initiating a review of our global policy bodies and trade associations participation in line with our climate position and net zero goals.

Governance of climate-related risks and opportunities

Sustainability is embedded in our global governance framework, risk management system and operating standards. At Board level, the Safety, Ethics & Sustainability Committee has oversight of our overall sustainability approach. In 2021, we introduced an ESG dashboard, including climate-related targets, used by the Committee to assess progress against our plan. Specific elements of our sustainability framework also have oversight by the appropriate Board level committees.

COMMITTEE STRUCTURE



THE BOARD'S OVERSIGHT

The **Board** has oversight of climate-related risks and opportunities impacting the Group. These risks and opportunities were central to the Board's discussions as they developed the strategic narrative for the Group which was central to the Board's discussions in the year. In turn, some elements of their responsibilities are delegated to committees of the Board as set out below and all Board Committees have climate-related issues as part of their remit, each Committee reports back to the Board formally on the topics discussed following each Committee meeting. The Directors' skills and experience are set out on pages 71 to 73 including the details of those Directors who have experience in sustainability and climate change. All Directors received training on climate-related risks and regulations in the year and further training on climate-related issues is planned for 2022.

The **Safety, Ethics & Sustainability Committee** (see page 105) reviews the Group's sustainability strategy, priorities and progress and has delegated responsibility to review the principal risk relating to climate change. It monitors our environmental sustainability performance and approves updates to our environmental sustainability strategy and targets annually. It receives reports at each meeting from the head of sustainability who also reports on the discussions of the executive-level environment & sustainability committee on a regular basis.

The **Science & Technology Committee** provides oversight of the Group's technology programmes and the approach to low carbon power.

The **Audit Committee** is responsible for reviewing and approving the content of our TCFD recommendations and noted progress as preparations were being made for the disclosures in this report. The Committee also ensures that, where material, climate change is factored into the financial statements and disclosed appropriately. See note 1 on page 117 and the Audit Committee Report on page 83.

The **Remuneration Committee** determines our remuneration policy, which includes sustainability and climate metrics. In 2021 the Committee approved the linking of climate-related targets to executive remuneration, these targets are detailed on page 42.

The **Nominations & Governance Committee** reviewed the Group's governance of ESG in September including published targets. The Committee also received a briefing on directors' responsibilities for climate-related disclosures in December. In appointing Wendy Mars to the Board, her insights into innovation and sustainability were considered particular strengths.

MANAGEMENT'S ROLE

The **Executive Team** is responsible for managing climate-related risks and opportunities on a day-to-day basis and for delivering the roadmaps to achieve our net zero strategy, and the Chief Executive has specific risk ownership of the principal risk related to climate change.

The **environment & sustainability committee** is a sub-committee of the Executive Team that is responsible for formulating and overseeing implementation of the Group's response to environmental and sustainability related matters, including strategy, policy, approach, and related key performance indicators related to climate change. The committee is chaired by the Chief Executive and all members of the Executive Team are also members alongside: the chair of the environment advisory committee; head of sustainability, chief governance officer; the director of external communications and brand; the director of central technology; and, the director of risk and internal audit. The Committee reports regularly to the Safety, Ethics & Sustainability Committee, as well the Science & Technology Committee as required.

The **investment review committee (IRC)** is an executive-level committee that reviews all investments, acquisitions and divestment proposals against a set of balanced criteria relevant to the Group's strategy, including the Group's core capability to deliver the transition to net zero. See detail on capital allocation factors on page 19.

Internal expertise is complemented by an independent **environmental advisory committee** which comprises external experts and academics who are leaders in relevant fields, including climate science, materials science and environmental policy. One member is a lead author of the Intergovernmental Panel on Climate Change (IPCC). The committee provides input and independent critique of our sustainability and environment policy and strategy, and is commissioned to undertake or review scientific research on behalf of the Group. Recently commissioned examples include reviewing the climate targets and product strategy of Rolls-Royce in relation to recent science developments and identifying key strategic materials for the transition to net zero. Member details are available on rolls-royce.com

Strategy in relation to climate change

Our decarbonisation strategy will ensure that Rolls-Royce is not only compatible with, but actively supports, a net zero future.

We assess our resilience over three time horizons: short term (<five years), medium term (five to ten years) and long term (ten to 30 years). Our short-term assessment aligns with the existing five-year planning horizon used across the Group and is also aligned with our viability assessment (see page 60). Our medium-term assessment is aligned to our 2030 goals, including our scope 1 + 2 target and commitment to ensure all new products are compatible with net zero carbon operation (see page 42). 2030 also represents the point at which we expect our New Markets businesses, which are inherently low or net zero carbon, to begin growing rapidly. Our long-term time horizon has been chosen as it aligns with our 2050 commitments and the nature of our business model means that products introduced today may be in active operation for the long term.

Scenario development and analysis

We use climate scenarios to assess the viability of our business strategy, decarbonisation plans and approach to managing climate-related risk including the impact on our financial results. Three scenarios were first developed in 2019, drawing upon externally published scenarios and emissions reduction pathways, to understand the impact of varying degrees of global temperature rise on our business activities and operations. During 2021, we have reviewed these scenarios and rationalised these into two primary climate scenarios, focused on 1.5ºC and around 4ºC of global average temperature change by 2100. Our decision to remove the third original scenario, which described a potential 6ºC global average temperature increase, is consistent with the level of global commitment and policy made since the 2015 Paris Agreement, including at the most recent COP26. A revised scenario, focused on a fragmented global policy response with temperature rise of around 4ºC is more appropriate.

In combination, these two scenarios enable us to further explore both transition and physical risks and opportunities that the Group may be subject to. To understand further the potential impact that climate change could have on our business, we have completed high-level analysis of each scenario to identify a range of climate risks and opportunities, considering both physical and transitional aspects of each and their potential impact on the Group. This exercise included modelling the impact of macroeconomic factors, i.e. GDP and carbon pricing, underpinned by global temperature changes and climate scenarios, against our strategic goals and future demand. For the most part, this was a qualitative exercise in 2021, but for a limited number of risks and opportunities which were perceived to have the potential to be material, we have quantified the risk or opportunity to test the resilience of our strategy, ensuring the impact is built into financial forecasts and reflected in the financial results. This work will continue in 2022 and we expect to make further disclosures related to the quantified impacts of these risks and opportunities in due course. We believe we have more work to do to fully meet the TCFD recommendation, strategy, part C, to better describe the resilience of the organisation's strategy under a 1.5ºC scenario.

*Accelerated Transition Risk Analysis (1.5ºC scenario) **

Under this scenario we see strong international alignment to limit global temperature rise in accordance with the Paris Agreement, i.e. keeping a global temperature rise this century well below 2ºC above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5ºC, in an orderly manner. Governments around the world adopt strict product and behavioural standards, high carbon pricing and strategic investments in low carbon alternatives.

* Under each scenario our analysis considered both physical and transition risks. Our assessment suggests that in the 1.5ºC scenario the transition risks are more material than the physical risks.

Pressure from society is relentless and there is acceptance of the need to control carbon emissions and a willingness to pay for low carbon solutions.

The scenario is based on IPCC SSP1-19 and uses carbon prices and temperature rises from the IEA Net Zero data set and GDP information from the Oxford Economics Net Zero model.

As set out in our principal risk related to climate change, our analysis has shown that, without action, this scenario presents risk over the medium to longer term, particularly to our Civil Aerospace and Power Systems businesses. However, some of these changes also represent material opportunities, particularly to our Power Systems and New Markets businesses. Furthermore, we do believe that there is a viable pathway for decarbonising our existing businesses. See the technology pathway to net zero graphic on page 37.

Key findings from our analysis of this 1.5°C aligned scenario are:

- impacts primarily arise from lower demand (than in other scenarios) and increasing costs e.g. due to carbon pricing increasing costs; and
- customers switch to newer more fuel-efficient products, and retire older less efficient products, which leads to threats to our older products and opportunities for newer products (e.g. Trent XWB, Power Systems low carbon engines and our New Markets businesses).

Accelerated Physical Risk Scenario Analysis (4°C scenario) [1]
To understand further the risk that climate change could have on our business, we have undertaken a high-level assessment of the physical climate change risks to assets, and key parts of our supply chain, under a 4°C scenario at 2030, 2040 and 2050. These timescales are important in order to mirror the longevity of our assets, even with the increased level of uncertainty generated under such timeframes. The exercise is not yet underway and therefore only initial results and the approach are shared in this year's disclosure.

Our analysis of physical climate risks is aligned with recognised climate scenarios, specifically the Intergovernmental Panel on Climate Change's (IPCC) Representative Concentration Pathway (RCP) scenarios which provide a uniform framework for exploring potential climate changes and related impacts. RCPs are used globally for climate modelling and give access to a wide range of peer-reviewed and accepted climate datasets, as well as allowing consistency across territories.

Our assessment has focused primarily on: river and surface water flooding; coastal inundation; high winds; and the risk of forest fires. These hazards are considered as part of our business continuity risk in relation to climate change (see page 53).

Key findings from our analysis of this 4°C aligned scenario are:

- physical risks are more material than transition risks; and
- we will be most vulnerable to physical risks at our UK and US operations due to the combination of our significant operational presence and physical risk exposure.[2]

Outcomes of climate scenario analysis
Further details on how these scenarios have been considered in preparing our financial statements are set out in the Notes to the Consolidated Financial Statements (see page 117).

These scenarios will be further developed in 2022 for incorporation into annual strategic and financial planning processes.

Climate-related risks and opportunities

The scale of ambition and speed of change required to meet both our Group, wider sector and nationally determined net zero emission targets, along with the changes in temperature and weather patterns, present both risks and opportunities to our business. The assessment and management of climate-related risk and opportunity is an integral part of our enterprise risk management process (see pages 52 to 53). This looks to understand the risks to our objectives and sets common assessment criteria across the Group so that risks, including those arising from climate change, can be assessed and compared across the Group. Risk owners are accountable for managing their risks effectively, with risks subject to review and oversight based on their materiality.

In 2019, a principal risk related to climate change, specifically the potential of risk to future revenue changes as a result of failure to transition to an inherently lower carbon product portfolio, was developed and added to our Group risk register (see pages 54 to 57). This principal risk was identified through a range of processes, including horizon scanning, the work undertaken on climate scenario development and inputs from subject matter expertise (such as our environmental advisory committee) and other stakeholders. The Chief Executive is recognised as risk owner for the climate-related principal risk, and the Safety, Ethics & Sustainability Committee has delegated oversight. More detail on our treatment of the climate change principal risk is detailed on page 55.

Broader climate-related risks and opportunities can manifest themselves beyond those described in the principal risk. The assessment is based on the risks and opportunities set out in the TCFD guidance and our view of the most material risks and opportunities with input from across the business and external sources.

A summary of the climate-related risks and opportunities identified as having a potentially material impact on the Group, and our associated controls, includes:

[1] Under each scenario our analysis considered both physical and transition risks. Our assessment suggests that in the 4°C scenario the physical risks are more material than the transition risks.
[2] Vulnerability to hazards does not mean that risks will be realised. Whether vulnerability translates into risk depends on the exposure (location) of individual assets relative to projected changes in climate hazards, as well as any site-specific resilience measures in place.

