

ROLLS-ROYCE PLC
ANNUAL REPORT AND AUDITED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2020

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COMPANY INFORMATION

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STRATEGIC REPORT

The Directors present their Strategic Report on the Rolls-Royce plc Group (the Group), together with the audited financial statements for the year ended 31 December 2020.

Group at a glance

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	REPORTED CASH FLOW ²	UNDERLYING REVENUE	REPORTED REVENUE
£(4,182)m 2019: £865m	£(986)m 2019: £(422)m	£11,763m 2019: £15,450m	£11,824m 2019: £16,587m
		UNDERLYING OPERATING (LOSS)/PROFIT	REPORTED OPERATING LOSS
		£(1,972)m 2019: £808m	£(2,081)m 2019: £(852)m
NET (DEBT)/FUNDS ³	LIQUIDITY ⁴	UNDERLYING (LOSS)/PROFIT BEFORE TAX	REPORTED LOSS BEFORE TAX
£(1,533)m 2019: £1,352m	£9.0bn 2019: £6.9bn	£(3,958)m 2019: £583m	£(2,910)m 2019: £(775)m

See note 2 on page 69 for a reconciliation between underlying and reported results.

Underlying revenue by business in 2020

Civil Aerospace	42%
Power Systems	22%
Defence	28%
ITP Aero	6%
Non-core businesses	2%

ORDER BACKLOG	GROSS R&D EXPENDITURE ⁵	COUNTRIES WITH ROLLS-ROYCE PRESENCE	EMPLOYEES (MONTHLY AVERAGE)
£53.7bn	£1.25bn	45	48,200

¹ Free cash flow is defined in note 28 on page 118.

² In 2020 reported cash flow includes £1.6bn from changes in borrowings and lease liabilities. A full reconciliation from free cash flow to reported cash flow is included on page 118.

³ Net funds (excluding lease liabilities) is defined on page 168.

⁴ Liquidity is defined as net funds plus any undrawn facilities, as listed on page 168.

⁵ See note 3 on page 73 for a reconciliation of gross R&D expenditure to total R&D expenditure.

Core businesses in 2020

CIVIL AEROSPACE	POWER SYSTEMS	DEFENCE	ITP AERO
Civil Aerospace is a major manufacturer of aero engines for the large commercial aircraft, regional jet and business aviation markets. The business uses engineering expertise, in-depth knowledge and capabilities to provide through-life support solutions for its customers.	Power Systems is a leading provider of high-speed reciprocating engines, and complete propulsion and power generation systems. It serves the marine, defence, power generation and industrial markets.	Defence is a market leader in aero engines for military transport and patrol aircraft with strong positions in combat and helicopter applications. It has significant scale in naval and provides through-life support of the nuclear power plant for the Royal Navy's submarine fleet.	ITP Aero is a global leader in aero-engine subsystem design. Alongside the development, manufacturing, assembly and testing of engine components, it provides MRO services for regional airlines, business aviation, industrial and defence applications.
UNDERLYING REVENUE MIX	UNDERLYING REVENUE MIX	UNDERLYING REVENUE MIX	UNDERLYING REVENUE MIX
Large Engines: 65% Business Aviation: 20% Regional: 4% V2500: 11%	Marine: 32% Industrial: 24% Power Generation: 33% Defence: 11%	Transport: 33% Combat: 24% Submarines: 18% Naval: 11% Other: 14%	Civil: 73% Defence: 18% In-Service Support: 9%
UNDERLYING REVENUE	UNDERLYING REVENUE	UNDERLYING REVENUE	UNDERLYING REVENUE
£5,089m 2019: £8,107m	£2,745m 2019: £3,184m	£3,366m 2019: £3,250m	£705m 2019: £936m
UNDERLYING OPERATING (LOSS)/PROFIT	UNDERLYING OPERATING PROFIT	UNDERLYING OPERATING PROFIT	UNDERLYING OPERATING PROFIT
£(2,574)m 2019: £44m See page 23	£178m 2019: £367m See page 26 (2019 figures restated to exclude Civil Nuclear Instrumentation & Control and Bergen Engines)	£448m 2019: £415m See page 28	£68m 2019: £111m See page 30

Chief Executive's review

Decisive action to secure our future

Unprecedented times have called for unprecedented action and we have a responsibility to all our stakeholders, who have shown such faith in us during 2020, to secure a sustainable and prosperous future for Rolls-Royce.

Unprecedented is a word I have used many times during 2020 and for good reason. The impact of the COVID-19 pandemic during the year on the largest part of our business, Civil Aerospace, has been exactly that and unprecedented times have called for unprecedented action. We have launched the largest restructuring in our recent history, embarked upon the consolidation of our global manufacturing footprint, introduced stringent cost reduction measures and begun a disposals programme to raise at least £2bn by early 2022. The hard work, dedication and sacrifice of everyone at Rolls-Royce in securing our future in the face of the sudden and material effect of the pandemic on the commercial aviation industry, has been exceptional.

During the year, we have had to call upon investors for funds, securing £5.3bn of debt and Rolls-Royce Holdings plc raising £2bn in equity, to increase our resilience, support our long-term strategy and assist us in our journey towards strengthening the balance sheet. All of us at Rolls-Royce are grateful for the support that investors have given us in providing sufficient liquidity to weather this crisis. We now have a heightened sense of responsibility to all our stakeholders, who have shown such faith in us during 2020, to secure a sustainable and prosperous future for Rolls-Royce. My sense of responsibility is particularly acute to those who are leaving the business in the restructuring, to those who remain with us and those who will come after us and pioneer the technologies required for decades to come. As we recover from the impact of the pandemic on our business, we must retain and indeed strengthen our focus on playing a crucial role in the transition to a net zero carbon economy by creating the sustainable power that our customers require.

Safeguarding our people and business

The fact that we were able to act swiftly and decisively in 2020 owes much to the work we undertook over the previous two years to create a tangible and sustainable cultural and performance shift within our business. We entered 2020 with real momentum. Following a period of rapid growth and new engine programme launches, R&D investment demands were falling in Civil Aerospace and returns improving as we began to benefit from our large, growing and relatively young installed base. The benefits from this have now been delayed, but these fundamentals remain in place and position us well for the eventual rebound.

As the pandemic hit, we implemented proactive measures, aligned with local and national guidelines, to help keep our people safe and minimise operational disruption. These included introducing remote working practices alongside workplace measures such as social distancing, enhanced hygiene procedures and modified shift systems in our manufacturing facilities. As a result, our facilities have remained operational throughout the pandemic with no significant outbreaks. Recognising that the impact of the pandemic extends well beyond the purely physical, we also increased our focus on employee mental health and wellbeing, with additional online tools and an expansion of our network of mental health champions. We also provided practical assistance to our communities where we could. In the UK, we worked with partners, suppliers and healthcare professionals to build a parallel supply chain for new ventilator assembly plants. We also created a fast-make intubation shield for use with ventilators and we allowed many of our own employees to use their own initiative to create vital PPE for local hospitals. Our R² Data Labs team, meanwhile, launched the Emergent Alliance, a global community with more than 140 members that is using data analytics to assist the global economic recovery. As schools closed worldwide, we also increased the range of STEM (science, technology, engineering and mathematics) materials that we have available for free online.

As governments around the world moved quickly to try and halt the spread of COVID-19, much of the global airline fleet was grounded from the end of the first quarter of the year. At their lowest point, in April, our large engine flying hours (EFH) were down 80% on the same period in 2019. In response to this sudden market deterioration, we executed short-term mitigations to reduce our cash expenditure including minimising discretionary spend and reducing salary costs. These swift actions saved us more than £1bn in 2020.

Although flying activity increased from the low point in April, for the year as a whole large engine flying hours were 43% of 2019 levels, with a consequent dramatic impact on our free cash flow. The drop in activity in Civil Aerospace and our decision to cease invoice factoring (see page 15), resulted in an overall free cash outflow of £4.2bn for the year as a whole.

Fundamental restructuring

The impact of COVID-19 on our Civil Aerospace business will not just be felt in 2020. The pandemic has created probably the most difficult period that global aviation has faced in peacetime. The medium-term market for our Civil Aerospace business will be significantly smaller than previously anticipated. As a result, in May we launched a major restructuring programme to re-size the cost base and capital requirements of our Civil Aerospace business to adapt to this new reality and deliver run-rate savings of at least £1.3bn by the end of 2022. The successful completion of this programme, alongside an anticipated recovery in our end markets, is vital to restoring our financial performance.

In total, we expect the restructuring to lead to the reduction of at least 9,000 roles. By the end of the year, approximately 7,000 roles had been removed with a significant proportion achieved through voluntary severance. Telling anyone that there is no longer a job for them is a terrible prospect and it is especially hard when all of us take so much pride in working for Rolls-Royce. But we have had to make tough choices to see the Group through these unprecedented times. Throughout the pandemic, we have made use of the short-term support mechanisms created by governments including furlough in the UK and comparable schemes in other countries. We are grateful for this support, but no government scheme can replace sustainable customer demand that is not there over the medium-term and we have had to act. Our Civil Aerospace facilities have seen a medium-term reduction in demand and so we must re-size our manufacturing footprint. During the year, we announced proposals including the consolidation of widebody engine assembly and test from three global sites to one in Derby, UK, and the transfer of our aero-engine parts facility and workforce in Hucknall, UK, into ITP Aero.

ITP Aero is one of a number of assets that we have identified for potential disposal to raise proceeds of at least £2bn by early 2022. Notwithstanding the outcome, ITP Aero is a key partner and we will retain a long-term relationship with the business across our Civil Aerospace and Defence programmes. In December 2020, we announced the sale of our Civil Nuclear Instrumentation & Control business and in early in 2021, we also announced the sale of our Bergen Engines medium-speed gas and diesel engines business.

Power Systems and Defence

The impact of the pandemic on Power Systems has been far less severe than on Civil Aerospace and driven primarily by lower levels of economic activity caused by the restrictions imposed globally in order to contain the outbreak (see page 26). Diversified end market exposure resulted in a relatively resilient performance. Lower economic activity and reduced utilisation of the installed base of engines due to the pandemic caused a

substantial drop in commercial and industrial markets. However, governmental demand remained intact and we grew strongly in China, where economic conditions were better. Power Systems has been working actively to improve its manufacturing fixed cost base, optimising efficiency and balancing its global footprint. As economic activity resumes, we expect Power Systems to recover relatively quickly. Some end markets may actually experience structurally higher demand as a result of the pandemic, notably in mission-critical power generation. This is one of the areas where we expanded the capabilities of Power Systems during the pandemic through acquisition, buying Kinolt Group, to strengthen our position in back-up power generation. That followed the acquisition of a majority stake in Qinous at the start of the year, which enhanced our microgrid offering.

Our Defence business had a strong year and did not experience any material operational or financial disruption from the pandemic (see page 28). Support for the defence industry from governments and other customers in our key markets was swift. Action from the UK Government, for instance, has enabled us to redeploy engineers from Civil Aerospace into Defence in order to retain key skills. We also continued with our work on the Tempest future combat programme in the UK and won business during the year, with our MT30 marine gas turbine selected for the Republic of Korea Navy's FFX Batch III frigate.

Driving growth and maximising value from our existing capabilities

While the pandemic has not altered our commitment to our long-term strategy, we are pursuing stronger medium-term growth opportunities and placing a greater relative focus on investment in Power Systems and Defence.