RISKS*

RISK TYPE	POTENTIAL IMPACTS	OUR RESPONSE
Transition risks including: – Policy and legal technology market and reputation – Timeframe: short, medium and long term – Impacted businesses: Civil Aerospace and Power Systems	– Reduced sale or use of our existing products; including as a consequence of: government policy, increased cost (including resulting from carbon taxes), customer behaviour (including as a result of sector stigmatisation), or substitution with lower carbon alternatives – Fines or litigation for climate damage – Asset write downs – Higher financing costs	As set out above our response is focused on four key areas: – Investing £30m in our facilities so that they are net zero by 2030 – Improving the fuel efficiency of our products – Investing in our products so that they are capable of using 100% sustainable fuels – Investing in new technologies such as electric propulsion and hydrogen fuel cells
Physical risks including: – Chronic and acute – Timeframe: short, medium and long term – Impacted businesses: all	– Increased capital costs as a result of damage to facilities – Reduced revenues from decreased production capacity (e.g. supply chain interruptions) or disruption to customer operations	As set out in our business continuity risk, see page 55, our approach is, where possible, to have a resilient supply chain, both internally and externally and to put in place controls to respond quickly to limit the impact of any event should it occur.

OPPORTUNITIES*

OPPORTUNITY TYPE	POTENTIAL IMPACTS	OUR RESPONSE
Energy source	– Shift toward decentralised energy generation	As set out in our Chief Executive's Review, see pages 6 to 8, our Power Systems and Defence businesses, alongside our New Markets businesses, envision significant opportunities to come from the clean energy transition.
Products and services	– Development and/or expansion of low emission goods and services – Development of new products or services through R&D and innovation	See our response to transition risk above.
Markets	– Access to new markets	Our New Markets businesses (see page 32) are focused on addressing the opportunities created by the transition to net zero. They will develop new sustainable products for future markets.

* A limited number of risks and opportunities which were perceived to have the potential to be material have been identified. This work will continue in 2022.

As detailed on page 53, the risk level associated with the principal risk related to climate change has increased during 2021. Moreover, we recognise that our emissions go up between now and 2030 as the decarbonisation levers we are pursuing scale, and markets recover post COVID-19 (see page 37).

This also presents opportunities articulated in the strategy section, (see pages 9 to 12). Our strategic ambition to lead the transition to net zero carbon and our agreed targets are designed to pivot climate change from an existential threat to an opportunity to refocus and grow. Definitions of net zero, positioning our role as part of the solution and sufficiently robust delivery plans will be key to bringing our strategic vision to life. Our strategic objectives recognise this, we acknowledge that these are bold ambitious targets and the risk that we don't achieve them is also now reflected as a principal risk.

Our short-term financial plans include funding required to progress against our climate change commitments. Our capital investment approach has been updated this year to make climate change a key consideration when allocating capital (see page 19). Our longer-term plans also set out ambitious growth targets for our low and net zero technology businesses.

As described above and in our principal risks, climate change presents both threats and opportunities for the Group and the financial impact on the Group will be dictated by our ability to mitigate the threats and exploit the opportunities.

Net zero by 2050: metrics and targets to measure progress

The foundation of our decarbonisation approach is our commitment to reach net zero carbon across our value chain by 2050, ratified through our participation in the UN Business Ambition to 1.5°C campaign and involvement in the Race to Zero initiative. To monitor progress against our 2050 net zero carbon commitment we have established a suite of interim milestones and targets over the shorter term. During 2022, we will supplement these targets with further measures as we look to achieve Science Based Targets initiative (SBTi) accreditation.

SHORT AND MEDIUM TERM DECARBONISATION TARGETS

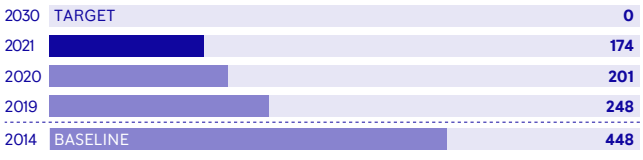
EMISSION	TARGET	2021 PROGRESS HIGHLIGHTS
Operations and facilities (scope 1 + 2)	Achieve net zero GHG emissions from operations and facilities by 2030	– Reduced emissions by 27 $ktCO_2e$ from 2020 – Continued investments in energy efficiency improvements – Commissioned second ground source heat pump at Bristol, UK site
Product testing (scope 1)	Use SAF for 10% of Civil Aerospace and Defence UK product testing regime by 2023	– Secured fuel supply to meet testing demand
Product portfolio (scope 3)	Certify *mtu* Series 2000 and 4000 series reciprocating engines to run on sustainable fuel by 2023	– Successfully tested *mtu* Series 2000 and 4000 reciprocating engines on 100% sustainable fuels – Certified the *mtu* Series 4000 reciprocating engines for the 50Hz markets to run on sustainable fuels
	Prove compatibility of all in-service Civil Aerospace engines and all major in production Defence engines with 100% SAF by 2023	– Successfully flight tested Trent XWB-84 and Trent 1000 TEN on 100% unblended SAF – Ground tested Pearl 700 on 100% unblended SAF

Our 2050 commitment is supported by a suite of short and medium term targets and metrics related to various categories of our emissions footprint and other environmental targets, such as our responsible consumption targets (see page 45), which do have an inherent carbon impact.

Each business is responsible and held accountable for delivering its agreed metrics and targets that relate back to the Group's agreed sustainability priorities and targets dashboard, and also the remuneration policy targets (see pages 87 and 88).

One such target is to reduce the GHG emissions related to our operations and facilities (scope 1 + 2 emissions) to net zero by 2030. During 2021, absolute emissions of GHG associated with our operations decreased by 27 $ktCO_2e$ to 174 $ktCO_2e$ from 201 $ktCO_2e$ in 2020. In 2021, we commenced installation of a second ground source heat pump project at our Bristol, UK site. Due to become fully operational in spring 2022, this will deliver annual cost savings of approximately £0.7m, and reduce operational emissions by 0.8 $ktCO_2e$, per annum. This project represents a key step forward in our journey to reach net zero carbon from operations and facilities.

ABSOLUTE GHG EMISSIONS ($ktCO_2e$) [1,2,3,4]



Further details of our GHG emissions are published on page 212. This includes a breakdown of our scope 1 + 2 emissions data, reported in accordance with the Streamlined Energy and Carbon Reporting (SECR) requirements.

Disclosure of scope 3 emissions

During 2021, we published details of our estimated total emissions footprint, including scope 3 GHG emissions, as we set out our plans to reduce emissions associated with the use of sold products. This included estimations based on best available data and methodology at time of publication. In preparing this report we have considered the completeness and robustness of the scope 3 emissions calculations used at that time and have decided not to include that data in these disclosures. For this reason we consider ourselves to not be in full compliance with the TCFD requirements at this stage. During 2022, we will focus on maturing our reporting process to enable future disclosure.

[1] Emissions associated with product test and development, critical to ensuring product safety, are excluded from our GHG target. Statutory GHG emissions data, including emissions from these sources, are detailed on page 212.
[2] External assurance over the GHG data is provided by Bureau Veritas. See page 211 for the Sustainability Assurance Statement.
[3] Data has been reported in accordance with our basis of reporting, available at rolls-royce.com/sustainability
[4] Bergen Engines and Civil Nuclear data is included. ITP Aero is classified as a discontinued business in line with 2021 financial reporting. Therefore, 2021 and historical data excludes ITP Aero.

TCFD RECOMMENDATIONS

This table outlines where our TCFD recommendations can be found. We believe our approach is consistent with nine of the 11 TCFD recommendations. The two we are inconsistent with are: strategy, part C, relating to the assessment of organisational resilience in the face of climate change; and metrics and targets, part B, relating to scope 3 emissions disclosure. Our explanations can be found on page 39 and 42.

		RECOMMENDATION	PAGE
Governance	A	Board oversight of climate-related risks and opportunities	38
	B	Management's role in assessing and managing climate-related risks and opportunities	38 to 39
Strategy	A	The organisation's identification of climate risks and opportunities it faces over the short, medium, and long term	39 to 41
	B	Consideration of the impact of climate risks and opportunities on the organisation's business, strategy, and financial planning	36, 39 and 117
	C	Resilience of the organisation's strategy, taking into consideration different climate-related scenarios	39
Risk management	A	Presence of the organisation's processes for identifying and assessing climate-related risks	40
	B	Processes for managing climate-related risks including prioritisation methods	40 to 41
	C	Processes for identifying, assessing, and managing climate-related risks are integrated into overall risk management	40 to 41
Metrics & targets	A	Disclosures of metrics used to assess climate risks and opportunities in line with strategy and risk management processes	41 to 42
	B	Disclosure of greenhouse gas emissions and the associated risks	42 and 212
	C	Presence of targets used to manage climate risks and opportunities and performance against targets	41 to 42

RESPONSIBLE CONSUMPTION

Understanding and managing our impact across our value chain is a key part of being a responsible and resilient business. We are committed to reducing the environmental impact and enhancing the operational resilience of our facilities and supply chain.

Responsible consumption of resources ensures we are a more resilient business and contributes towards a more sustainable society. This requires us to innovate throughout our value chain; considering which raw materials we use and how we procure them; how we design and manufacture products; and how we manage our products at the end of their life. We are committed to minimising the negative impact of our business activities and enlisting the support of our partners in the value chain to do the same.

2021 HIGHLIGHTS

Launched new recycling and recovery target

•

Initiated new sustainable procurement framework

Operations and facilities

Across our global estate we seek opportunities to reduce our environmental impacts and increase our operational resilience. Our governance framework, including our health, safety and environment policy, sets out common practices all Rolls-Royce sites follow, alongside compliance with local legislative requirements. We focus particularly on opportunities to: optimise energy use; reduce GHG emissions; reduce waste and optimise material efficiency; and reduce water use. During 2021, we continued to progress our footprint consolidation and upgrade programme, including concluding a major overhaul of our Indianapolis, US facilities.

Moving towards a circular economy

The significant aftermarket and maintenance requirements of our products, which often run for decades, means the incentive for circularity and resource efficiency is deeply embedded in our business model. Through our revert programme, we are leaders in high-value metal recycling and, with an innovative approach to our manufacturing technology strategy, we are driving significant improvements in the efficient and responsible use of water, energy and consumable resources.

At the beginning of 2021, we introduced a new target to increase the recycling and recovery rate to 68% by 2025, whilst maintaining zero non-hazardous waste to landfill. Moving up the waste management hierarchy, this target incentivises circularity by keeping materials within the value chain and avoiding waste being sent to incineration or landfill. We have made good progress towards our target in 2021, increasing the recycling and recovery rate to 60.8% from 59.6% in 2020. This has been driven by rapid adoption of best available technology and improved segregation. We are continuing to experience reduced production, engine overhaul and site consolidation due to the impacts of COVID-19, and in turn, less recyclable waste compared to 2019, our baseline year.