Increased investment in Power Systems will enable the continued development of new technologies such as hybrid-electric systems and assist us in exploiting the opportunities presented by fast growing markets and the move to more integrated power systems solutions. We have reorganised the internal structure of Power Systems to focus individually on stationary, mobile and sustainable power solutions with a fourth business unit concentrating solely on China.

In Defence, we have invested significantly in recent years in pursuing growth opportunities including two major opportunities in the US market: the re-engining of the iconic B-52 and the U.S. Army's Future Long-Range Assault Aircraft (FLRAA) programme (see page 28). These programmes have the potential for over 650 and 4,000 engines respectively, with a combined estimated lifetime value of roughly £7bn. In the latter competition, during the year, we signed an agreement with Bell Textron to provide the propulsion system for its offering, the V-280 Valor aircraft.

In Civil Aerospace, our priority is to drive higher cash returns from our existing installed base while seeking new approaches to reduce the investment requirements for the development of our next generation gas turbine technology. There is significant value embedded in our installed base of approximately 5,000 large and 9,000 small and business aviation engines and we have an important opportunity to realise that value through enhanced time-on-wing, further services offerings and improved engineering efficiency. My confidence in our ability to rise to this challenge was further bolstered in 2020 as we achieved zero aircraft on ground (AOG) for the Trent 1000 fleet half way through the year, assisted by the impact of the pandemic but beating our ambition of single digits.

Although we are exiting a period of very intense investment in new Civil Aerospace engine programmes – with seven new engines launched in the past decade – we are giving ourselves technological optionality for the future through our UltraFan programme (see page 6). During the year, we started a new phase of testing for its low emissions combustion system and put into production the first component sets required for a full engine demonstrator which will be fully assembled at the end of 2021. To deliver more compelling returns, we are actively exploring new forms of industrial partnership on the programme.

Focus on sustainable power

We have a target to achieve net zero greenhouse gas emissions in our operations and facilities by 2030, excluding product test emissions. We believe, however, that the breadth of our engineering expertise and our established access to a range of end markets mean that we are also well positioned to play a crucial role in the world's transition to a net zero carbon economy. Once we achieve our aim of restoring financial returns and a more appropriate balance sheet, we intend to accelerate this aspect of our strategy to deliver substantial growth by 2025.

We are building on our existing capabilities within Power Systems where land and sea applications are already moving to more electric systems. We already have a proven microgrid product offering and are developing hybrid systems for applications including yachts. We are also building the capability to produce world-class, modular and scalable electric power and propulsion systems for aviation. We have conducted successful ground tests of a hybrid M250 engine for the commuter and urban air mobility markets and have developed an all-electric aircraft, through the ACCEL programme, designed to break the world electric air speed record in 2021. It will provide us with invaluable insights into battery technology for these new disruptive markets. In addition, we are using our growing expertise to develop technologies for the electrification of larger regional aircraft. Electrification is also playing an increasing role in Defence projects.

The sheer scale of the challenge presented by the weight constraints of long-haul flight, means the gas turbine will remain the only viable propulsion option in widebody aircraft for multiple decades. As a result, we must make this technology compatible with a net zero carbon future. We are working with governments and industrial partners to explore the development of sustainable aviation fuels (SAF) and already testing them within our existing Trent engines. As the cost of these new fuels is expected to be higher than existing kerosene-based fuel, an efficient gas turbine architecture, such as our next generation UltraFan, will be a vital component in achieving sustainable aviation. SAFs must be created in a way compatible with net zero carbon, which represents a real opportunity for our small modular reactor (SMR) concept to power their production.

2021 outlook and longer-term prospects

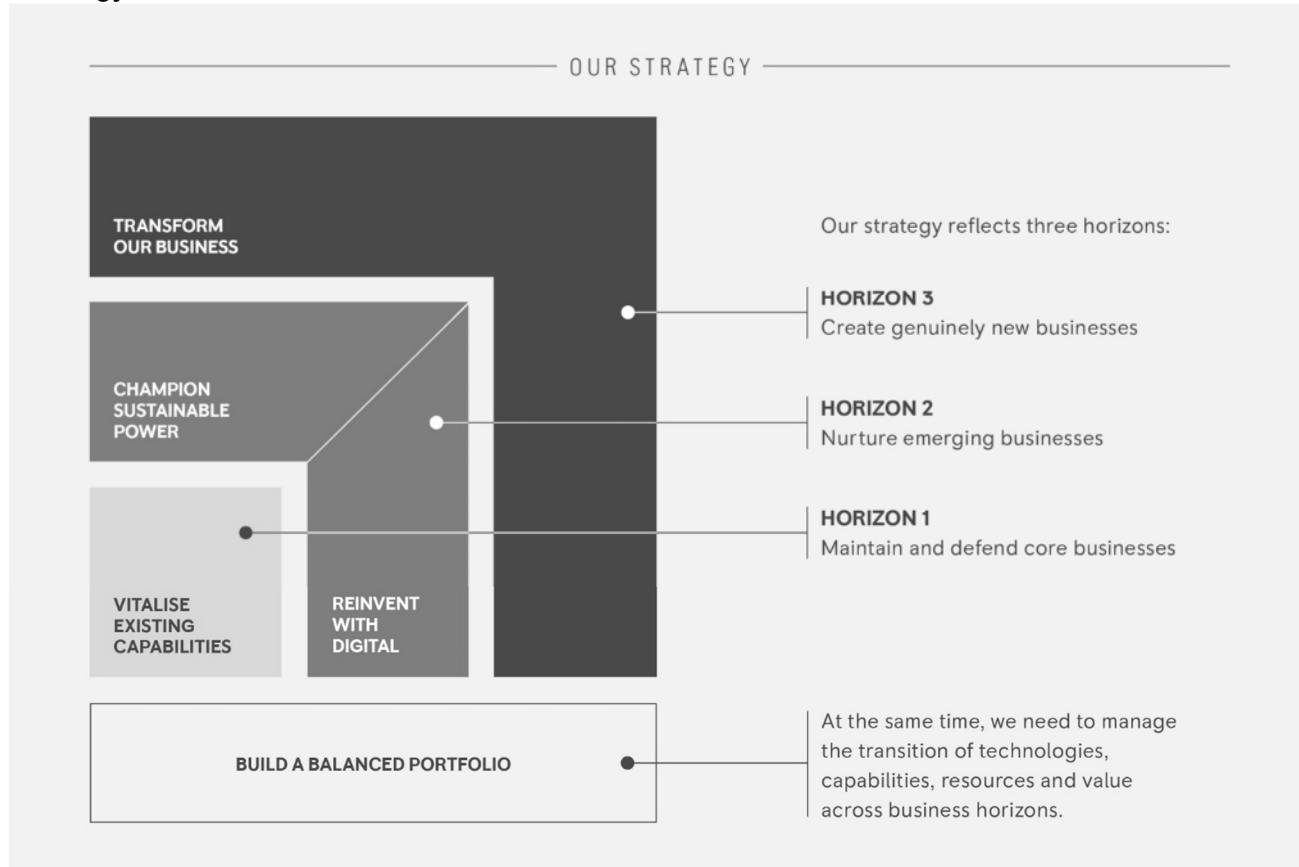
The decisive actions we have taken during 2020 leave us well placed as the recovery unfolds, but we must continue to drive our restructuring in order to realign our cost base. Based on our current view of the shape and timing of the recovery in air traffic, we expect a free cash outflow in the region of £2bn in 2021, weighted towards the first half before we turn free cash flow positive at some point during the second half. We are targeting a return to annual free cash flow of at least £750m (excluding disposals) as early as 2022.

Over the longer term, we believe that the key markets for all our businesses are fundamentally attractive and we remain committed to playing a key part in enabling the sectors in which we operate, some of which are among the hardest to abate, achieve net zero carbon by 2050. We clearly signalled our ambitions in this area during 2020 by joining the UN Race to Zero campaign. I firmly believe the world needs the resourcefulness, ingenuity and determination of Rolls-Royce, not only to assist in the recovery of the global economy in the wake of the pandemic, but to provide solutions to the climate crisis. The way that we have tackled the challenge posed by COVID-19 during the year gives me increased confidence that we will repay the faith placed in us by all our stakeholders and achieve a sustainable and prosperous future.

Purpose, vision and strategy

We are one of the world's leading industrial technology companies. We pioneer the power that matters to connect, power and protect society.

Our strategy



Strategic refinement in 2020

Our key focus in the near-term in response to COVID-19 is to:

- Restore financial performance to improve returns and build a more resilient and appropriate balance sheet;
- Drive growth and maximise value from our existing capabilities; and
- Position the Group to benefit from new technologies with a focus on sustainable power.

Progress in 2020

We are a global power group with exposure to multiple markets and a central role to play in providing customers with vital power. Our vision is to pioneer the power that matters and our purpose is to use that power to connect, power and protect society. We believe that, despite the current impact of the pandemic, the key end markets for our businesses remain fundamentally attractive and as a result our overall strategic architecture remains largely unchanged. We have, however, refined our strategic pillar of 'champion electrification' to encompass a wider range of net zero carbon technologies under the banner 'champion sustainable power'. This is in recognition of the increasing importance of ensuring that economic recovery and growth is achieved in a manner compatible with combatting climate change. We are determined to play a crucial role in pioneering a resilient, inclusive, net zero carbon future.

Horizon 1 – Vitalise existing capabilities

Despite the obvious financial pressure caused by the pandemic, we have continued to invest in our existing thermomechanical products to ensure that they provide clean, safe and competitive solutions for our customers, while developing next-generation technologies.

The gas turbine will continue to be the bedrock of long-haul aviation for many years and it is vital that we continue to increase its efficiency, not least to improve the economics of the transition to more sustainable fuels which are likely to be more expensive in the short-term than fossil fuels. During the year, we continued to develop the new technologies we will need to achieve this. We started a new phase of testing for our Advanced Low Emissions Combustion System (ALECSys) demonstrator, a key part of our UltraFan programme. Our work on UltraFan continued with parts for our first engine demonstrator going into production in 2020 including the power gearbox, fan blades and fan case. We ended the year training our team in Derby, UK, to build and assemble the engine and commissioning our new Testbed 80, which will be large enough to accommodate it. In business jets, we delivered the 8,000th engine from our site in Dahlewitz, Germany, and our BR725 engine achieved one million flying hours. Our latest business jet engine, the Pearl 700, successfully powered the new Gulfstream G700 for the first time.

In Power Systems, we launched a new MTU Series 500 engine for power generation, which will initially be offered for operation with natural gas but from the end of 2021 will also be available for power by biogas. The 500 series can also be converted to hydrogen operation. We also formed a 50:50 joint venture with Shanghai Cooltech Power, a leading Chinese manufacturer of power generation systems, to produce back-up generator sets powered by MTU engines.

In Defence, our MT30 marine gas turbine was selected for the Republic of Korea Navy's FFX Batch III frigate and we signed a collaborative agreement with the UK Ministry of Defence to strengthen ways of working across key Royal Navy programmes and deliver on-going support for MT30 and WR-21 engines. Work continued at pace on the Tempest future combat programme, with our engineers developing advanced combustion system technology and exploring composite materials and additive manufacturing to produce lightweight, more power-dense components capable of operating at higher temperatures. In North America, we completed the expansion of our Centre of Excellence for Naval Handling Equipment in Canada. Our Liberty-Works team completed rig testing on a new core design for a small engine, successfully executing a rapid prototyping plan from design to test in under a year; and delivered an upgraded thermal management and power system for directed energy applications.

Horizon 2 – Champion sustainable power

To meet the demands of a growing, more connected society, the power that matters must be sustainable, net zero carbon power. We have a key role to play in enabling the sectors in which we operate achieve net zero carbon by 2050 and during the year we ratified this ambition by joining the UN Race to Zero campaign. This means pioneering new electric and hybrid-electric technologies, but also ensuring that our products can be utilised in a way that is compatible with net zero through the use of new innovative fuels. The journey to net zero will create significant business opportunities for Rolls-Royce from even more efficient gas turbines using sustainable aviation fuels (SAFs) and all-electric and hybrid-electric propulsion, to microgrids, battery containers and small modular reactors (SMRs).

Aviation has traditionally been seen as hard to decarbonise. We believe, however, that it can be compatible with a net zero future through relentless pursuit of airframe and engine efficiency improvements; improving the economics, and scaling up the production of SAFs; and the exploration of radically new methods of aviation propulsion and fuelling. The vast majority of CO₂ created from aviation is from flights beyond 1,500km, where we believe that radically new methods of propulsion are unlikely to play a significant part in decarbonisation prior to 2050. As a result, gas turbine efficiency improvements and the scale-up of SAFs will be vital. Following the development and entry into service of the world's most efficient large aero engine in service today, the Trent XWB, our UltraFan programme will offer a step-change in efficiency. We believe that the introduction, by regulators or governments, of mandated levels of SAF will bring about a cost burden for airlines and UltraFan will help mitigate rising fuel costs as well as reduce net emissions.

Towards the end of 2020, we conducted ground tests on a Trent 1000 using 100% SAF for the first time (see page 38). The scale-up of SAFs to meet global aviation demand is a major undertaking, with an estimated 500 million tonnes per year needed in order to fuel the global airline fleet that is expected to be flying in 2050. We are engaged with the world's leading energy companies to promote increased production. Our SMR concept also represents a potential low carbon power source for fully synthetic fuel production. Our Defence aviation customers are also becoming increasingly interested in SAF availability and engine compatibility for reasons of energy security and to assist in their own contribution to decarbonisation. The higher calorific value of SAFs, compared to fossil fuels, may also provide operating range benefits.

Electric and hybrid-electric technologies are set to power a new generation of fixed wing and vertical take-off aircraft. During the year, we celebrated the first anniversary of the acquisition of eAircraft and we have sharpened our short-term focus to target the small propeller, commuter and urban air mobility (UAM) markets where we are developing complete propulsion systems.

In the small propeller category, our first prototype of an electric propulsion unit to serve aircraft with two to four seats, the RRP70, gained an agreed certification plan with EASA; and in the commuter market we announced plans to work with leading general aviation manufacturer, Tecnam, to jointly develop an all-electric 11-seater aircraft. In UAM, we provided the propulsion system for the CityAirbus demonstrator which successfully completed its flight test programme in 2020. During the year, we decided with our partner Airbus that we did not need to carry out a test flight programme for our E-Fan X technology demonstrator, having already learned valuable lessons. However, our technology in the megawatt space for regional sized jets continues to progress at pace with our 2.5MW generator now in ground testing with system integration tests planned for 2021.

During the year, our ACCEL all-electric aircraft programme completed ground-testing of the technology that will power what we hope will be the world's fastest all-electric plane. The aircraft is a test environment for our pure electric flight pack and also intended to inspire the next generation of aerospace innovators. We are aiming to beat the current all-electric flight world speed record in 2021.

Land and sea power generation and propulsion also represent a significant proportion of global emissions and Power Systems is rapidly embracing the drive towards sustainable power. In 2020, we acquired a majority stake in electricity storage specialist Qinous which is now central to our microgrid solutions. We also increased our capacity for producing battery containers and formed a new 'Power Lab' to focus on innovative and net zero carbon drive and energy solutions.

Reinvent with digital

We are using digital technologies across our activities to generate new insights, new solutions and new opportunities. Our capabilities, expertise and connection with the wider data analysis and digital community were highlighted by two activities during the year: the Emergent Alliance and the Aletheia Framework. As the impact of the pandemic grew, we formed the Emergent Alliance of data analytics experts challenged with finding new, faster ways of supporting businesses and governments globally as they recover from its economic impact. At the end of the year, we released the Aletheia Framework, a comprehensive ethical framework and trustworthiness process which we created to assure our own use of artificial intelligence (AI) in safety critical processes. Both programmes were borne out of R2 Data Labs which also launched Yocova, a collaboration platform for the aviation sector, in 2020. Across our business, we are making increasing use of digital skills and ensuring that our people can increase their capabilities through our Digital Academy. To help as many as possible during the pandemic, we made its content available online and more than 30,000 have already enrolled.

Horizon 3 – Transform our business

We are advancing new opportunities that could capture substantial growth and value for the Group. During the year, the UK Government committed to £215m of grant funding for our consortium working on SMR power plants. This enables the consortium to begin securing additional private investment. The strength of the SMR concept was highlighted during the year as we announced a partnership with Exelon, one of America's largest operators of nuclear power stations, and signed a memorandum of understanding (MOU) with CEZ, the largest utility company in central and eastern Europe.

During the year we also announced a collaboration with Boom Supersonic to explore a propulsion system for Overture, their flagship supersonic passenger aircraft; and signed an MOU with Virgin Galactic to collaborate in designing and developing engine propulsion technology for high speed commercial aircraft.

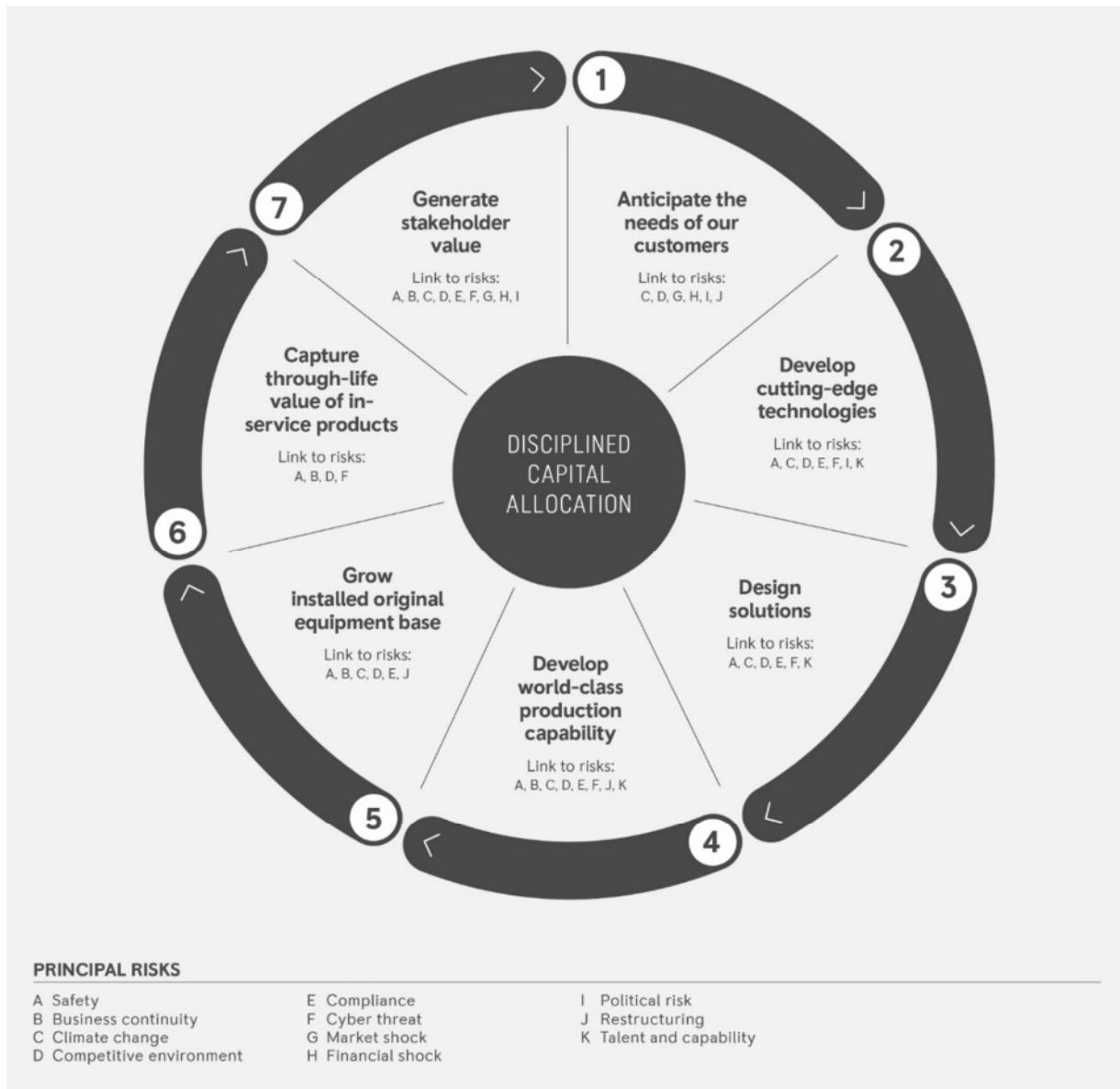
Build a balanced portfolio

We actively manage our portfolio to focus on activities that are aligned with our strategy and business model. During the year, we announced plans to raise at least £2bn by early 2022 through disposals including ITP Aero. The business is a key partner and we plan to retain a long-term relationship with it across our Civil Aerospace and Defence programmes, but owning ITP Aero is not necessarily a strategic imperative and it may be able to unlock further investment and business opportunities under new ownership. During the year, we completed the sale of our Civil Nuclear North America Services business and announced the sale of our Civil Nuclear Instrumentation & Control business. In early 2021, we also announced the sale of our Bergen Engines medium-speed gas and diesel engines business. We made three acquisitions during 2020 to accelerate our strategy in Power Systems. We acquired a majority stake in electricity storage specialist Qinous, to enhance our microgrid offering. We completed the acquisition of Kinolt, a leader in dynamic uninterruptible power supply, to strengthen our market position in safety-critical applications. We also acquired Servowatch Systems, an international supplier of integrated marine automation solutions for navies, commercial vessels and large yachts, to expand our ship automation activities.

Business model

Our competitive advantage comes from:

- **Cutting-edge technologies** - We apply cutting-edge technologies to provide clean, safe and competitive solutions. 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. This provides our customers with the ability to work with a single partner to provide their entire power needs for their chosen application.
- **System life** - Our products have significant aftermarket and maintenance requirements during their operating lives, which typically run for decades. We provide complete through-life maintenance and support for our power.



We believe we have a sustainable business model which will create value for all our stakeholders over the long term. See our Stakeholder Engagement on pages 39 to 41.

Anticipate the needs of our customers

Our focus on building complete power solutions provides the basis for strong customer relationships as we act as a single, trusted power provider. Our aftermarket model of through-life support further deepens these relationships. We have built strong, direct customer relationships which have allowed us to continue winning business during a period of increased macroeconomic uncertainty associated with the pandemic.