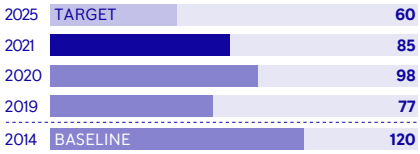
As part of the recycling and recovery target, we are continuing to explore options to recover the remaining waste streams from our previous waste to landfill target. This includes a significant amount of foundry sand from our Pascagoula, US facility, where local requirements have hindered our ability to identify a plausible recovery route to date. In 2021, operations and activity at the Pascagoula facility increased, causing the volume of waste being sent to landfill to rise to 3.7 kilotonnes.

Building a resilient, sustainable supply chain

Our ability to succeed is dependent on the resilience and sustainability of our supply chain and we have a responsibility to support our partners in mitigating the impact of our supply chain activities. Through our business practices, including our supply chain due diligence, we aim for compliance with our Supplier Code of Conduct.

In 2021, we completed a comprehensive review of our sustainable procurement strategy and introduced a new sustainable procurement plan. This aims to enhance the integration of sustainability into our existing supply chain management processes. This includes enhancing tier 1 supplier due diligence across environmental, social, ethical and governance criterion through a third-party platform; and working to identify high carbon impact areas of our supply chain for prioritised engagement to identify opportunities to reduce our scope 3 emissions.

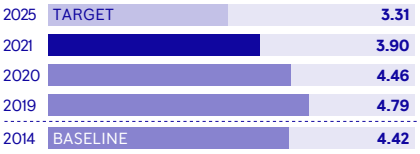
ENERGY CONSUMPTION (MWh/£m)



Target:
Reduce normalised energy consumption by 50% by 2025 [1,2,3,4]

We have made good progress to date towards our 2025 target, reducing absolute energy consumption by 465,920 MWh (33)% since 2014. This was driven by energy efficiency improvements and the continuation of our baseload reduction campaign involving weekly monitoring of our production sites. Significant infrastructural improvements were also enabled by a temporary shutdown of several UK sites due to the impacts of COVID-19. In 2021, normalised energy consumption was 85 MWh per £m, a 29% reduction since 2014.

TOTAL SOLID AND LIQUID WASTE (t/£m)



Target:
Reduce solid and liquid waste by 25% by 2025 [1,2,3,4]

We continue to focus on opportunities to prevent waste generation. This year, in partnership with a key facility management supplier, we hosted innovation campaigns to generate employee-led ideas and actions to reduce waste, whether in our office or manufacturing facilities, or in the virtual workplace. The outputs of these campaigns will be incorporated into our ongoing waste management activities. The total amount of solid and liquid waste generated in 2021 was 43.8 kilotonnes. Normalised total liquid and solid waste was 3.90 kilotonne/£m, a 12% reduction since 2014.

RECYCLING & RECOVERY RATE (%)

Target:
Increase the recycling and recovery rate to 68% by 2025 [1,2,3]

In 2020, we replaced our previous zero waste to landfill target with a new target aimed at increasing the recovery and recycling of materials across our production, manufacturing and overhaul activities. We continue to concentrate on diverting waste from landfill where possible. In 2021, 3.7 kilotonnes of waste were sent to landfill, a 44% reduction since 2014. In 2021 the recycling and recovery rate was 60.8%.

[1] External assurance over the energy and waste data is provided by Bureau Veritas. See page 211 for the Sustainability Assurance Statement.
[2] Data has been reported in accordance with our basis of reporting. More data charts and our basis for reporting is available at rolls-royce.com/sustainability
[3] Bergen Engines and Civil Nuclear data is included. ITP Aero is classified as a discontinued business in line with 2021 financial reporting. Therefore, 2021 and historical data excludes ITP Aero.
[4] Energy and total waste reduction targets are normalised by revenue.

NON-FINANCIAL INFORMATION STATEMENT

The following chart summarises where you can find further information on each of the key areas of disclosure required by the EU Non-Financial Reporting Directive.

	RELATED GROUP POLICIES	RELATED PRINCIPAL RISKS	PAGE
ENVIRONMENTAL MATTERS	— Health, safety & environment	— Climate change — Safety	36 to 45 and 212
EMPLOYEES	— Security — People	— Talent and capability — Safety	46 to 50
SOCIAL MATTERS	— Charitable contributions & social sponsorships	— Political risk	46 to 50
HUMAN RIGHTS	— People — Human rights	— Compliance	51
ANTI-BRIBERY AND CORRUPTION	— Anti-bribery and corruption	— Compliance	51

— Our business model provides an insight into the key resources and relationships that support the generation and preservation of value within Rolls-Royce. See pages 14 and 15.
— Non-financial key performance indicators allow us to assess progress against objectives and monitor the development and performance of specific areas of the business. These are set out on page 17.
— Further information on Group policies can be found on rolls-royce.com
— Full details of the Group's principal risks can be found on pages 52 to 57.
— TCFD recommendations are detailed on pages 36 to 43.

PEOPLE AND CULTURE

We are powered by our people. We strive to release their full potential to position Rolls-Royce as a leading industrial technology company, delivering sustainable business growth and solving vital power needs.

2021 HIGHLIGHTS

Evolved new ways of working to enable delivery throughout and beyond the COVID-19 pandemic

•

Largely completed on our restructuring commitments whilst ensuring we retained key capabilities

•

Focused on inclusion and diversity and made significant progress

•

Continued our focus on leadership enablement, talent and capability

•

Launched a new learning brand to support our always-learning culture – Leatro

In a year that was again dominated by the impact of COVID-19 and the return to a new normal we continued to focus on keeping our people safe whilst ensuring our essential operations continued. Our fundamental restructuring programme has largely been completed, which included making substantial headcount and employment cost reductions. We further resized and reshaped the business, through the establishment of new businesses such as Rolls-Royce SMR and through our disposals programme.

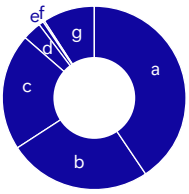
We worked hard to retain, motivate, and inspire our people through the challenges of a continuing global pandemic. We supported our people to continue working from home, where possible, and further embedded flexible and hybrid ways of working. We continued to transform our culture through our values and behaviours and focused on leadership capability, diversity and inclusion and employee engagement. Our approach to people and culture is underpinned by our people framework and our care promise remains central to everything we do, creating a working environment where everyone can be at their best.

Health, safety and wellbeing

Ensuring the wellbeing of our people, and those who work with us, by providing a safe place of work and minimising potential exposure to harm, is a key component of our care promise. We have continued to work with employees and their representatives to maintain a COVID-19 secure work environment and, to date, have been able to continue our operations without disruption. As lockdowns have lifted, we have reopened office facilities and welcomed employees back. A feature of the pandemic has been the different waves and phases that have occurred regionally.

OUR PEOPLE FRAMEWORK

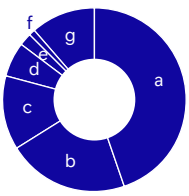
44,000 EMPLOYEES TOTAL (MONTHLY AVERAGE) *



a. Civil Aerospace	17,900
b. Defence	11,100
c. Power Systems	9,100
d. Other businesses	1,400
e. New Markets	400
f. Corporate	100
g. Discontinued business (ITP Aero)	4,000

* Segments are defined in note 2 on page 131. ITP Aero is included in headcount as a discontinued business (4,000).

EMPLOYEES IN 49 COUNTRIES (MONTHLY AVERAGE) *



a. UK	19,700
b. Germany	9,500
c. USA & Canada	5,700
d. Spain	2,700
e. Singapore	900
f. India	600
g. Rest of World	4,900

* Employee headcount data represents permanent employees and excludes contractors.

The third COVID-19 wave in India was particularly severe and we implemented a range of additional support measures, including the provision of home oxygen concentrators and enhanced access to medical advice for our people and their families in the region. We work closely with governments and public health bodies and benchmark widely to ensure our processes and practices are in line with legal requirements and best practice.

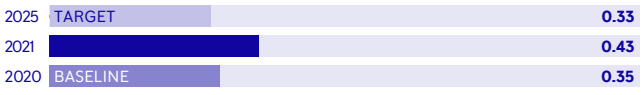
We achieved our LiveWell goal in 2020 and have used 2021 to further develop the programme ready for re-launch in 2022. In recognition of the significant mental health impact of the pandemic, we increased our focus on mental wellbeing during 2021 with further expansion of our Mental Health Champions network and roll out of our Pascal tool for assessing mental health risks in teams. We have also launched a menopause policy, menopause community of practice and a range of menopause guidance and resources to support colleagues in discussing this important topic.

This year we introduced our safety index, a composite score of five leading indicators aligned to the aspirations of our journey to zero harm strategy. The safety index supports a more balanced approach to safety performance measurement, focusing not only on lagging injury rates, but also on key leading measures designed to drive proactive behaviour and actions.

The indicators focus around five key areas: senior leadership safety walks; safety case improvement activity; HSE alert response; close-out of HSE non-conformances; and accountable person engagement. From a baseline safety index performance score of 48%, we saw a significant improvement in 2021, ending the year at 74%, exceeding our target of 58%. We are recalibrating the targets for 2022 to ensure they are sufficiently stretching and drive the desired safety activity and behaviours.

Our total reportable injury (TRI) rate in 2021 was 0.43 per 100 employees. There were a total of 192 TRIs and 12 resulted in major injuries (including two contractors) which is a 20% reduction on the previous year. There were no fatalities.

TRI RATE (PER 100 EMPLOYEES)*



* Our TRI rate shows the Group TRI performance (absolute and rate) including Bergen Engines, I&C and ITP Aero. External assurance over the TRI data provided by Bureau Veritas See page 211.

New ways of working

During 2021 we continued to implement a range of measures to manage our pay and benefits cost to support our financial position. There were no annual pay increases in 2021 across the whole Group for works, staff and management groups. Employees in Civil Aerospace took ten days of unpaid leave, with employees in the central functions taking five days. We continued to use government job protection schemes as needed across our locations, including the UK, Germany and Italy. For example, in the UK we participated in the Government Coronavirus Job Retention Scheme, benefiting from support for those of our employees who were furloughed. In December 2021, we chose to repay £626,000 of furlough assistance received for UK employees who were subsequently made compulsorily redundant. Compulsory redundancies represented around 4% of total UK redundancies through 2020 and 2021. We have continued to make changes to our total reward arrangements to manage costs and to remove inequality between employee groups linked to tenure. These changes included the closure of defined benefit pension arrangements to future build-up of benefits in the US and Canada and the termination of our company car scheme in the UK. We also implemented a new remuneration structure across the Group linked to the new incentive policy approved by shareholders at the 2021 AGM (see pages 87 to 88). The new incentives reinforces our focus on rewarding performance, with a strong link to the commitments made to stakeholders at the point of the rights issue in 2020.

We have continued to engage with our employee representatives throughout this period with a view to ensuring that our pay and benefit arrangements are competitively positioned and sustainable for the future. Due to the scale and nature of the necessary changes this has continued to be challenging, but overall, our approach has remained collaborative. In response to our proposed site consolidation, we experienced a further period of industrial action at our Barnoldswick, UK site but this was resolved with an agreement supported by the local workforce. We will continue to work closely with our employee representatives to deliver the productivity and efficiency improvements which are vital for the future competitiveness of the Civil Aerospace UK workforce. This includes modernising our ways of working with our trade unions and simplifying employee terms and conditions.

Many of our people adapted to new ways of working through the COVID-19 pandemic, including working remotely, and this has continued for an extended period throughout 2021. We engaged our people in considering new ways of working for return to our new normal and to support everyone to work in a way that enables them to be at their best. Building on the largely positive experiences of our people we have refreshed and updated our approach to flexible and remote working. We recognise that one size does not fit all, and that support for flexible and hybrid ways of working can help employees perform better and enable us to attract and retain a more diverse range of talented people. We believe it is about balance – balancing the needs of the individual, the team and the business. We will continue to assess the effectiveness of our approach, updating our policies as needed. We have supported this by enhancing our IT platforms, providing more digital learning, and coaching our leaders on new ways of working. We have reinforced our commitment to flexible working for the long term.

Continued restructuring

Our 2020 fundamental restructuring was focused on short-term mitigation measures to secure liquidity and longer-term restructuring to resize the business whilst accelerating progress on culture and leadership. This year we continued to focus on delivering on our 2020 commitments and implementing the changes required to reshape

the business. We continued to embed the output from the strategic review of our facilities, to balance load and capacity, reduce our costs and consolidate activity from multiple into fewer core sites. We closed our Crosspointe facility in the US and our Singapore Assembly and Test facility.

We enhanced the strong progress we made in restructuring last year (removing over 7,000 roles in 2020) and have removed further roles in 2021, achieving over 9,000 role reductions from continuing operations. As in 2020, most of those who left the business left on voluntary terms. These difficult but necessary changes will help generate recurring operational benefits for the Group and, along with our mitigating actions to preserve cash, have significantly contributed to our in-year cost reduction targets.

Start of year headcount[1]	End of year headcount[1]	Number of roles removed[2]
46,619	44,676	1,943

[1] Headcount includes contractors as well as permanent employees.
[2] Change based on year-end 2020 and year-end 2021 actuals. This includes ITP Aero and Bergen Engines and has not been adjusted to reflect any M&A activity.

Throughout our restructuring, we proactively focused on talent, making sure that, where possible, we did not lose capabilities critical to our future success, or negatively impact our diversity. This included continued utilisation of our redeployment talent hub, established during 2020, to maximise the quality and quantity of critical talent retained in the business and has included making some internal transfers of key capabilities.

Leatro our new Rolls-Royce learning brand

Learning and technology sit at the core of our culture and our business. As a future-focused organisation we are always looking to push the boundaries. To pioneer what has never been done before and to enable innovation we must all learn for tomorrow, not just today. In May this year, to coincide with Learning at Work Week in the UK, we launched our new, trademarked, learning brand Leatro. The creation of this dedicated brand for learning signifies a new era of learning culture at Rolls-Royce. Under the banner of this new learning brand, colleagues are empowered and enabled at every point of their career with Rolls-Royce – able to learn in a style, and at a pace, that suits them anytime and anywhere.

Enabling and inspiring our people

The impact of COVID-19 and the subsequent restructuring created an even greater need to focus on enabling, inspiring and retaining our people this year. We launched our new, trademarked learning brand, Leatro, and in the seven months from launch to year-end, we have seen over half a million colleagues learning engagements via the new online platform (the volume of colleagues engaging with learning content). The amount of time our people are choosing to invest in learning through the site is increasing month-on-month, which provides a great indicator of improvement in our learning culture as our colleagues become more curious about the opportunities available through Leatro. Aligned with external developments, the way we deliver learning is changing and this year we have continued to focus on enabling learning in different ways and via different means. Our investment in learning in 2021 was £13.3m (2020: £13.5m) and we delivered around 0.25 million hours of formal learning (2020: around 0.5 million).

This reduction in formal hours of learning demonstrates our transition to a new learning culture at Rolls-Royce; one where colleagues are engaging with on-demand informal learning content far more than formal (e.g. face-to-face) learning. Our investment in learning this year focused on new on-line resources, content and enhanced digital tools, thereby enabling us to deliver both greater learning and skill development opportunities via informal learning engagements, alongside formal learning hours where relevant, for the same level of investment. To further drive our new learning culture within the organisation, in the second half of the year we launched Leatro Live. This is a guest speaker series of short talks from inspiring people, subject matter experts and pioneers. It is available via live-streaming and in-person to enable rapid inspiration in an entirely new and easily accessible, learning format. To embed our #alwayslearning culture across the organisation we have also run regular learning stories by our people, demonstrating how they have successfully integrated learning into the flow of work.

Continuing our focus on leadership capability in 2021, we committed to enabling all of our existing first and second level leaders to undertake our flagship leadership development programmes to accelerate the development of our organisational leadership capability. In 2021, we have seen 1,156 leaders enrolled on one of these formal development programmes. Alongside these formal programmes we have further developed our digital leadership toolkit providing our leaders with essential support to enable them to successfully lead their teams. New learning tools have focused on supporting our leaders with the shift in leadership capability, and new ways of working, that are needed post pandemic. Since launch in 2020, utilisation of this valuable resource has reached 185,000 learning engagements. Our new learning approach, and specifically the digital leadership toolkit has been recognised externally as innovative and impactful this year and we have been shortlisted as finalists in the Innovation in Learning Award category for the Learning and Performance Institute (LPI) Learning Awards 2022 as well as in the Learning Tools and Technology and Outstanding Innovation categories for the Learning Excellence Awards 2022.

Employee engagement

Employee engagement continues to be a priority and is a key measure in our incentive plans. We believe that positive engagement is the result of excellent leadership and a working environment where everyone can be at their best. Our approach remains a mix of locally-driven and Group-wide global engagement. We provide a variety of channels to communicate and engage our employees and their representatives including employee newsletters, magazines and team briefings, as well as our digital communication channels, such as Yammer. Our Executive Team has continued to hold regular 'YamJams' this year where all employees can direct questions to our leaders who will provide a response live, or as a follow up, posted on Yammer. We also work closely

with elected employee representatives through well-established frameworks, including our European Works Council. Our incentive schemes and share programmes are made available to all our people.

Our non-financial KPIs are on page 17. External assurance over the employee engagement scores is provided by Bureau Veritas (see page 211 for their Sustainability Assurance Statement).

This year, we ran our fourth Q12 employee engagement survey since partnering with Gallup in 2019. This simple survey provides our measure of engagement and a tool for our managers to implement local improvements. We also focused on providing more data and tools to our leaders to enable them to plan and lead their teams effectively. We achieved an increased participation of 76% and a Group grand mean score of 3.73 out of 5.00. This increase of +0.05 since 2020 and +0.20 since 2019, shows we remain on target to achieve top quartile scores by the end of 2023.

Community and STEM Outreach

Our community investment activities build positive relationships in the communities around us and create engagement opportunities for our people. Our community investment activities are part of our societal responsibility as a sustainable business. We work with local partners to understand issues, define objectives and evaluate impacts within a global framework. Together, we develop activities to meet local needs and particularly focus on groups disadvantaged by social and economic factors. Programmes create motivational opportunities for our people to support their communities and inspire future generations as role models and educators.

In 2021, global community contributions totalled £2.73m, including £1.79m in cash donations, and this included £0.53m raised by reclaiming and selling the shares of gone-away shareholders (those the Company has been unable to contact for 12 years). Projects supported include tackling the digital divide for young people in education in the UK and Germany; our Unnati programmes supporting STEM education and skills training for girls and women facing economic challenge in India; and, Habitat for Humanity's Women Build programme to provide homes for financially disadvantaged families in the US.

Our people remain at the heart of our programmes and, although employee time contributed was significantly lower than pre-pandemic levels at 26,427 hours during 2021, we continue to enable their participation as COVID-19 restrictions ease.

The majority of our investment supports STEM education and we reached 0.65 million people through our STEM programmes in 2021. We are now 33% towards our target to inspire 25 million of tomorrow's pioneers by 2030. Our STEM education programmes link strongly to our purpose to develop new technology to support a low-carbon economy and the drive to net zero. During 2021 we developed digital resources to sustain STEM outreach whilst activities were limited by COVID-19, such as those linked to our ACCEL programme to accelerate development of electric flight.

Continued focus on diversity and inclusion

In a year that continued to deliver challenges because of COVID-19 we maintained our focus on creating an inclusive and more representative employee population. This year we have matured our diversity and inclusion strategy, driving towards our 2025 targets through our four key pillars: leadership and governance; attracting and recruiting; retention; and, development.

We have continued our response to supporting ethnically diverse employees following the Black Lives Matter (BLM) events in 2020. Following listening sessions with black employees, we are implementing a strategy that has included increased external communications; flying black solidarity flags across multiple sites; leadership intervention from our Executive Team supporting anti-racism events and promoting black role models. We have also continued to progress our anti-bullying and harassment programme Treating everyone with dignity and respect. One of our Employee Resource Groups (ERGs) launched an employee handbook as a tool to help all of our people better support our black colleagues. We have also created a new development programme called Connect and Belong, as a direct result of our BLM listening events, which is focused on supporting career progression for our ethnically diverse employees.

Other highlights in 2021 include:

- increased representation of women in senior positions – notably recruitment of our first female Chair of the Board and female Chief Technology Officer as well as the appointment of a female Chief People Officer;
- new learning materials developed to support all of our leaders in creating an inclusive culture and leading inclusively;
- our successful Next Generation programme for developing female leaders was expanded across more of our Group;
- the launch of our new mandatory D&I learning for all including e-learning on the importance of D&I along with tools and techniques for our people to use to help create a more inclusive workplace; and
- we achieved our goal of becoming a Stonewall Top 100 employer, reaching 44th on their LGBTQ+ Workplace Equality Index. This has taken over five years of making steady progress around LGBTQ+ inclusion and sets us apart as one of very few engineering and manufacturing organisations to achieve this status. Alongside this, we also achieved a perfect score in the US Human Rights Campaign Corporate Equality Index for LGBTQ+ equality for the fifth consecutive year.

This year we also maintained our focus on increasing the diversity of our external hires. We launched a successful hiring campaign focused on reaching a more diverse population. 23% of all global hires were female this year compared with 19% in 2020. 14% of hires in the UK and 31% of hires in the US were of ethnic minority backgrounds. We have been recognised for our good work in this area and were voted best employer brand at the LinkedIn talent awards, and have also been awarded star employee status by Investing in Ethnicity for the progress of our ethnicity strategy.

In early careers we increased our female graduate hires globally from 19% in 2020 to 37%. In the UK, 32% of our apprentice hires were female and 29% were of ethnic minority backgrounds. The Talent Acquisition team were winners at the National Graduate Recruitment Awards and we were named Graduate Employer of Choice for Engineering by the Times Graduate Recruitment Awards.

We give full and fair consideration to all employment applications from people with disabilities. If an employee becomes disabled whilst working for us we take steps to support their continued working including, wherever possible, making adjustments to ways of working. All employees can take advantage of our learning programmes, often available online, and promotion opportunities are open to all employees regardless of any disabilities. We conduct annual gender pay reporting in the UK, and although our pay gap is largely unchanged from 2019 we continue to increase the number of women at all levels. We ensure that our employment benefits, both remuneration and ways of working, are flexible and competitive in the market place. We supported the FTSE Women Leaders review, which built on the excellent work of the Hampton-Alexander and Davies reviews over the last ten years and our 2021 submission highlighted our progression showing that our executive committee direct reports are 34% female.