Develop cutting-edge technologies

Our products incorporate significant intellectual property, capturing cutting-edge technologies that have been developed over decades. Commercial aero engines are extremely complex mechanical engineering products, requiring significant expertise in aerodynamic, thermodynamic and materials technologies. In our Defence business, we are one of only a handful of companies currently capable of designing, integrating and manufacturing complete military jet engines; with significant expertise in powerplants for nuclear-powered submarine applications. Our Power Systems business focuses on demanding, high-end applications for reciprocating engines, in areas such as mission-critical back-up power where start-up time and reliability are critical. We act as a global technology sponsor, drawing upon expertise inside and outside our organisation. In 2020, we continued to invest in R&D despite the pressures on our business caused by the pandemic, with £1.25bn in gross R&D expenditure, supported by governments around the world.

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. This activity is supported by our data innovation catalyst R² Data Labs. We produce digital twins in order to test our hypotheses and then validate our results through a rigorous physical testing regime. In our Civil Aerospace and Defence businesses, our capabilities cover end-to-end design, assembly and through-life support of complete gas turbine power solutions. Our Power Systems business is increasingly moving into the provision of complete power generation systems.

Develop world-class production capability

We generate value from our cutting-edge technologies and innovative solution designs through effective and efficient delivery of final products. We use our production expertise and network of Advanced Manufacturing Research Centres, alongside our supply chain partners, to harness new manufacturing techniques and technologies.

Grow installed original equipment base

Increasing our installed base of products generates both in-year growth and the potential for our business to capture long-term service revenue. In line with our strategic aim to vitalise existing capabilities, we continually look for ways to reduce the time and resource expended on producing existing products, and roll-back new technologies from new programmes into legacy products.

Capture through-life value of in-service products

We believe our substantial installed base provides a large, captive, visible, and long-term revenue and cash flow stream. The installed base within our Civil Aerospace business is relatively young, with approximately 9,000 small and business aviation engines in service with an average age of 19 years for small civil jets and 13 years for business jets, as well as approximately 5,000 large engines with an average age of less than nine years. Given an average expected engine life of approximately 40 years for a small or business aviation engine and approximately 25 years for a widebody engine, we expect significant aftermarket revenue and value from our installed base. Similarly, the installed base in our Defence business of approximately 16,000 defence engines is expected to continue to operate for many decades.

Generate stakeholder value

Our activities are global, complex and touch upon a wide variety of stakeholders. From investors, employees, customers, suppliers and partners, to communities, local and national authorities, regulatory bodies and armed forces, we aim to create trusted relationships. Over the longer term, the end-markets in which we operate will see growing demand for cleaner and more sustainable power. We will be well positioned to play a crucial role in the world's transition towards a net zero carbon economy and believe execution of our strategy will ultimately provide a strong platform to drive a significant improvement in free cash flow and deliver attractive returns for our stakeholders.

Business environment

Group trends

COVID-19

In 2020, the Group's performance was significantly impacted by COVID-19. This was most strongly felt in our widebody business in Civil Aerospace, but also in business aviation and Power Systems. Conditions in Defence proved resilient despite the challenging global macroeconomic environment.

Market recovery

The Group expects its key markets to recover over time. Power Systems is expected to recover relatively quickly as economic conditions improve, while a more gradual improvement is expected in Civil Aerospace. Longer term, the outlook remains strong across the Group; global economic growth is expected to increase demand across Civil Aerospace, ITP Aero and Power Systems, while political tensions are expected to preserve the need for Defence products and services.

Our positioning

The Group expects to outperform many of its markets through this recovery period. In Civil Aerospace and ITP Aero, this is driven by our young installed base and strong product positions on new aircraft programmes. In Power Systems, this is due to growing market share in key markets and expanding our sales in low carbon products as our end markets transition to more sustainable power.

Low carbon power solutions

The Group sees common trends across all of its businesses towards electrification and lower carbon power solutions. This shift provides significant opportunities due to our strong technology positions in hybrid and electric power solutions in Power Systems and Civil Aerospace, as well as in small modular reactors and microgrid solutions.

Civil Aerospace

Market dynamics	Opportunities	Risks
<ul style="list-style-type: none"> The civil aviation industry has been severely affected by the COVID-19 pandemic, with a particular impact on the widebody market. As a result, airlines have postponed investment in new aircraft, leading to a reduction in aircraft production from both Airbus and Boeing. Business aviation has also seen a reduction in activity as a result of the COVID-19 pandemic, however the impact was less severe than in the large commercial market. In the longer term, the business expects to return to growth, driven by the same market trends witnessed prior to COVID-19: <ul style="list-style-type: none"> economic growth in both the developed and the developing world; growth in business jet travel supported by further increases in the number of high-net-worth individuals; and the need for newer, more efficient aircraft with reduced greenhouse gas emissions. 	<ul style="list-style-type: none"> The business has the potential for market share gains during COVID-19, as our relatively young installed base should be less impacted by retirements and recover more quickly than our competitors. The strong positions we hold on current in-production widebody aircraft should drive a return to growth in our installed base post-COVID-19. In business jets, we hold a strong position in the market by value. This market has been less impacted by COVID-19 and has good long-term fundamental drivers. We have the potential to disrupt new markets with sustainable power solutions in general aviation, commuter aircraft and urban air mobility. 	<ul style="list-style-type: none"> A slower than expected recovery of the civil aerospace market from the COVID-19 pandemic could significantly impact our financial performance. If our products do not achieve their required technical attributes, then our financial performance and reputation could be impacted. If a major product failure in service is experienced, then this could result in loss of life and significant financial and reputational damage. If there is disruption to the business' internal or external supply chain then our financial performance and reputation could be impacted. If there are significant changes to the regulatory environment for the airline industry, the business' market position could be impacted.

Power Systems

Market dynamics	Opportunities	Risks
<ul style="list-style-type: none"> Power Systems has a diverse end market exposure which has offered some protection against COVID-19. The most significant impact has been across industrial markets such as construction and agriculture, oil & gas and mining. In power generation, underlying demand for mission-critical backup power remained strong, while in continuous power generation, the reduction in economic activity lowered demand. Marine has been more resilient with robust demand from governmental customers in the naval and coastguard markets, though there was an impact on our commercial vessel and yacht activities. Following the COVID-19 pandemic, many of the business' end markets are expected to recover quickly, with some even seeing accelerated growth opportunities. 	<ul style="list-style-type: none"> Power Systems has the potential to become a leader in low carbon power solutions. We have created a separate business unit to focus entirely on these opportunities. There is significant potential for market share growth in the Chinese market based on our strategy of using partnerships and localised manufacturing. We have created a separate business unit to focus entirely on these opportunities. There is significant growth potential in the mission-critical back-up power market. We have a strong product position in this area. Our gas product portfolio has been expanded in recent years, providing growth potential as a lower carbon alternative to diesel. Small modular reactors offer a significant opportunity in a new market, with the UK Government expressing support. 	<ul style="list-style-type: none"> If the recovery from COVID-19 takes longer than anticipated, then our financial performance could be materially impacted. If requirements on export licenses and/or local content increase, then this may affect our ability to export to certain markets. If the CO₂ price rises above our expectations and/or the demand for fossil-free power develops faster than anticipated, then this may affect demand for our products and/or affect margins. If new technologies or alternative propulsion concepts emerge, then this may lead to partial substitution or downsizing of diesel engines.

Defence

Market dynamics	Opportunities	Risks
<ul style="list-style-type: none"> Limited near-term impact from the COVID-19 pandemic, with customer demand remaining resilient and minimal operational disruption. We expect relatively stable conditions in key markets over the coming years, albeit with continued customer focus on cost-reduction. In the US market, overall conditions are expected to be flat to slightly declining, while the UK market is expected to be relatively stable in the short term. Outside the critical US and UK markets, we expect continued strength in export markets partially driven by local geopolitical tensions. 	<ul style="list-style-type: none"> In the US, the business is well-positioned for the B-52 re-engine competition for the US Air Force and the Future Vertical Long Range Assault Aircraft (FLRAA) competition for the US Army. The combined lifetime value of these programmes is expected to be approximately £7bn. In the UK, the Government has demonstrated its commitment to maintaining fighter capability through Project Tempest, with £2bn of initial MOD investment spending committed. The business is exploring more electric and hybrid-electric propulsion technologies as well as power generation and thermal management for the growing directed energy systems market. The business has various sales opportunities for existing products such as the MT30 naval gas turbine and the EJ200 Eurofighter Typhoon engine. 	<ul style="list-style-type: none"> If global defence spending experiences a significant downturn, then financial performance could be impacted. If a major product failure in service is experienced, then this may result in loss of life and significant financial and reputational damage. If we do not continue to invest in improving the portfolio performance and cost of Rolls-Royce products, then market share may be lost. If the business suffers a major disruption in its supply chain, then delivery schedules could be delayed, damaging financial performance and reputation. If electrification proceeds faster than expected, then the business may not be positioned to capitalise on this potential growth. If geopolitical issues impact government-to-government relations or export controls, then our routes to market may be impacted.

ITP Aero

Market dynamics	Opportunities	Risks
<ul style="list-style-type: none"> A majority of the business' revenue relates to commercial aerospace markets, with the largest exposure being the Group's widebody engine programmes. As a result, the trends driving our Civil Aerospace business have a major impact on ITP Aero's widebody activities. A less significant impact is expected in ITP Aero's business aviation and narrowbody activities. In the defence market, COVID-19 has had a limited impact, with the reduction in sales in 2020 largely driven by phasing on key programmes. 	<ul style="list-style-type: none"> Delivery volumes are expected to return to growth from 2021, driven by ITP Aero's position on narrowbody and business jet programmes. ITP Aero has won shares as a risk-and-revenue partner on relatively new programmes including the latest Rolls-Royce engines as well as the Pratt & Whitney PW1000G and PW800. ITP Aero will benefit from government defence budget growth, particularly in Spain. Mid-life enhancements of existing aircraft programmes and new European aircraft programmes also enable potential growth. 	<ul style="list-style-type: none"> If there is a worse-than-expected recovery following COVID-19, then ITP Aero's financial performance could be impacted. If ITP Aero's products do not achieve their required technical attributes, then our financial performance and reputation could be impacted. If a product failed in service, then this could result in loss of life and significant financial and reputational damage. If the business' internal or external supply chain is disrupted then ITP Aero's financial performance and reputation could be impacted. If customer programmes were to be delayed into service or production rates cut, then ITP Aero's financial performance could be impacted.

Key performance indicators

Financial performance indicators^{1,2}

ORDER BACKLOG (£BN)	UNDERLYING REVENUE (£M)	UNDERLYING OPERATING (LOSS)/PROFIT (£M)
2020: 53.7 2019: 60.9 2018: 63.1 2017: 55.0 2016: 80.9	2020: 11,763 2019: 15,450 2018: 15,067 2017: 13,671 2016: 13,783	2020: (1,972) 2019: 808 2018: 616 2017: 306 2016: 915
How we define it Total value of firm orders placed by customers for delivery of products and services. This KPI is the same as the statutory measure for order backlog. See note 2 on page 71 for more information.	How we define it Revenue generated from operations at actual rates of foreign exchange including achieved hedge rates in the year. See note 2 on page 72 for a reconciliation to statutory reported revenue.	How we define it Profit generated from operations at actual rates of foreign exchange including achieved hedge rates in the year. It excludes exceptional and one-off items. See note 2 on page 72 for a reconciliation to statutory reported operating (loss)/profit.
Why it is important Order backlog provides visibility of future business activity.	Why it is important Underlying revenue provides a measure of business growth and activity.	Why it is important Underlying operating (loss)/profit indicates how the effect of growing revenue and control of our costs delivers value for our shareholders.
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 the key financial metrics in both the annual bonus plan and long-term incentive plan (LTIP).	Link to remuneration Underlying revenue growth maximises the opportunity to improve profit and free cash flow performance in the year, both of which are key financial metrics in the annual bonus plan and LTIP.	Link to remuneration Profit and EPS are key financial performance measures for our annual bonus plan and LTIP.