Diversity and inclusion are integral to our strategy: to pioneer and push the boundaries of new technologies we must attract, inspire, and retain a diverse population. Diversity of thought brings positive challenge, which encourages people to work smarter and delivers better performance and sustainable profitability through innovation and problem solving. As we begin to see signs of recovery following the pandemic, we are taking deliberate action to create a more balanced and representative employee population. Diverse role models inspire future generations to join us and inclusive cultures encourage them to build their careers with us.

This year we were delighted to welcome our new Chair of the Board, Anita Frew and a new Chief Technical Officer (CTO) Grazia Vittadini to the Company, as well as appointing our new Chief People Officer, Sarah Armstrong who commenced her role with the Executive Team in January 2022. During the selection process we focused on diversity in our candidate pools and equality of opportunity throughout the process. Throughout 2021 we have also focused on our succession planning making sure that we continue to grow our gender and ethnic diversity at all levels.

Diversity and inclusion remain key priorities for us and this year we have also focused on action planning within the businesses to meet their challenging 2025 targets that we set in 2020 both on gender diversity globally, and ethnic diversity representation in the UK and US. We continue to make progress and we will maintain our focus on diversity action and fostering an inclusive culture that enables us to attract, develop and retain the right people to deliver business success now and in the future.

Female diversity percentage tracking and 2025 targets

	2020	2021	2025 Target
Board	31%	38%	40%
Executive Team	0%	9%	33%
ELG	20%	21%	35%
Senior leaders *	19%	20%	30%
All employees	17%	17%	25%

* The data for diversity information is showing permanent employee year-end actuals. It includes ITP Aero and Bergen Engines.

Ethnic diversity percentage tracking and 2025 targets for UK and US *

	2020	2021	2025 Target
UK ethnicity	10%	10%	14%
US ethnicity	15%	15%	20%

* For ethnicity information we are only able to monitor and track this in the UK and US and therefore this only includes businesses in these locations. The population is only those who have chosen to disclose this information.

Gender diversity actuals as at 31 December 2021

	Female	Male	Total	Female %
The Board	5	8	13	38%
Executive Team	1	10	11	9%
ET, Chief Governance Officer and direct reports	28	60	88	32%
Senior leaders *	19	76	95	20%
All employees	7,264	36,366	43,631	17%

* Senior leaders are defined in the Companies Act 2006 (as those who have responsibility for planning and directing or controlling the activities of the entity or a strategically significant part of it.) At Rolls-Royce, we define this as the Executive Team and the Enterprise Leadership Group (ELG).

See Board diversity on page 81.

ETHICS AND COMPLIANCE

We are committed to maintaining high standards of ethics and compliance to ensure we do business in a sustainable way. We work hard to create a working environment where everyone at Rolls-Royce and those we work with can be at their best.

We aim to be proud of the way we behave, the way we do business and the way we pioneer the power that matters for our stakeholders. This means upholding high ethical standards underpinned by our values and behaviours to enable a working environment where everyone can be at their best and avoid any potential complicity in misconduct. Our Code of Conduct (Our Code) and associated Group policies and processes provide guidance on how to live up to our values in our daily decisions.

In 2021, our mandatory ethics training focused on diversity and inclusion. This comprised of team discussions on real-life cases where people had been excluded, and everyone was asked to consider how they can ensure they are being inclusive. 97% of in-scope employees completed the training (2020: 92%) by the year-end deadline. 99% of managers certified their commitment to adhere to the principles set out in Our Code (2020: 99%). We flow these principles to our suppliers through our Supplier Code of Conduct. All suppliers are contractually required to adhere to this or a mutually agreed alternative.

We actively encourage speaking up in the event of a question or concern and provide a variety of channels through which our employees and our stakeholders may do so, including the Rolls-Royce Ethics Line. Every year we issue an annual report to everyone to highlight key statistics and remind them of the importance to speak up. In 2021, we took the report fully digital and it was made available as a video report for everyone to watch.

We have a zero tolerance approach to misconduct of any kind and will take disciplinary action, up to and including dismissal, in the event of a breach of Our Code. In 2021, 45 employees (2020: 63) left the business for reasons related to breaches of Our Code.

In 2021, we continued to cooperate with the Serious Fraud Office under the terms of our UK Deferred Prosecution Agreement (DPA). The DPA expired on 17 January 2022.

2021 HIGHLIGHTS

Conducted external and independent review of our Ethics and Compliance programme

•

Introduced anti-bribery and corruption virtual training

•

Initiated a programme to enhance sustainability due diligence measures in the supply chain

Anti-bribery and corruption

Our Code and associated policies clearly set out our commitment not to tolerate bribery or corruption in any form. In 2021, all employees who have a high risk of being exposed to potential bribery and corruption were asked to complete virtual training based around four stories to help them identify and manage bribery and corruption risks. We also asked a respected external organisation to conduct an independent review of our ethics and compliance programme. They found that we have continued to evolve the programme and it is operating appropriately. There are a series of recommendations that will help us continuously improve our programme and we will implement these throughout 2022.

Human rights and anti-slavery

With reference to international standards, our human rights policy sets out our commitment to respect the human rights of our employees, and those who may be impacted by the operations, products and services in our value chain.

We operate in accordance with human rights and humanitarian law through strict compliance to strategic export laws and other sanctions regulations in the countries where we operate, particularly in the sale of products with dual use or defence application. Our activities to identify, assess, mitigate and prevent human rights related risks are embedded within our operating and decision making practices and global governance framework. We are committed to investigating cases where our activities may have a potential or actual adverse impact on human rights. This topic has oversight from the board level Safety, Ethics & Sustainability Committee (see page 105).

During 2021, we focused on strengthening our processes to protect the rights of employees in our supply chain. This included completing a comprehensive review of our sustainable procurement strategy and onboarding a third-party platform to conduct more in-depth sustainability assessments, including human rights criteria, with our supply chain partners.

Find more information on our anti-slavery and human trafficking statement; Group policies and materials stewardship page at rolls-royce.com

For more information on our ethics approach see the Safety, Ethics & Sustainability Committee report on page 105 or view 'At our Best: Our Approach' document available at rolls-royce.com

PRINCIPAL RISKS

Our risk management system

The Board has established procedures to manage risk and oversee the risk management system (RMS). The Board has also established procedures to determine the nature and extent of the principal and emerging risks the Group is willing to take in order to optimise its commercial opportunities and achieve its long-term strategic objectives.

The Audit Committee reviews the Group's internal financial controls which form a subset of the broader set of controls. Financial reporting controls are identified and subject to periodic review by the Group's internal control team. The Audit Committee, on behalf of the Board, performs an annual review of the RMS and its effectiveness. During the year, the Board completed an assessment of both our principal and emerging risks.

Our RMS is designed to identify and manage, rather than eliminate, the risk of failure to achieve business objectives and to provide reasonable, but not absolute, assurance against material misstatement or loss.

How we manage risk

Risks are identified by individuals across all businesses and functions and at many layers of the organisation by considering what could stop us achieving our strategic, operational or compliance objectives or impact the sustainability of our business model.

Risk owners assess the risk's likelihood and impact, taking into account current mitigating control activities, identifying where additional activities may be needed to bring the risk within our risk appetite.

Risk owners consider the effectiveness of current mitigating control activities in their assessment, supported by different assurance providers including internal audit. These considerations are recorded using a variety of systems and tools depending on the risk area. In managing the identified risks, judgement is necessary to evaluate the risks facing the Group in achieving its objectives, determine the risks that are considered acceptable, determine the likelihood of those risks materialising, assess the Group's ability to reduce the impact of risks that do materialise and ensure the costs of operating particular controls are proportionate to the benefit provided.

Risk owners bring the results of their assessment, current risk status and action plans to business, function and other management review forums as often as is required depending on the nature of the risk, for support, challenge and oversight. These forums include the monthly Executive Team (ET) and regular Board and Committee meetings.

At least once a year the Audit Committee, on behalf of the Board conducts a review of the effectiveness of RMS, and where required, identifies areas for improvement (more details of this review can be found on page 85). For key compliance and safety risks, the Group has a set of mandatory policies and training which set out the expectations on employees and the controls in place. Every employee is required, annually, to complete training and confirm that they will comply with the mandatory policies. The consequences of non-compliance are addressed via performance management systems that are linked to remuneration.

During the year, we continued to embed the lessons learned from COVID-19, in particular a focus on improving the quality of our risk assessments and management activities in relation to our restructuring programmes and investment review processes. We will build on this work next year with a focus on improving our internal control environment for financial and non-financial controls, continuing to strengthen our second line assurance of key controls and focused actions to improve the effectiveness of our RMS.

Principal risks

Our principal risks are identified and managed in the same way as other risks. Principal risks are owned by at least one member of the Executive Team and subject to a review at an ET meeting at least once each year, before a review by the Board or Committee.

We have reviewed our principal risks over the course of the year and have updated them to reflect changes to the external environment and our strategy.

Changes in our principal risk levels

Last year we concluded that the risk levels for several of our principal risks had increased as a result of the direct impact of COVID-19 and changes to our ways of working. This year we have concluded that many of those risks remain at that heightened level with the exception of those set out below.

Increased risk: Business continuity

The global supply chain disruption described as impacting in particular our Power Systems business in 2021, (see page 30) will continue to have an impact in 2022. Additionally, as described above, physical climate change risks are considered as part of business continuity which captures the acute risks to our supply chain and operational facilities that may arise because of climate change. As climate change causes global temperatures to rise, the physical risks to our business from climate change will increase, with disruptions likely to be more frequent and severe if global temperature rise is not limited to 1.5°C (see page 36).

Increased risk: Climate change

Climate change risks are managed and assessed in the same way as all other risks. The transition risks may include extensive policy, legal, technological, and market changes and physical risks could include direct damage to assets and supply chain disruption. These risks are captured as part of this principal risk, with opportunities included as part of our strategic transformation principal risk. Physical risks are considered as part of business continuity which captures the acute risks to our supply chain and operational facilities that may arise because of climate change. The focus and scrutiny of all stakeholders including investors, governments, organisations and consumers on the potential impact, likelihood and timing of climate change has increased in the last year. We believe we have a critical role to play in leading the decarbonisation of complex power applications and our strategic transformation risk sets out the importance to the Group of capturing these opportunities.

Risks include demand for our existing products and services reducing at a quicker rate than demand for new net zero carbon sources increases. In addition, the global nature of our supply chain and customer base means that operational disruptions may become more common. Carbon taxes may increase. A failure to decarbonise could result in products' in-service life being reduced (e.g. through early retirement), our equity and debt becoming less attractive to investors, or our R&D projects becoming less attractive to third-party partners, increasing our cost of capital. Our transition to net zero and TCFD reporting (see page 36) sets out further considerations, scenarios and the most material transitional and physical risk factors for the Group.

In light of these changes, we have concluded that the level of our principal climate change risk as described in the table below has increased.

New and retired risks: Restructuring retired and strategic transformation introduced

As set out in the Chief Executive's Review (see page 6) and the Financial Review (see page 18), we have made good progress against our 2021 and 2022 restructuring targets, with our disposal programme expected to be completed in 2022 and cost savings delivering their expected benefits. As we look forward, it is therefore appropriate to retire the near term restructuring risk and introduce a new risk focused on achieving our longer-term objectives, as we realign our strategy to take advantage of the many opportunities we see, particularly as we look to lead the transition to net zero carbon and meet our strategic targets designed to pivot climate change from an existential threat to an opportunity to refocus and grow.

Other specific risks

Human capital: our approach to human capital risks forms part of care promise. More detail is included in our People and Culture section on pages 46 to 50.

Human trafficking and slavery: our approach is set out under the human rights and anti-slavery section on page 51.

Our current principal risks, together with how we manage them, how we assure them (by activities and functions other than internal audit), how the Board and Committees provide oversight and how the risk levels have changed over the course of the year, are set out in the table on pages 54 to 57.

Emerging risks

We continue to review additional emerging risks that could significantly impact or challenge our current strategy and business model and these were considered by the Board in February 2022. Any emerging risks identified have been recorded in our RMS and are being managed and monitored alongside our existing risks. Our approach this year looked at Political, Economic, Social, Technological, Legal and Environmental factors (PESTLE) to identify emerging risks and was complemented by a review of the technology risks lead by the Chief Technology Officer and shared with our Science & Technology Committee.

Change in risk level: ↑ Increased <> Static ↓ Decreased + New risk

HOW WE MANAGE PRINCIPAL RISKS

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	CHANGE
Safety Failure to: i) meet the expectations of our customers to provide safe products; or ii) create a place to work which minimises the risk of harm to our people, those who work with us, and the environment, would adversely affect our reputation and long-term sustainability.	**Product:** – Our product safety management system includes controls designed to reduce our safety risks as far as is reasonably practicable and to meet or exceed relevant company, legal, regulatory and industry requirements. – We verify and approve product design. – We test adherence to quality standards during manufacturing. – We validate conformance to specification for our own products and those of our suppliers. – We mandate safety awareness training. – We use engine health monitoring to provide early warning of product issues. – We take out relevant and appropriate insurance.	**Product:** – Product safety assurance team – Technical product lifecycle audits	– Safety, Ethics & Sustainability Committee – Product safety boards	<>
	People: – Our HSE management system includes activities and controls designed to reduce our safety risks as far as is reasonably practicable and to meet or exceed relevant company, legal, regulatory and industry requirements. – We reinforce our journey to Zero Harm. – We use our crisis management framework.	**People:** – Safety case interventions – HSE audit team	– Safety, Ethics & Sustainability Committee	
Strategic transformation We see significant opportunities in leading the transition to net zero by pioneering the power that matters. Our strategy is to focus on delivering our plans for existing and nascent businesses and to focus on exploiting opportunities to grow into new net zero areas, both organically and inorganically. Failure to execute this plan will prevent us from achieving our longer-term ambitions.	– Regular market assessments. – Financial modelling, scenario planning and sensitivity analysis. – Allocating capital in accordance with our strategic objectives.	– Strategy and business performance reviews	– Board	+

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	CHANGE
Business continuity The major disruption of the Group's operations, which results in our failure to meet agreed customer commitments and damages our prospects of winning future orders. Disruption could be caused by a range of events, for example: extreme weather or natural hazards (for example earthquakes, floods) which could increase in severity or frequency given the impact of climate change; political events; financial insolvency of a critical supplier; scarcity of materials; loss of data; fire; or infectious disease. The consequences of these events could have an adverse impact on our people, our internal facilities or our external supply chain.	– We invest in capacity, equipment and facilities, dual sources of supply and in researching alternative materials. – We provide supplier finance in partnership with banks to enable our suppliers to access funds at low interest rates. – We hold safety stock. – We plan and practise IT disaster recovery, business continuity and crisis management exercises. – We undertake supplier diligence. – We take out relevant and appropriate insurance.	– Investment reviews – Supplier strategy and sourcing reviews – Group security and resilience team	– Audit Committee	↑
Climate change We recognise the urgency of the climate challenge and have committed to net zero carbon by 2050. The principal risk to meeting these commitments is the need to transition our products and services to a lower carbon economy. Failure to transition from carbon intensive products and services at pace could impact our ability to win future business; achieve operating results; attract and retain talent; secure access to funding; realise future growth opportunities; or force government intervention to limit emissions.	– We invest in i) reducing carbon impact of existing products; and ii) zero carbon technologies to replace our existing products. – We balance our portfolio of products, customers and revenue streams to reduce our dependence on any one product, customer or carbon emitting fuel source. – We acknowledge and communicate our role in the problem and the solution, and the actions we are taking to enact a credible plan of action in line with societal expectations.	– Strategy reviews – Technology reviews – Investment reviews – Group sustainability team	– The Board and its Committees – The Executive Team and its committees	↑

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	CHANGE
Competitive environment **Existing competitors:** the presence of competitors in the majority of our markets means that the Group is susceptible to significant price pressure for original equipment or services. Our main competitors have access to significant government funding programmes as well as the ability to invest heavily in technology and industrial capability. **Existing products:** failure to achieve cost reduction, contracted technical specification, product (or component) life or falling significantly short of customer expectations, would have potentially significant adverse financial and reputational consequences, including the risk of impairment of the carrying value of the Group's intangible assets and the impact of potential litigation. **New programmes:** failure to deliver a new project or product on time, within budget, to technical specification or falling significantly short of customer expectations would have potentially significant adverse financial and reputational consequences. **Disruptive technologies (or new entrants with alternative business models):** could reduce our ability to sustainably win future business, achieve operating results and realise future growth opportunities.	— We review product lifecycles. — We make investment choices to improve the quality, delivery and durability of our existing products and services and to develop new technologies and service offering to differentiate us competitively. — We protect our intellectual property (e.g. through patents). — We monitor our performance against plans. — We scan the horizon for emerging technology and other competitive threats, including through patent searches.	— Strategy reviews — Technology reviews — Investment reviews	— Board — Science & Technology Committee	<>
Compliance Non-compliance by the Group with legislation or other regulatory requirements in the heavily regulated environment in which we operate (for example, export controls; data privacy; use of controlled chemicals and substances; anti-bribery and corruption; and tax and customs legislation). This could affect our ability to conduct business in certain jurisdictions and would potentially expose the Group to: reputational damage; financial penalties; debarment from government contracts for a period of time; and suspension of export privileges (including export credit financing), each of which could have a material adverse effect.	— We continuously develop and communicate a comprehensive suite of mandatory policies and processes throughout the Group. — We undertake third-party due diligence. — We encourage, facilitate and investigate speak up cases. — We investigate potential regulatory matters. — Our financial control framework activities are designed to reduce financial reporting risks. — We classify data to meet internal and external requirements and standards.	— Compliance teams	— Safety, Ethics & Sustainability Committee	<>
Cyber threat An attempt to cause harm to the Group, its customers, suppliers and partners through the unauthorised access, manipulation, corruption, or destruction of data, systems or products through cyberspace.	— We deploy web gateways, filtering, firewalls, intrusion, advanced persistent threat detectors and integrated reporting. — We train our employees on cyber threats including phishing. — We test software. — We use our crisis management framework.	— Group cyber security team and security operations centre	— Data security sub-committee	<>

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	CHANGE
Financial shock The Group is exposed to a number of financial risks, some of which are of a macroeconomic nature (for example, foreign currency, oil price, interest rates) and some of which are more specific to the Group (for example, liquidity and credit risks). Significant extraneous market events could also materially damage the Group's competitiveness and/or creditworthiness and our ability to access funding. This would affect operational results or the outcomes of financial transactions.	– Our financial control framework activities are designed to reduce financial reporting risks. – Group strategic planning process. – We incorporate trends, demand and other dependencies in our financial forecasts. – We analyse currency and credit exposures and include in sourcing and funding decisions. – We develop, review and communicate treasury policies that are designed to hedge residual risks using financial derivatives (covering foreign exchange, interest rates and commodity price risk). – We raise finance through debt and equity programmes. – We hedge with reference to volatility in external financial markets.	– Strategy reviews – Finance risk committee	– Audit Committee	
Market shock The Group is exposed to a number of market risks, some of which are of a macroeconomic nature (e.g. economic growth rates) and some of which are more specific to the Group (for example, reduction in air travel or defence spending, or disruption to other customer operations). A large proportion of our business is reliant on the civil aviation industry, which is cyclical in nature. Demand for our products and services could be adversely affected by factors such as: recession, current and predicted air travel, fuel prices and age and replacement rates of our in-service products.	– We monitor trends, market demand and future market forecasts and make investment choices to maximise the related opportunities. – We incorporate trends, demand and other dependencies in our financial forecasts. – We balance our portfolio with the sale of original equipment and aftermarket services, providing a broad product range and addressing diverse markets that have differing business cycles. – We execute our short, medium and longer term plans.	– Strategy reviews – Technology reviews	– Board	
Political risk Geopolitical factors that lead to an unfavourable business climate and significant tensions between major trading parties or blocs which could impact the Group's operations. Examples include: changes in key political relationships; explicit trade protectionism, differing tax or regulatory regimes, potential for conflict or broader political issues; and heightened political tensions.	– We develop Group and country strategies and consider associated dependencies. – We review the external environment for political implications and dependencies. – We include diversification considerations in our investment and procurement choices.	– Strategy reviews – Technology reviews – Supplier sourcing and strategy reviews – Government relations teams	– Board	
Talent and capability Inability to identify, attract, retain and apply the critical capabilities and skills needed in appropriate numbers to effectively organise, deploy and incentivise our people would threaten the delivery of our strategies.	– We undertake succession planning and monitor the talent pipeline. – We survey employee opinion. – We develop, implement and review strategic resourcing plans.	– People leadership team	– Nominations & Governance Committee	

GOING CONCERN AND VIABILITY STATEMENTS

GOING CONCERN STATEMENT

Overview

The Group operates an annual planning process. The Group's plans, and risks to their achievement are reviewed by the Board and, once approved are used as the basis for monitoring the Group's performance, incentivising employees, and providing external guidance to shareholders.

The processes for identifying and managing risk are described on pages 52 to 57. As described on these pages, the risk management process, and the going concern and viability statements, are designed to provide reasonable but not absolute assurance.

In accordance with the requirements of the UK Corporate Governance Code 2018, the Directors have undertaken a comprehensive going concern review over an 18-month period to August 2023, considering the forecast cash flows and the available liquidity of the Group over that 18-month period, taking into account the Group's principal risks and uncertainties.

Impact of COVID-19

The COVID-19 pandemic continues to have an impact on the Group, primarily within Civil Aerospace, due to continued travel restrictions and varied quarantine requirements imposed by governments across the globe. The speed of vaccination programmes, efficacy of vaccines and differing governmental testing and quarantine requirements means that uncertainty remains in the short term over the timing of recovery of demand, in particular in relation to the civil aviation industry. This has been considered by the Directors in assessing the adoption of the going concern basis in the Consolidated Financial Statements. Recognising the challenges of reliably estimating and forecasting the timing of recovery of demand, the Group has modelled two forecasts in its assessment of going concern which have been considered by the Directors, along with a likelihood assessment of these forecasts, being:

- base case, which reflects the Directors current expectations of future trading; and
- severe but plausible downside forecast, which envisages a 'stress' or 'downside' situation.