CAPITAL EXPENDITURE AS A PROPORTION OF UNDERLYING REVENUE (%)	SELF-FUNDED R&D AS A PROPORTION OF UNDERLYING REVENUE (%)	FREE CASH FLOW (£M)
2020: 4.9 2019: 5.0 2018: 6.0 2017: 5.3 2016: 4.2	2020: 7.7 2019: 7.2 2018: 7.6 2017: 7.6 2016: 6.8	2020: (4,182) 2019: 865 2018: 568 2017: 262 2016: 120
How we define it Cash purchases of property, plant and equipment in the year relative to underlying revenue. There is no statutory equivalent to this KPI.	How we define it In-year self-funded cash expenditure on R&D before any capitalisation or amortisation relative to underlying revenue. There is no statutory equivalent to this KPI.	How we define it Free cash flow is the movement in net debt from cash flows excluding: transactions with ordinary shareholders; M&A activity; financial penalties paid; exceptional restructuring payments; and the capital element of lease payments. Cash flow is our statutory equivalent, see note 28 on page 117.
Why it is important This measure demonstrates the balance between essential investments in infrastructure and delivering short-term shareholder returns.	Why it is important This measure demonstrates the balance between long-term strategic investments and delivering short-term shareholder returns.	Why it is important Free cash flow is the principal metric 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 Disciplined allocation of capital expenditure optimises in-year profit and cash flow performance without compromising longer-term growth. Metrics in our LTIP reward strong financial performance through EPS, CPS and TSR over the three-year life of the plan.	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 metrics in our LTIP which reward strong financial performance through EPS, CPS and also relative returns to our shareholders through TSR over the three-year life of the plan.	Link to remuneration Free cash flow is our key financial metric in the annual bonus plan, accounting for 50% of the overall targets. CPS is a key driver for our LTIP.

¹ Following the adoption of IFRS 15 *Revenue from Contracts with Customers* in 2018, the 2017 figures were restated. Dotted lines separate pre and post IFRS 15 figures on all affected KPIs.

² The adoption of IFRS 16 *Leases* in 2019 had no material impact on our financial KPIs, see page 13 for more information.

CASH RETURN ON INVESTED CAPITAL (%)
2020: (3)
2019: 12
2018: 12
2017: 13
How we define it
CROIC is calculated as free cash flow divided by invested capital in the year. See page 169 for a full definition of invested capital. This measure was introduced in 2018. See page 117 for a reconciliation of underlying to reported cash flow.
Why it is important
CROIC ensures we invest in programmes and projects which optimise returns for our shareholders with the correct balance between long-term and short-term value.
Link to remuneration
A key driver of CROIC is free cash flow, which is also an important financial performance measure for our annual bonus plan and LTIP.

Non-financial performance indicators

CUSTOMER METRIC (%)	EMPLOYEE ENGAGEMENT (SCORED 1 - 5) ¹
2020: 76.8	2020: 3.68
2019: 38	2019: 3.53
How we define it	How we define it
In 2019, we introduced a new balanced scorecard of metrics for each business. The scorecard includes on-time delivery, aircraft on ground and engine availability amongst other indicators. The aggregate outturn is used to determine the customer element of our bonus plan.	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.
Why it is important	Why is it important
Customer satisfaction demonstrates whether we are meeting our commitments to our customers across our businesses. This, in turn, drives our cash and profitability.	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	Link to remuneration
The customer metric accounts for 12.5% of the target bonus in our annual bonus plan.	Employee engagement performance against our target accounts for 12.5% of our annual bonus plan.

¹ External assurance over the employee engagement score is provided by Bureau Veritas.

See Other Financial Information on page 168 for additional commentary on our financial KPIs.

Financial review

We took significant and rapid actions to mitigate the financial impact of COVID-19, strengthening our liquidity and restructuring our cost base. These actions position us well to deliver improved financial returns in the future.

2020 Overview

We entered 2020 with strong momentum having reported encouraging 2019 results. However, the sudden impact of COVID-19 during the first quarter resulted in an immediate and sharp deterioration of our financial performance and resulted in a re-evaluation of our expectations and targets. We responded quickly to this unprecedented crisis by undertaking a number of significant and rapid actions:

- Starting in March 2020, we took a number of proactive steps to conserve cash and delivered over £1bn of cash savings in the year. These savings were delivered through cutting non-critical capital expenditure, significantly reducing discretionary spend, reviewing and repurposing R&D and engineering spend together with role reductions and a temporary 10% salary cuts for our senior management. We prioritised strategic investment in critical programmes, with a focus on lower-carbon solutions and digitalisation.
- As part of this goal to reduce all unnecessary expenditure, we also took the decision to cease invoice factoring, a practice we have used in the past to align cash flows with the physical delivery of products to our customers. This had a one-time £1.1bn negative impact on free cash flow in 2020, evident in our first half results.
- We took actions to substantially improve liquidity and protect our balance sheet. Despite the total free cash outflow of £4.2bn in 2020, our liquidity improved to £9.0bn at the end of the year. This reflected £5.3bn of new borrowing facilities and a £2.0bn rights issue by Rolls-Royce Holdings plc. We were well supported by the UK Government through the CCFF loan scheme in April and by the guarantee from UK Export Finance for 80% of our new £2.0bn credit facility, which was syndicated in August. There was strong appetite from investors for £2.0bn of new bonds in October and we arranged a new £1.0bn credit facility, both facilitated by the successful rights issue at the same time. We have made a good start on our disposal programme which aims to achieve at least £2.0bn of proceeds by early 2022. We have recently announced agreements to sell Civil Nuclear Instrumentation & Control and Bergen Engines, both expected to complete in 2021, and are progressing well with our plans for further disposals beyond these.
- We appreciate all the support that our stakeholders have given us in providing sufficient liquidity to weather the COVID-19 crisis. At the same time, we recognise the significant responsibility we have to secure a sustainable, profitable and cash generative future for Rolls-Royce. As a result, we launched this year the most significant restructuring in our recent history to consolidate our Civil Aerospace footprint and reduce our cost base. It was not a decision we took lightly. By the end of 2020, approximately 7,000 roles had been removed from the Group and we are well on track to achieve our target of at least a 9,000 reduction by the end of 2022.
- In addition, we reduced the size of our FX hedge book by \$11.8bn, reflecting the changed market outlook for Civil Aerospace which means that we now expect lower US dollar receipts in the medium term. This reduction resulted in an underlying finance charge of £1.7bn in 2020. This charge is already accounted for in reported results, as a result of them being presented on a mark-to-market basis (see note 4 on page 70). From a risk management perspective, we firmly believe this was the right action to take.

2021 Outlook

While the near-term outlook for Civil Aerospace remains uncertain and highly sensitive to the developments of the COVID-19 pandemic, we have the benefit of a broad and diverse portfolio, with Defence expected to remain resilient and Power Systems benefitting from its shorter-cycle industrial end market exposure.

We expect free cash outflow in the region of £(2.0)bn in 2021, based on engine flying hours recovering to around 55% of 2019 levels. The cash outflow is expected to be weighted towards the first half of the year and we expect to turn cash flow positive at some point during the second half. We aim to achieve positive free cash flow of at least £750m (excluding disposals) as early as 2022. This is based on engine flying hours exceeding 80% of 2019 levels. However, the exact timing and out-turn of turning cashflow positive is dependent on the shape and timing of engine flying hours recovery along with pace of delivery of our fundamental restructuring programme.

As you know, I am leaving Rolls-Royce in March 2021 after four lively, often challenging, yet hugely rewarding and enjoyable years as Chief Financial Officer. I look back on the good progress we had been making before the impact of COVID-19 and am confident that following completion of our fundamental restructuring programme, the Group will once again be well positioned to return to delivering much improved financial returns in the future.

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 summarise the adjustments between reported and underlying results for cash flow, revenue, and operating profit. For more information on the reconciliation to statutory measures for:

- i. free cash flow, see note 28 on page 117; and
- ii. revenue and operating profit, see note 2 on page 72.

Cash flow		2020	2019
	£m		
Reported measure			
Reported cash flow		(986)	(422)
Underlying performance measure			
Reported cash flow		(986)	(422)
Net cash flow from changes in short-term investments, borrowings & lease liabilities		(1,636)	1,385
Movement on balances with parent company		(1,887)	221
Movement in net funds from cash flows		(4,509)	1,184
Exclude: Capital element of lease repayments		(284)	(271)
Movement in net funds excluding lease liabilities		(4,793)	913
Business acquisitions & disposals		119	(409)
Penalties paid on agreements with investigating bodies		135	102
Restructuring exceptional cash flow		323	216
Dividends to NCI		1	4
Other underlying adjustments		33	39
Free cash flow		(4,182)	865

(Loss)/profit		2020	2019
	£m		
Reported measure			
Reported operating loss		(2,081)	(852)
Underlying performance measure			
Reported operating loss		(2,081)	(852)
Derivative & FX adjustment		(1,006)	(144)
Programme exceptional charges		(620)	1,409
Restructuring exceptional charges		489	136
Acquisition accounting		133	163
Impairments & asset write-offs		1,417	84
Other underlying adjustments		(304)	12
Underlying operating (loss)/profit		(1,972)	808

Revenue		2020	2019
	£m		
Reported measure			
Reported revenue		11,824	16,587
Underlying performance measure			
Reported revenue		11,824	16,587
Derivative & FX adjustment		(61)	(1,137)
Underlying revenue		11,763	15,450

Group trading summary

The commentary and income statement below describe underlying performance, with percentage and absolute change figures presented on an organic basis, unless otherwise stated.

Summary income statement

£m	2020	2019	Change ²	Organic change ¹
Underlying revenue	11,763	15,450	(3,687)	(3,582)
Underlying OE revenue	5,887	7,456	(1,569)	(1,593)
Underlying services revenue	5,876	7,994	(2,118)	(1,989)
Underlying gross (loss)/profit	(512)	2,387	(2,899)	(2,872)
Gross margin %	(4.4)%	15.4%	(19.8)%pt	(19.9)%pt
Commercial and administration costs	(904)	(993)	89	63
Research and development costs	(735)	(696)	(39)	(43)
Joint ventures and associates	179	110	69	70
Underlying operating (loss)/profit	(1,972)	808	(2,780)	(2,782)
Underlying operating margin	(16.8)%	5.2%	(22.0)%pt	(22.2)%pt
Financing costs	(1,986)	(225)	(1,761)	(1,763)
Underlying (loss)/profit before taxation	(3,958)	583	(4,541)	(4,545)
Taxation	(39)	(277)	238	236
Underlying (loss)/profit for the period	(3,997)	306	(4,303)	(4,309)

¹ Organic change at constant translational currency (constant currency) by applying 2019 average rates to 2020 numbers excluding M&A. All commentary is provided on an organic basis unless otherwise stated.

² The impact of M&A was £147m on revenue and £6m on underlying operating loss.

Note: 2019 transactions were translated at an achieved rate of £\$1.53, close to the average rate of our hedge book, whereas 2020 transactions were translated at £\$1.24 in the first half and £\$1.33 in the second half, due to not being able to utilise our hedge book in 2020.

Underlying revenue

Organic change of £(3.6)bn (23%) reflected a significant fall in both OE and services revenue largely due to the impact of COVID-19 on end market demand. Civil Aerospace was the most impacted, down £(3.0)bn (37%) including £(1,061)m of COVID-related negative LTSA catch-ups. Power Systems was down £(530)m (17%) mostly due to lower OE revenue and ITP Aero was £(240)m lower (26%) with a reduction in OE partly offset by a small increase in services. Defence revenue increased by £125m (4%), showing continuity of demand from government customers and effective measures to minimise operational disruption from COVID-19.

Underlying gross loss

The loss of £(512)m was predominantly driven by a £(2.0)bn loss in Civil Aerospace (including £1.3bn of COVID-related charges), partly offset by savings from role reductions and cost mitigations. Power Systems, Defence and ITP Aero all contributed positively, with Defence achieving an increase on the prior year.

Commercial and administration costs

Reduced by £63m, reflecting some of the savings from the Group-wide focus on cost mitigations in response to COVID-19.

Research and development costs

An increase of £43m reflected lower capitalisation due to the maturity of key aero engine programmes, partly offset by a reduction in expenditure due to our cost mitigation efforts to re-phase non-critical spending.

Underlying operating loss

The loss of £(2.0)bn reflected the gross loss and a higher R&D charge, partly offset by higher profit from joint ventures and associates and a reduction in C&A costs.

Financing costs

Costs of £(2.0)bn included a one-off underlying finance charge of £(1.7)bn, mostly taken in the first half, to reduce the size of our USD hedge book by \$11.8bn in response to a lower medium-term outlook for US\$ cash receipts following COVID-19.

Taxation

The £(39)m tax charge (2019: £(277)m) reflected the tax on overseas profits together with the fact that we have not recognised any deferred tax on UK losses arising in 2020. In addition, £(51)m of the deferred tax previously recognised on UK losses was derecognised.

Group Reported Results

Consistent with past practice, we provide both reported and underlying figures. As the Group does not generally hedge account for forecast transactions in accordance with IFRS 9 *Financial Instruments*, we believe underlying figures are more representative of the trading performance by excluding the impact of period-end mark-to-market adjustments. In particular, the USD:GBP hedge book has a significant impact on the reported results. In 2020, the USD:GBP spot rate moved from 1.32 to 1.36 while the EUR:GBP rate moved from 1.18 to 1.11. Underlying performance also excludes the effect of acquisition accounting and business disposals, impairment of goodwill and other non-current and current assets, and exceptional items. These are included in arriving at reported results. The adjustments between the underlying income statement and the reported income statement are set out in Note 2 to the Consolidated Financial Statements. This basis of presentation has been applied consistently.

Reconciliation between underlying and reported results

£m Year to 31 December	Revenue		(Loss)/profit before financing and tax		Net financing	
	2020	2019	2020	2019	2020	2019
Underlying	11,763	15,450	(1,972)	808	(1,986)	(225)
1 Impact of settled derivative contracts on trading transactions	61	1,137	998	145	(324)	196
2 Unrealised fair value changes on derivative contracts held for trading	–	–	8	(1)	(85)	(6)
3 Unrealised net losses on closing future over-hedged position	–	–	–	–	1,503	–
4 Realised net losses on closing over-hedged position	–	–	–	–	202	–
5 Unrealised fair value change to derivative contracts held for financing	–	–	–	–	(86)	1
6 Exceptional programme credits/(charges)	–	–	620	(1,409)	(36)	–
7 Impact of discount rate changes	–	–	–	–	3	(40)
8 Exceptional restructuring charge	–	–	(489)	(136)	–	–
9 Impairments	–	–	(1,293)	(84)	–	–
10 Other write-offs	–	–	(124)	–	–	–
11 Effect of acquisition accounting	–	–	(133)	(163)	–	(8)
12 Pension past-service credit	–	–	308	–	–	–
Other	–	–	(4)	(12)	(6)	20
13 Gains/(loss) arising on the acquisitions and disposals of businesses	–	–	(14)	139	–	–
Total underlying adjustments	61	1,137	(123)	(1,521)	1,171	163
Reported	11,824	16,587	(2,095)	(713)	(815)	(62)

The most significant items included in the reported income statement, but not in underlying, are summarised below.

1. The impact of measuring revenues and costs and the impact of valuation of assets and liabilities using the period end exchange rate rather than the achieved rate or the exchange rate that is expected to be achieved by the use of the hedge book increased reported revenues by £61m (2019: £1,137m) and reduced loss before financing and taxation by £998m (2019: increased profit by £145m). Underlying financing excludes the impact of revaluing monetary assets and liabilities at the period end exchange rate.
2. The underlying results exclude the fair value changes on derivative contracts held for trading. These fair value changes are subsequently recognised in the underlying results when the contracts are settled.
3. In response to the deterioration in the medium-term outlook caused by COVID-19 and the related reduction in anticipated net US Dollar cash inflows, the Group has taken action during the year to reduce the size of the US Dollar hedge book by \$1.8bn predominantly by transacting offsetting foreign exchange forward contracts across 2020-2026, resulting in a £1,689m charge to underlying results. The £1,503m included in unrealised loss (shown above) is the net cost of closing out the over-hedged position in future years. The cost related to future years has been included within the underlying performance. It is reversed in arriving at reported performance on the basis that, the cumulative fair value changes on these derivative contracts are recognised as they arise.
4. In 2020 the Group incurred a cash outflow of £186m as a result of closing out an over-hedged position of \$1.2bn of the \$1.8bn hedge book reduction and a cash outflow of £16m to settle an over-hedged jet fuel position. The realised loss of £202m is included in underlying financing costs.
5. Includes the losses on hedge ineffectiveness in the year of £11m (2019: losses £13m) and net fair value losses of £75m (2019: profit £14m) on any interest rate swaps not designated into hedging relationships for accounting purposes.
6. In 2019, abnormal wastage costs were recorded in respect of the Trent 1000, related to remediation shop visit costs, customer disruption costs and contract losses. During the year, the total estimated Trent 1000 abnormal wastage costs have reduced by £620m as a result of COVID-19 made up of £390m (a gross provision release of £560m, offset by the impact of expected actual exchange rates and the share of the costs borne by RRSAs) related to remediation shop visit costs and customer disruption costs and an improvement of £230m in the position on contract losses.
7. Discount rates have increased on exceptional contract loss provisions in relation to the Trent 900 and Trent 1000.
8. At 31 December 2020, the Group recorded an exceptional restructuring charge of £489m following the announcement on 20 May 2020 to reshape and resize the Group due to the financial and operational impact of COVID-19 (see note 21 for more detail).
9. The Group has assessed the carrying value of its assets given the financial and operational impact of COVID-19 on the Group's future cash flow forecasts. Consequently, a number of impairments and write-offs have been recorded at 31 December 2020. Impairments comprise: intangible assets £567m, mainly related to programme intangibles; property, plant and equipment £318m (including £219m related to site rationalisation); right-of-use assets £384m, comprising engines of £311m, £69m of site rationalisation and £4m of other impairments; and a £24m impairment on the carrying value of investments held.

10. Other write-offs include £149m of participation fees in contract assets, £2m in provisions for site rationalisation, offset by £(27)m for RRSA deferred cost contributions in payables. These write-offs are primarily a result of the impact of COVID-19.
11. The effect of acquisition accounting includes the amortisation of intangible assets arising on previous acquisitions.
12. The Group recorded a past service gain of £308m (of which £248m was recorded at 30 June 2020) following changes to the pension benefits under the terms of the Rolls-Royce UK Pension Fund (RRUKPF), a defined benefit scheme. In respect of the £248m gain recorded at 30 June 2020, £127m was subsequently recognized as actuarial losses through other comprehensive income at 31 December 2020 – see note 2 and 22.
13. Gains/(losses) arising on the acquisitions and disposals of businesses includes the acquisition of Qinous GmbH (increasing the Group's shareholding from 24% to 100%), the sale of the North America Civil Nuclear business, the sale of the Knowledge Management Systems business and the sale of Trigno Energy Srl.

Tax affecting these adjustments resulted in a tax charge of £(220)m (2019: £(143)m). The charges in 2020 and 2019 are mainly due to the non-recognition of deferred tax on UK losses arising in those years. The charge in 2020 includes a tax credit of £160m in respect of the change in the UK tax rate and a tax charge of £(276)m relating to the derecognition of some of the deferred tax asset on UK losses previously recognised. The 2019 charge included £(86)m relating to the derecognition of UK deferred tax assets on foreign exchange and commodity financial assets and liabilities.

Group Funds Flow**Summary funds flow statement¹**

£m	Full-year to 31 December		
	2020	2019	Change
Underlying operating (loss)/profit	(1,972)	808	(2,780)
Depreciation, amortisation and impairment	951	1,068	(117)
Lease payments (capital plus interest)	(379)	(319)	(60)
Expenditure on intangible assets	(316)	(591)	275
Capital Expenditure (PPE)	(579)	(747)	168
Change in inventory	588	(43)	631
Movement in receivables/payables/contract balances (excluding Civil LTSA)	(2,205)	385	(2,590)
Civil Aerospace net LTSA balance change	479	754	(275)
Of which: underlying change	(582)	654	(1,236)
Of which: impact of contract catch-ups	1,061	100	961
Movement on provisions	(195)	(508)	313
Cash flows on settlement of excess foreign exchange contracts	(202)	-	(202)
Fees on undrawn facilities	(97)	-	(97)
Net interest received and paid	(75)	(73)	(2)
Trent 1000 insurance receipt	-	173	(173)
Other	(109)	142	(251)
Trading cash flow	(4,111)	1,049	(5,160)
Contributions to defined benefit pensions in excess of underlying PBT charge	160	(9)	169
Taxation paid	(231)	(175)	(56)
Group free cash flow	(4,182)	865	(5,047)
Disposals and acquisitions	(119)	409	(528)
Exceptional Group restructuring	(323)	(216)	(107)
Payment of financial penalties	(135)	(102)	(33)
Other underlying adjustments	(34)	(43)	9
Movements in net funds from cash flows (excl lease liabilities)	(4,793)	913	(5,706)
Capital element of lease repayments	284	271	13
Movements in net funds from cash flows	(4,509)	1,184	(5,693)
Movement on balances with parent company	1,887	(221)	2,108
Movement in short-term investments	6	-	6
Net cash flow from changes in borrowings (excl lease liabilities)	1,630	(1,385)	3,015
Reported cash flow	(986)	(422)	(564)

¹ The derivation of the summary funds flow statement above from the reported cash flow statement is included on page 117.

Key changes in the funds flow items are described below:

Free cash flow

Group free cash outflow of £(4,182)m deteriorated from a £865m inflow in 2019. The key drivers of this outflow were significantly lower engine flying hour receipts as global travel dramatically declined and working capital outflows, including the decision to cease invoice discounting, as our OE and aftermarket volumes declined. Trent 1000 in-services cash costs were £(524)m (2019: £(578)m).

Depreciation, amortisation and impairments

The decrease of £(117)m was largely driven by lower overall additions across intangible assets and property, plant and equipment as a result of management actions to reduce cash expenditure and a £102m adjustment to residual value guarantees which is non-cash and increased underlying operating profit.

Lease payments (capital plus interest)

Lease payments were higher than prior year largely due to changes in FX achieved rates used to convert US dollar lease payments into GBP.