Since the start of the pandemic, the Group has taken action to reduce cash expenditure and maintain liquidity. The Group raised £7.3bn of additional funding during 2020 through a combination of equity and debt. In March 2021, the Group secured a further £1bn term-loan facility, 80% of which is guaranteed by UK Export Finance (UKEF), repayable in March 2026, and in August 2021 extended its £1bn undrawn bank loan facility from a maturity date of 15 October 2022 to a maturity date of 15 January 2024.

A major restructuring programme was launched in 2020 to reshape and resize the Group to deliver forecast annualised savings of at least £1.3bn by the end of 2022, with a plan to remove at least 9,000 roles across the Group. At 31 December 2021, over 9,000 roles had been removed from continuing operations and annualised savings exceeded the £1.3bn target 12 months ahead of schedule.

Impact of climate change

The Directors believe there are significant business growth opportunities to come from the Group playing a leading role in the transition to net zero, whilst at the same time climate change poses potentially significant risks to the Group. Whilst it is unlikely that physical and transition risks will arise during the 18-month period being assessed for going concern, both physical and transition risks have been considered as part of the Group's risk assessment. The investment required to achieve net zero scope 1 + 2 GHG emissions, together with that required to ensure our new products will be compatible with net zero operation by 2030, has been included in the Group's forecasts, including those periods used in the assessment of going concern. Over the next 18 months, 64% of the Group's R&D investment will be directed to the delivery of our decarbonisation strategy.

GOING CONCERN STATEMENT – CONTINUED

Liquidity and borrowings

At 31 December 2021, the Group had liquidity of £7.1bn, including cash and cash equivalents of £2.6bn and undrawn facilities of £4.5bn.

The Group's committed borrowing facilities at 31 December 2021 and 31 August 2023 are set out below. None of the facilities are subject to any financial covenants or rating triggers which could accelerate repayment.

(£m)	31 Dec 2021	31 Aug 2023
Issued Bond Notes [1]	3,995	3,995
Other Loans	63	–
UKEF £2bn loan (drawn) [2] and UKEF £1bn loan (undrawn) [3]	3,000	3,000
Revolving Credit Facility (undrawn) [4]	2,500	2,500
Bank Loan Facility (undrawn) [5]	1,000	1,000
Total committed borrowing facilities	**10,558**	**10,495**

[1] The value of Issued Bond Notes reflects the impact of derivatives on repayments of the principal amount of debt. The bonds mature by May 2028.
[2] The £2,000m UKEF loan matures in August 2025.
[3] The £1,000m UKEF loan matures in March 2026 (currently undrawn).
[4] The £2,500m Revolving Credit Facility matures in April 2025 (currently undrawn).
[5] The £1,000m Bank Loan Facility matures in January 2024 (currently undrawn).

Taking into account the maturity of borrowing facilities, the Group has committed facilities of at least £10.5bn available throughout the period to 31 August 2023.

Forecasts

The Group has modelled a base case, reflecting a best estimate of future trading. The base case forecast assumes the continuation of a steady recovery in customer confidence in the aftermath of the COVID-19 pandemic. Vaccination programmes continue to be rolled out but the efficacy of vaccines over different variants and differing governmental testing and quarantine requirements means that the recovery of demand is hindered in the short term, in particular in relation to the civil aviation industry.

In August 2020, the Group announced it would deliver proceeds of around £2bn from planned disposals. Some of these disposals were completed by 24 February 2022. For the remaining planned disposals, as these are due to complete within the 18-month period being considered, the proceeds have been included in the base case forecast, together with a corresponding decrease in debt facilities.

The downside forecast assumes Civil widebody EFHs remain at average Q4 2021 levels over the 18-month period to August 2023, with recovery subdued due to ongoing infection rates and a continuation of new variants of the virus, resulting in ongoing caution in opening borders to international travel and no upward trend in EFH until September 2023, resulting in a much slower recovery in demand compared with the base case. The downside forecast also reflects risks in relation to load reduction through our factories, and possible supply chain challenges.

Conclusion

After reviewing the current liquidity position, the cash flow forecasts modelled under both the base case and downside, the Directors consider that the Group has sufficient liquidity to continue in operational existence for a period of at least 18 months from the date of this report and are therefore satisfied that it is appropriate to adopt the going concern basis of accounting in preparing the financial statements.

VIABILITY STATEMENT

Viability

The viability assessment considers liquidity over a longer period than the going concern assessment. Our downside scenario uses the same assumptions as the going concern statement and in 2024 to 2026 assumes a slower recovery back to 2019 level than assumed in our base case.

Consistent with previous years, we have assessed our viability over a five-year period which is in line with our five-year forecasting process. We continue to believe that this is the most appropriate time period to consider as, inevitably, the degree of certainty reduces over any longer period.

In making the assessment, we have used the same base case, the same severe but plausible downside scenario and have then extended our assessment over five years. We have created severe but plausible scenarios that estimate the potential impact of our principal risks arising over the assessment period (descriptions of our principal risks and the controls in place to mitigate them can be found on pages 52 to 57). We have selected those principal risks that could have the most material impact to liquidity in the next five years in a severe but plausible scenario. In addition to the downside (market shock) scenario, the risks chosen and scenarios used are as follows: business continuity, the loss of a key element of our supply chain resulting in an inability to fulfil civil widebody orders for 12 months. Compliance, a compliance breach resulting in fines (greater than those agreed as part of our DPA) and loss of new business with governments and state owned companies. Political risk, a trade war between major trading blocs resulting in supply chain disruption and a loss of sales into impacted markets for six months. Climate change, the impact of climate change increasing our costs, reducing sales volumes and disrupting our supply chains (this scenario is discussed in more detail in our TCFD section); and safety, a significant Civil Aerospace product safety event resulting in additional costs, penalties and lower service revenues.

The cash flow impacts of these scenarios were overlaid on the five-year forecast to assess how the Group's liquidity would be affected.

The scenarios assume an appropriate management response to the specific event which could be undertaken and also consider specific activities to improve liquidity such as raising additional funds, reducing expenditure and divesting parts of our business.

Reverse stress testing has also been performed to assess the severity of scenarios that would have to occur to exceed liquidity headroom, the assumptions used in these stress tests were not considered plausible.

On the basis described above, the Board confirms that it has a reasonable expectation that the Company will be able to continue in operation and meet its liabilities as they fall due over the next five years. In making this statement, the Directors have made the following key assumptions:

- the Group is able to refinance maturing debt facilities and drawdown existing available facilities as required. Debt maturities over the assessment period are as follows:
  - The £1,000m Bank Loan Facility maturing 2024
  - The €550m Bond maturing in 2024
  - The £2,500m Revolving Credit Facility maturing in 2025
  - The $1,000m Bond maturing in 2025
  - The £2,000m UKEF loan (currently drawn) maturing in 2025
  - The £1,000m UKEF loan (currently undrawn) maturing in 2026
  - The €750m Bond maturing in 2026
  - The £375m Bond maturing in 2026
- the Group has access to global debt markets and expects to be able to refinance these debt facilities on commercially acceptable terms;
- the Group's medium and long-term financing plans are designed to allow for periods of adverse conditions in world capital markets but not a prolonged period (e.g. 12 months) where debt markets were effectively closed to the Group;
- that implausible scenarios do not occur. Implausible scenarios include either multiple risks impacting at the same time or where management actions do not mitigate an individual risk to the degree assumed, and;
- that in the event of one or more risks occurring (which has a particularly severe effect on the Group) all potential actions (such as but not limited to restricting capital and other expenditure to only committed and essential levels, reducing or eliminating discretionary spend, reinstating pay deferrals, raising additional funds through debt or equity raises, executing disposals and undertaking further restructuring) would be taken on a timely basis.

The Group believes it has the early warning mechanisms to identify the need for such actions and, as demonstrated by our decisive actions over the course of the pandemic, has the ability to implement them on a timely basis if necessary.

SECTION 172 AND STAKEHOLDER ENGAGEMENT

All of our Directors are briefed on their Companies Act 2006 duties during their induction. Our section 172 (s172) statement below sets out how the Directors have discharged their s172 duty. The Board recognises the responsibility to all our different but interrelated stakeholder groups and wider society. We recognise that effective engagement with a broad range of our stakeholders is essential for the long-term success of the business and we aim to create value for our stakeholders every day by maintaining levels of business conduct that are aligned to our values and our purpose. This section should be read in conjunction with the Board's focus which contains information on the principal decisions made by the Board over the year, see pages 77 and 78.

The likely consequences of any decision in the long term

During the year the Directors considered the Group's strategic direction, which is set out on page 12, to enable the Group to lead the transition to net zero. This in turn creates long-term value for shareholders, recognising that the long-term success of our business depends on the effects of our business activities on wider society. See our SMR case study on page 63.

The interests of the Company's employees

The Directors recognise that the success of our business depends on attracting, retaining and motivating talented people. The Directors consider and assess the implications of decisions on our people, where relevant and feasible. The Directors seek to ensure that the Company remains a responsible employer, including with respect to pay and benefits, health and safety issues and the workplace environment. More information on our initiatives can be found on pages 46 to 50.

The need to foster the Company's business relationships with suppliers, customers and others

Delivering our strategy requires a strong, mutual and beneficial relationship with suppliers, customers, governments and joint venture partners. The Directors receive updates on engagement across the Group at Board meetings. An example of supplier engagement can be found in the case study on page 64.

The impact of the Company's operations on the community and the environment

This aspect is inherent in our strategic priorities. The Board receives information through reports from the Chief Executive and Group-level reviews on various topics to help it make decisions relating to net zero ambitions and proposals to divest or invest, such as the SMR programme. Further information on the divestments made during the year to meet our 2020 commitments, can be found on page 180.

The desirability of the Company maintaining a reputation for high standards of business conduct

The Board periodically reviews and approves our ethics and compliance frameworks. Our Code of Conduct, supplier code and modern slavery statements ensure high standards are approved. This, in conjunction with the Board being informed and monitoring compliance with governance standards, helps to ensure that Board level decisions and the actions of our subsidiaries promote high standards of business conduct.

The need to act fairly between members of the Company

After weighing up all relevant factors, the Directors consider which course of action best enables delivery of our strategy through the long term, taking into consideration the effect on the Group's stakeholders.

EXAMPLES OF ENGAGEMENT WITH OUR KEY STAKEHOLDER GROUPS

PEOPLE

The Board recognises that it is through our people that we fulfil our potential, achieve our vision and execute our strategy.

Board engagement
Our Employee Champions, Irene Dorner, Beverly Goulet (for our North American colleagues) and Lee Hsien Yang (for our Asia-Pacific colleagues), ensure the voice of our people is heard in the boardroom. The Employee Champions, supported by an employee stakeholder engagement group, provide regular feedback to the Board on topics of interest and/or concern. This provides a valuable link between our people and the Directors. We believe that these methods of engagement with our people are effective in building and maintaining trust and communication whilst providing our people with a forum to influence change in relation to matters that affect them.

During 2021, Irene visited, virtually, the Solihull Control Systems site, which provided an insight into activities undertaken throughout COVID-19. Irene was also able to meet a diverse group of employees through an open discussion/listening session. D&I was a theme throughout the year with two virtual meetings taking place and all three Champions involved to bring together employees to discuss topics they had identified they would like to raise with the Employee Champions. On International Women's Day, Irene opened a week of activities via an online event, where she also answered employee questions. In September, Irene discussed issues with the Board regarding the flexible working arrangements in Derby and returning to work that had been raised by employees with her.

In May, two Meet the Board virtual events took place, led by Beverly, on the topic of sustainability. Employees were able to ask their questions of Board members. This was filmed and shared with all employees on the internal intranet. In September, Board members met in person with representatives from the UK employee resource groups (ERGs) to discuss issues of importance to them and their members. Also in September, the Board participated in several engagement activities in both Derby and Bristol, including meetings with the business leadership teams, tours of the manufacturing and service operations and discussions on product safety. In November, Beverly participated in a meeting of the finance continuing education committee, chaired by the Group's tax director.

Many of our people are also our shareholders and we encourage their participation in a variety of share plans.

CUSTOMERS

The Board recognises that the quality of the Group's customer relationships is based on mutual trust as well as our engineering expertise. We recognise that as we recover from the impact of the COVID-19 pandemic, we must retain and strengthen our focus on playing a leading role in the transition to a net zero carbon global economy by creating the sustainable power that our customers require.

Board engagement
The Board regularly receives operational updates, including customer metrics and feedback, from each of the businesses and was kept updated on the Group's plans for COP26 in Glasgow. The Business Presidents present their updates to the Board. This greatly influences the Board's deliberations and its support for the Executive Team when considering our strategy.

Case study:
Small modular reactor programme (SMR)

During the year, the Board was regularly updated on the status of the SMR programme. The Board's decision making to support the SMR programme is strongly aligned with our net zero ambition and strategy. See page 77 for further information on the Board's focus during 2021 and page 12 for further information on our strategy.

Key events

2021
- Equity raise process ongoing across the financial community

September 2021:
- Grant funding negotiations completed successfully with UK Government

November 2021:
- Board approval on the final deal terms relating to the SMR business
- Signing of Grant Funding Award with UK Government and incoming joint venture shareholders – special purpose vehicle (SPV) established

People
- Transferred 160 employees through the TUPE process to the SPV, Rolls-Royce SMR
- Colleagues provided with regular SMR CEO briefings, town halls and video messages to give progress updates on the establishment of the SPV
- People and places working group was established to understand colleague needs through the transition process

Governing bodies and regulators
- Global government engagement to promote the SMR business and better understand the developing policy landscape at a civil service level and through ministerial engagement
- Entry into the UK Generic Design Assessment regulatory process

Customers
- Rolls-Royce and Rolls-Royce SMR management engaged with overseas governments, embassies and across UK Government to highlight the benefits of the SMR programme
- Entry into a detailed pre-feasibility study with a host government that led to follow-up meetings between government ministries and Rolls-Royce leadership
- Engaged with signed MOUs or submitted RFIs to potential customers globally
- Science & Technology Committee provided with an update on management engagement with overseas governments

Investors
- Successfully established an SPV by securing third-party investment alongside Rolls-Royce and UK Government grant funding. This process was enabled and supported by the Executive Team
- Rolls-Royce SMR is now engaged with capital markets on fleet deployment, building on the recognition of the need for deployable SMR nuclear, following COP26 and the need to meet global net zero challenges

SUPPLIERS AND PARTNERS

The Group's global supply chain is a vital contribution to its performance, with significant investment in resources to ensure the complex global supply chain is resilient and efficient.

Board engagement

The interests of both our suppliers and partners are considered as part of the Board's discussions on manufacturing strategy and when reviewing specific projects. The Board supports our Executive Team who work collaboratively with our suppliers and partners to continue to improve operational performance through various means.

Case study:
Civil Aerospace supply chain engagement

An estimated 75% of components that go into making a Civil Aerospace widebody aircraft engine come from an external supply chain made up of 700 live suppliers with an annual spend of £1.6bn during 2021 (2020: £1.9bn). As such, the Board and Executive Team clearly recognise the importance of our supply chain to the successful delivery of engines to our customers, and that the success of our business is intertwined with that of our suppliers. As a result, they have made engagement with our suppliers a priority in 2021, with some examples outlined below.

'Zero defects' supplier expo

Rolls-Royce hosted two supplier expos built around our drive for zero defects, highlighting how quality remains of critical importance across the supply chain.

February 2021 – two-day broadcast

- 3,000 attendees including key customers, senior leaders and Rolls-Royce people
- Broadcast to the global supply chain which focused on our collective drive to zero escapes, the target of zero concessions by 2024 and how we can rebuild from the COVID-19 pandemic whilst enhancing the focus on quality

September 2021 – Chief Executive talk and live Q&A

- Our Chief Executive addressed the whole supply chain regarding business performance and priorities. In addition, the Chief Executive shared his personal perspective on why quality and sustainability are critical to the Group's future
- Leading suppliers shared examples of their zero defects journey and best practices to inspire further advancements across the supply chain

High Performing Supplier Group (HPSG)

- HPSG contains 24 globally diverse suppliers across the value chain that lead the way in delivering consistently high performance
- HPSG was established to increase collaboration and engagement with these suppliers to explore opportunities for growth and to work together on potential strategic initiatives
- In 2021, we awarded £2.2bn of business to members of the HPSG
- In October 2021, we held a discussion with our Chief Executive and Chief Financial Officer to give visibility and insight into our business performance and strategic direction and address supplier questions

Strategic supplier engagement – Schaeffler

- One of our HPSG members, Schaeffler, a German bearings manufacturer, was awarded the Supplier Best Practice award in 2021 as recognition for leading the way with its zero defects programme, which underpins high-quality performance
- Our relationship with Schaeffler strengthens through Chief Executive to chief executive engagement, which has been key in aligning senior-level engagement as we developed a new strategic partnership and collaborations around technology and innovative high performance manufacturing methods that reduce production lead times, tackle product cost challenges, and reduce supply chain risk
- Collaborative efforts also led to the advancement of repair and refurbishment capabilities for bearings that reduce the demand for spare parts by around 90%. This supports our sustainability goals through increasing the circular economy of bearings within aero-engines and reducing the need to utilise virgin material to be used to make spare parts

COMMUNITIES

The Board recognises the importance of our communities and understands that everything we do can have an impact on our local and global communities.

Board engagement
The Safety, Ethics & Sustainability Committee received updates during 2021 on the status of the STEM education programmes, with new technologies supporting the transition to net carbon zero. The ACCEL programme, accelerating the electrification of flight, provides engaging material for STEM events and programmes, and we are exploring options to develop more educational materials around sustainable transport and energy including SMRs. Global charitable contributions totalled £6.1m in 2021, including £2m raised by reclaiming and selling the shares of gone-away shareholders which are shareholders the Company has been unable to trace for a period of 12 years. These charitable contributions and social sponsorships support our community investment and education outreach programmes globally (see page 49).

GOVERNING BODIES AND REGULATORS

The Board recognises the importance of governments and regulators as stakeholders. Not only are governments across the world customers but they also support the Group's investment in infrastructure and technology.

Board engagement
The Board is updated on the Group's engagement with the tax authorities and the related regulatory landscape is discussed by both the Board and the Audit Committee. In addition, meetings with ministers and senior officials are held as relevant throughout the year. The General Counsel provides regular updates to the Board on compliance with regulators and the Safety, Ethics & Sustainability Committee reviews how the business engages with airworthiness regulators as well as receiving updates on the continuing dialogue and co-operation with prosecutors, regulators and government agencies.

The Board also received an update from the Chief Executive following the UK Prime Minister and Secretary of State for Defence visiting our Defence Bristol site, UK, in October, during which they engaged with several of our people.

INVESTORS

The investor relations team is the key interface between the investment community and the Board, providing frequent dialogue and feedback.

Board engagement
The Chair and members of the Board make themselves available to meet with institutional investors and seek to understand and prioritise the issues that matter most. The Board looks forward to meeting shareholders in person again at the 2022 Annual General Meeting.

Company and Executive Team engagement
In addition, the Chief Executive and Chief Financial Officer, supported by members of the Executive Team and investor relations, interact regularly with investors, most notably after our financial results, capital markets events and site visits and at conferences as well as at key points throughout the year.

Our Chair met with major shareholders as part of her induction programme (see page 74). For further information on engagement the Chair of the Remuneration Committee had with shareholders when setting the remuneration policy please see pages 87 and 89 of the Remuneration Report.

Case study:
Net zero and COP26

During 2021, the Board regularly received updates on the status of the Group's net zero report. The Board was kept updated on the Group's plans for COP26 in Glasgow, UK which formed part of the demonstration of the Group's commitment to a net zero strategy and the creation of a policy environment for our climate change technologies.

Global consistency and collaboration in climate policy are critical to our ability to deliver our decarbonisation strategy. Therefore, engagement and collaboration across all parts of our value chain, and in particular with national governments, policy makers and trade associations, is a crucial part of our pathway to net zero.

As an important milestone on the global journey to net zero, COP26 was a strategic opportunity to engage with these stakeholders and encourage a technology-led approach to setting ambitious national climate commitments.

Key events 2021

June 2021:
- Publication of the Rolls-Royce net zero report

September 2021:
- Net zero and future technologies showcase in London joined by UK Government officials and representatives along with members of the Board

October/November 2021:
- Rolls-Royce stand in the green zone at COP26 and summit-wide profile of Rolls-Royce's net zero objectives alongside UK Government stakeholders, including the announcement of the Rolls-Royce / Qatar Foundation Climate Tech partnership. These generated international attention for the Group's net zero ambition

Governing bodies and industry groups
- Direct engagement with UK Government on our net zero strategy through a range of briefing activities and events, including site visits to see our developing technology and investments, for example the Spirit of Innovation all-electric aircraft
- Broad policy engagement through speaking opportunities at net zero events at COP26 that had a global reach through online streaming and social media
- Consultation with UK Government on content and materials for use in the official UN facing 'Blue Zone' at COP26
- Advocating at COP26 events organised by the UK Department for International Trade, the European Commission, We Mean Business Coalition and UN High Level Climate Champions through the Marrakesh partnership
- Engagement with industry groups to collaborate on sector wide solutions to achieving net zero including: the UK Government organised jet zero council; the international coalition for aviation, air transport action group; the international civil aviation organisation; and the European mechanical engineering industry association, VDMA

People and Communities
- Employee engagement through a series of COP26 related internal communications including a 'live at COP26' interview with the senior leadership team including the Chief Executive and Chief Technology Officer
- Public outreach through our stand in the public facing 'Green Zone' at COP26 focused on showcasing the Group's net zero technology portfolio
- Engagement with 16 to 35-year olds as a partner for the Global Youth Engineering Climate Conference

Customers and Investors
- Signed up to a strategic partnership with Qatar Foundation to invest, develop and scale up global hub for climate technology in the UK and Qatar generating high-skilled jobs
- Announced the establishment of Rolls-Royce SMR

Strategic Report
signed on behalf of the Board

Warren East
Chief Executive

24 February 2022