Additions of intangible assets

Expenditure included £(232)m capitalised R&D (2019: £481m), lower than 2019 due to completion of capitalisation of the Trent 1000 and Pearl 15 engine R&D, reflecting the maturity of these programmes, and no further capitalisation on the Pearl 700 programme.

Purchases of property, plant and equipment

Investment was lower than 2019 primarily as a result of management actions to reduce cash costs to mitigate the impact of COVID-19.

Decrease in inventory

The £588m decrease in 2020 (2019: £(43)m increase) was led by COVID-19 driven demand reductions as well as significant improvement measures delivered in Civil Aerospace, partly offset by certain actions to safeguard necessary parts supply in 2021.

Movement in receivables/payables/contract balances (excluding Civil LTSA)

The £(2,205)m movement in 2020 reflected:

- £0.4bn increase in receivables reflecting the decision to cease invoice discounting (£(1.1)m increase), partly offset by significantly lower trading activity especially in Civil Aerospace;
- £1.8bn reduction in payables reflecting lower amounts owed to suppliers, JVs and Risk and Revenue Share Partners (RRSPs) due to COVID-19 led demand reductions. In addition, reduction in OE deposits reflecting utilisation in Civil Aerospace. This was partly offset by new deposits in Defence and an increase in the Civil Aerospace OE engine concessions payable, due to aircraft delivery delays and associated concession payment deferrals.

Movement in underlying Civil Aerospace net LTSA balance

The LTSA net balance increased by £479m. There was a significant reduction in widebody and regional invoiced engine flying hour receipts during 2020 due to lower flying activity, resulting in a £(582)m underlying reduction to the net LTSA balance as revenues traded exceeded invoiced flying hour receipts. However, this was more than offset by the impact of £1,061m of contract catch-ups, principally driven by a forecast reduction in engine flying hour receipts due to the COVID-19 pandemic, which reduced revenue recognised during the year.

Movement on provisions

The £(195)m movement reflected a decrease in the provision balance driven by Trent 1000 provision utilisation during the period partly offset by new provisions charges (details on page 105), largely as a result of COVID-19 which include the impact from the up-front recognition of future losses on a small number of loss-making Civil Aerospace contracts.

Interest

The net payment of £(75)m in 2020 was £2m higher than prior year, reflecting movements in the overall total amount of debt and interest rates. £5.3bn of additional debt was raised during 2020. At 31 December 2020, £5.5bn of total debt was undrawn.

Contributions to defined benefit pensions

Cash contributions were £160m lower than the charge on the income statement (2019: £9m higher). The £169m year-on-year movement reflected early payment in 2019 of contributions due in 2020 and deferral of certain 2020 contributions into 2021.

Taxation

The cash tax payments in 2020 were £(231)m compared to £(175)m in 2019. The increase reflected higher payments in Germany, largely due to timing.

Acquisitions and disposals

Net costs of £(119)m included the acquisitions of Qinous, Kinolt and Servowatch; offset by disposal proceeds related to Civil Nuclear North America, Knowledge Management Systems, Trigno, Exostar and a L'Orange earn-out adjustment and M&A costs.

Exceptional Group restructuring

Payments of £(323)m relating to the 2020 fundamental restructuring programme were made in 2020, of which £55m related to restructuring capital expenditure.

Payment of financial penalties

The penultimate payment of £(135)m relating to the deferred prosecution agreement (DPA) was made in January 2020.

Other underlying adjustments

Outflow of £(34)m includes timing of cash flows on a prior period disposal where the Group retains the responsibility for collecting cash before passing it on to the acquirer.

Net cash flow from changes in borrowings (excluding lease liabilities)

During the year, the Group issued £1,972m (\$1,000m, €750m and £545m) of bond notes as well as £300m of commercial paper under the Covid Corporate Financing Facility. The Group also repaid a maturing \$500m (£328m) bond.

Balance sheet

£m	31 Dec 20	31 Dec 19 Excl. HfS ³	31 Dec 19 Excl. HfS ³	Change Excl. HfS ³
Intangible assets	5,145	5,431	5,442	(286)
Property, plant and equipment	4,515	4,798	4,803	(283)
Right-of-use assets	1,405	2,001	2,009	(596)
Joint ventures and associates	394	402	402	(8)
Contact assets and liabilities	(8,922)	(8,736)	(8,745)	(186)
Working capital ¹	900	975	1,082	(75)
Provisions	(1,945)	(2,780)	(2,804)	835
Net debt ²	(3,627)	(1,029)	(1,002)	(2,598)
Net financial assets and liabilities ²	(3,083)	(3,244)	(3,246)	161
Net post-retirement scheme surpluses/(deficits)	(673)	(199)	(208)	(474)
Tax	1,295	1,130	1,136	165
Held for sale	60	123	3	(63)
Other net assets	19	14	14	5
Net liabilities	(4,517)	(1,114)	(1,114)	(3,403)
Other items				
US\$ hedge book (US\$bn)	25	37	37	(12)
Civil LTSA asset	726	1,086	1,086	(360)
Civil LTSA liability	(6,841)	(6,784)	(6,784)	(57)
Civil net LTSA liability	(6,115)	(5,698)	(5,698)	(417)

¹ Net working capital includes inventory, trade receivables and payables and similar assets and liabilities.

² Net debt includes £251m (2019: £243m) of the fair value of financial instruments held to hedge the fair value of borrowings.

³ 2019 adjusted for assets held for sale (HfS) (Bergen Engines AS and Civil Nuclear Instrumentation and Control business).

Key drivers of balance sheet movements (excluding held for sale) were:

Intangible assets

Net decrease of £(286)m included impairments of £(579)m, mostly related to the impact of COVID-19. Additions of £364m primarily related to programme development in Civil Aerospace and investment in software applications. Acquisitions of Kinolt Group, Qinous GmbH and Servowatch Systems added £137m. There was a £137m FX impact and amortisation was £(323)m.

Property, plant and equipment

Net decrease of £(283)m included impairments of £(332)m and depreciation of £(489)m partly offset by £38m FX impact and additions of £553m. The additions were lower than the prior year as spending was limited to critical infrastructure projects.

Right-of-use assets

Net reduction of £(596)m was driven by impairment of £(386)m, primarily of lease engines in Civil Aerospace and land and buildings as part of our footprint consolidation. The depreciation charge was £(346)m. Additions were £135m, £92m lower than the prior year.

Contract assets and liabilities

The net liability balance increased by £(186)m, of which £(417)m related to the Civil Aerospace LTSA balance and included foreign exchange of £62m and negative LTSA catch-ups of £(1,061)m. The remainder largely covered reduction in deposits in Civil Aerospace partly offset by new deposits in Defence.

Working capital

The £900m net current asset position reflected a £(75)m change on the prior year.

- Receivables decreased by £1.5bn predominantly as a result of the proceeds from the rights issue in Rolls-Royce Holdings plc being passed down to its subsidiaries.
- Payables reduced by £1.8bn primarily due to COVID-19 led demand reductions and comparatively stronger Q4 2019 trading activity.
- Inventory reduced by £0.5bn largely due to COVID-19 led demand reductions and parts rescheduling in Civil Aerospace partly offset by growth in Defence to protect 2021 deliveries and support the supply chain.
- The movement also included a financial penalty payment of £135m related to agreements reached with investigating authorities in January 2017.

Provisions

The £835m decrease reflected net restructuring charges of £(373)m, of which £206m was utilised in 2020 and Trent 1000 provisions utilisation and release of £541m and £560m respectively.

Net debt

Increased to £(3.6)bn (including lease liabilities) primarily driven by free cash outflow of £(4.2)bn and maturity of a \$500m bond.

Net financial assets and liabilities

The £161m change was primarily driven by the utilisation of derivatives of £246m partially offset by the fair value movement in currency exchange rates and other derivatives.

Net post-retirement scheme surpluses/deficits

The £(474)m movement was driven by reduction in the UK surplus reflecting changes to members benefits as part of restructuring the UK pension, closure of the scheme and deferral of company contributions. There have also been changes in financial and demographic assumptions across both the UK and overseas schemes. See note 22.

US\$ hedge book

Due to the impact of COVID-19 on Civil Aerospace our forecast future US\$ receipts reduced significantly. As a result, we took the necessary decision to reduce the size of our hedge book by \$11.8bn to \$25bn. Our US\$ hedge book runs to 2028. The total cost of closing out the over-hedged position is £(1.7)bn, of which £(186)m was incurred in 2020. The remainder of the cash outflow will be incurred over the next six years.

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	UNDERLYING OPERATING (LOSS)/PROFIT	ORDER BACKLOG
£5,089m 2019: £8,107m	£(2,574)m 2019: £44m	£42.4bn 2019: £48.5bn
UNDERLYING REVENUE MIX	UNDERLYING REVENUE MIX BY SECTOR	
OE: 45% Services: 55%		
Large Engines: 65% Business Aviation: 20% Regional: 4% V2500: 11%		

Overview of 2020

Civil Aerospace was heavily impacted by COVID-19 in 2020. Large engine deliveries fell by 48% to 264 and large engine flying hours fell to 43% of 2019 levels as travel restrictions limited air traffic. Business aviation was less severely impacted, with engine deliveries down 16%. In response to the market impact, we have undertaken the largest ever restructuring of Civil Aerospace, which will substantially reduce our fixed cost base and position the business to deliver healthy profits and cash generation as the market recovers.

£m	2020	2019	Change	Organic Change
Underlying revenue	5,089	8,107	(37)%	(37)%
Underlying OE revenue	2,298	3,246	(29)%	(29)%
Underlying services revenue	2,791	4,861	(43)%	(43)%
Underlying gross (loss)/profit	(2,005)	622	(422)%	(422)%
Gross margin %	(39.4)%	7.7%	(47.1)%pt	(47.1)%pt
Commercial and administration costs	(302)	(306)	(1)%	(2)%
Research and development costs	(436)	(374)	17%	16%
Joint ventures and associates	169	102	66%	66%
Underlying operating (loss)/profit	(2,574)	44	(2,618)	(2,612)
Underlying operating margin %	(50.6)%	0.5%	(51.1)%pt	(51.0)%pt

Key operational metrics:	2020	2019	Change
Large engine deliveries	264	510	(48)%
Business jet engine deliveries	184	219	(16)%
Total engine deliveries	448	729	(39)%
Large engine LTSA flying hours	6.6m	15.3m	(57)%
Large engine LTSA major refurbs	272	306	(11)%
Large engine LTSA check & repairs	559	660	(15)%
Total large engine LTSA shop visits	831	966	(14)%

Financial overview

- Production cuts from airframer customers resulted in substantially fewer large engine deliveries in 2020. Business jet deliveries were resilient in the first half of the year but reduced during the second half as the airframers adjusted to the impact on demand from COVID-19.
- Large engine LTSA flying hours were 43% of 2019 level. Flying hour performance was significantly more robust in newer engine programmes than more mature types.
- Business aviation LTSA engine flying hours were resilient, however there was a significant reduction in both regional and V2500 flying hours.
- Large engine LTSA major service visits were 11% lower than prior year, particularly in the second half of the year when we saw a substantial reduction in activity.
- Roles reduced by approximately 5,500 (20%), with most of the departures taking place in the second half of 2020 as a result of the fundamental restructuring programme.
- Agreement reached with Airbus to extend Trent XWB-84 exclusive position on A350-900 to 2030.
- **Underlying revenue** reduced by 37% to £5.1bn (2019: £8.1bn). This decline was driven by the reduction in engine delivery volumes, particularly for large engines, lower aftermarket revenues reflecting fall in shop visit volumes, and included a £(1.1)bn impact from negative LTSA contract catch-ups.
- **Underlying gross loss** of £(2.0)bn, £(2.6)bn lower than 2019. This reflected:
 - £(1.3)bn of largely COVID-related one-time charges:
 - LTSA catch-ups: £(974)m impact to profit from negative LTSA catch-ups, mainly driven by a forecast reduction in engine flying hour receipts as a result of COVID-19 and principally impacting mature engine programmes;

- Up-front recognition of future losses: primarily due to COVID-19 certain contracts have either become loss-making or have seen an increase in expected losses, driving a £(213)m charge; and
- £(86)m charge reflecting specific customer provisions due to the impact of COVID-19 on the civil aviation industry and our customers' financial positions.
- A material reduction in trading performance, primarily reflecting the impact of COVID-19:
 - A substantial reduction in large engine aftermarket, driven by lower shop visit volumes, adverse margin mix on LTSA shop visits, and reduced time & materials (T&M) profits;
 - Lower OE profits from business aviation and reduced volumes of large spare engine sales, which offset the benefit from lower installed widebody engine volumes; and
 - A material impact in 2020 from under-recovery of fixed costs.
- **Commercial and administration costs** were relatively unchanged year-over-year, with cost reduction actions delivered in the year reflected more heavily in cost of sales and R&D spend.
- **Research and development costs** of £(436)m reflected a significant reduction in capitalisation during the period due to the maturity of key aero engine programmes partly offset by a reduction in expenditure due to the reducing investment burden on our new engine programmes and the rephasing of some R&D spending in light of COVID-19. Spending continued to shift towards next-generation gas turbine technology and low carbon solutions such as electric and hybrid-electric aircraft.
- **Underlying operating loss** of £(2.6)bn reflected the fall in gross profit and slightly higher R&D charge, partly offset by an increase in profits from joint ventures and associates.
- **Trading cash flow** was a £(4.6)bn outflow during the year (2019: £419m inflow). This deterioration was driven by significantly lower engine flying hour receipts as well as a material working capital outflow, including the one-time impact from the cessation of invoice factoring in 2020.
- **Trent 1000 and Trent XWB update:** During 2020 in-service cash costs on Trent 1000 were in line with guidance at £(524)m and in June we reached our goal of zero aircraft on ground (AoG) due to the durability issues. There was a £620m exceptional credit reflecting a £390m net improvement in the outlook for future in-service cash costs, alongside a £230m improvement in expected future losses on our small number of loss-making contracts primarily due to the impact of COVID-19 on flying activity. Early identification and action regarding durability issues on the Trent XWB announced in August 2020 did not result in any grounded aircraft and it was not necessary to provide for any material additional costs in the period.

Operational and strategic review

The aviation industry was severely affected by the COVID-19 pandemic and the travel restrictions put in place by governments around the world in response.

After more than a decade of growth, commercial air traffic fell by 66% during 2020. While there was a gradual recovery, it was slower than expected and largely halted in December due to the impact of the second wave of COVID-19 across much of the world. Throughout the year, we worked tirelessly to ensure that our airline customers could continue to use their Trent engines – utilising new remote inspection techniques in order to abide with national restrictions on movement or working practices – or store them properly so they can be readily put back into service when restrictions ease.

Our airline customers also adopted various mitigating measures in 2020, including postponing investment in new aircraft. This led to a material reduction in large commercial aircraft production from both major airframers, Boeing and Airbus.

While business jet demand was more robust than widebody, it was not immune from the effects of the pandemic and travel restrictions. During 2020, we delivered the 8,000th engine from our site in Dahlewitz, Germany, and our BR725 engine – which powers Gulfstream's G650 business aircraft family – achieved one million flying hours.

The effects of COVID-19 are expected to be felt in our markets for a number of years. To respond to the new medium-term outlook and return the business to profitability, we launched the largest ever restructuring of our Civil Aerospace business. The programme includes:

- a significant reduction in Civil Aerospace headcount, representing a majority of the 9,000 roles to be removed across Group by 2022. This has been progressed at pace, with over 5,500 roles removed from Civil Aerospace during 2020, primarily through voluntary severance;
- a major footprint review to reduce fixed costs. This comprises a reduction from three widebody assembly and test facilities to one as well as consolidating production facilities across a number widebody components; and
- linked to this footprint review, we have announced plans to enhance the scope of ITP Aero. This involves the transfer of our engine structures activities in Barnoldswick, UK, into ITP Aero, as well the transfer of our site and workforce in Hucknall, UK, which manufactures a range of aero engine parts. These changes deliver cost reductions for Civil Aerospace and increase the value of ITP Aero.

Outside our response to COVID-19, excellent progress was made during 2020 in resolving the Trent 1000 in-service issues. Partially aided the lower aircraft utilisation due to the pandemic, we were able meet our target to reduce the number of aircraft on ground to single-digits by mid-year, subsequently reaching zero. We now have a buffer of available engines to safeguard against any risk of future disruption.

Despite the COVID-19 pandemic, construction work on Testbed 80, the world's largest testbed, was completed during the year and in early 2021 we conducted our first test run on a Trent XWB engine.

Longer term, we continue to position ourselves for the transition to a low carbon future for commercial aviation. Our next-generation gas turbine, UltraFan, is progressing well and will undergo final assembly in 2021. The parts for our first engine demonstrator went into production in 2020 including the power gearbox, fan blades and fan case.

In November, we undertook successful ground tests using 100% sustainable aviation fuel (SAF) for the first time in a Trent 1000 engine, with additional tests planned in 2021 using our Pearl 700 business jet engine. These tests aim to demonstrate that our engines can operate with 100% SAF as a 'drop-in' alternative to conventional jet fuel. This exceeds current certification requirements which limit SAF to a 50% blend. We believe SAF represents a vital solution to the challenge of decarbonising long-haul travel.

At the smaller end of the market, electric and hybrid-electric technologies are set to power a new generation of fixed-wing and vertical-take-off aircraft, providing an opportunity for us to disrupt a new market. In the small propeller category, our first prototype of an electric propulsion unit to serve small propeller aircraft with two to four seats – the RRP70 – gained an agreed certification plan with EASA; and in the commuter market we announced plans to work with leading general aviation manufacturers, Tecnam, to jointly develop an all-electric 11-seater aircraft. In the urban air mobility (UAM) space, we provided the propulsion system for the CityAirbus demonstrator which successfully completed its flight test programme in 2020. Finally, work on our ACCEL all-electric aircraft programme continued in 2020 as we completed ground-testing of the technology that will power what we hope will be the world's fastest all-electric plane, with a record breaking attempt planned for 2021.

Civil Aerospace outlook

The near-term environment for Civil Aerospace remains highly uncertain. We continue to plan for a range of recovery scenarios, including the risk of further setbacks to the recovery in air travel caused by new strains of the COVID-19 virus. However, our central assumption is for a gradual market recovery in 2021, with a slow start to the year but accelerating in the second half as global vaccine roll-outs progress and travel restrictions ease.

We anticipate large engine flying hours of approximately 55% of 2019 levels in 2021 (2020: 43%), with a strong second-half weighting as the recovery accelerates, and approximately 80% of 2019 levels in 2022. Engine deliveries will remain low with 200 to 250 large engines and 100 to 150 business jet engine deliveries planned for 2021.

Our severe but plausible downside scenario assumes approximately 45% EFH in 2021 and 70% in 2022, both compared to the 2019 level. More details on page 44.

Power Systems

Power Systems is a leading provider of high-speed reciprocating engines and complete propulsion and power generation systems. It serves the marine, defence, power generation and industrial markets.

UNDERLYING REVENUE	UNDERLYING OPERATING PROFIT	ORDER BACKLOG
£2,745m 2019: £3,184m	£178m 2019: £367m	£2.4bn 2019: £2.4bn
UNDERLYING REVENUE MIX	UNDERLYING REVENUE MIX BY SECTOR	
OE: 65% Services: 35%	Marine: 32% Industrial: 24% Power Generation: 33% Defence: 11%	

Overview of 2020

Power Systems saw a varied impact from COVID-19, with significant reductions to industrial activities due to the weak economic environment but greater resilience in other areas, notably governmental marine. Despite COVID-19, we made significant progress against our medium-term strategy during 2020, expanding our power generation product portfolio, growing sales in China, and expanding our gas and low carbon offerings. While near-term conditions remain challenging, we believe Power Systems is positioned to recover relatively quickly when the macroenvironment improves.

£m	2020	2019 ¹	Change ²	Organic change
Underlying revenue	2,745	3,184	(14)%	(17)%
Underlying OE revenue	1,794	2,183	(18)%	(21)%
Underlying services revenue	951	1,001	(5)%	(6)%
Underlying gross profit	681	878	(22)%	(25)%
Gross margin %	24.8%	27.6%	(2.8)%pt	(2.7)%pt
Commercial and administration costs	(337)	(343)	(2)%	(6)%
Research and development costs	(167)	(166)	1%	(2)%
Joint ventures and associates	1	(2)	-	-
Underlying operating profit	178	367	(51)%	(52)%
Underlying operating margin %	6.5%	11.5%	(5.0)%pt	(4.9)%pt

¹ The underlying results for 2019 have been restated to reclassify Bergen Engines AS and the Civil Nuclear Instrumentation and Control business as non-core.

² The impact of M&A was £55m on revenue and £nil on underlying operating profit.

Financial overview

Diversified end market exposure resulted in a relatively resilient performance for Power Systems. Lower economic activity and reduced utilisation of the installed base of engines due to COVID-19 caused a substantial drop in commercial and industrial markets. However, governmental demand remained intact and we grew strongly in China, where economic conditions were better.

- **Order intake** of £2.7bn was 17% lower year-on-year, a book-to-bill of 1.0x during 2020. Commercial marine was impacted by lower tourism and yacht production facility closures, while economic uncertainty led to a deferral of capital spending across power generation and industrial customers. However, there were signs of recovery in order intake in the second half and the underlying demand in key areas including mission critical back-up generation remained strong.
- **Underlying revenue** reduced by 17% to £2,745m. This reflected a fall in industrial and power generation revenues, with marine relatively stable due to strong governmental demand. OE revenue was down 21% while Services were more resilient, down just 6%.
- **Underlying gross profit** of £681m was 25% lower year-over-year. This reflects the lower sales, reduced factory utilisation, and an adverse mix effect due to the sharper fall in high-margin aftermarket spare parts.
- **Commercial and administration costs** fell 6% to £(337)m primarily reflecting management actions to mitigate costs.
- **Research and development costs** of £(167)m were focused on the investment in lower carbon areas across our portfolio. This includes our expanding gas engine family, electric and hybrid-electric solutions (supported by the acquisition of battery storage company Qinous), and hydrogen solutions, such as our new co-operation with Daimler on hydrogen fuel cells.
- **Underlying operating profit** of £178m with a margin of 6.5%, 4.9%pts lower than prior year, reflecting the drop in gross profit, partly offset by the improvements in C&A and R&D.

Operational and strategic review

COVID-19 substantially impacted Power Systems during 2020, with delays to certain large projects, as well as a drop in new orders and aftermarket sales. Industrial markets were most affected, as the impact of COVID-19 was compounded by low commodity prices in mining and oil & gas, while project delays weakened construction sales. Other areas of Power Systems were more resilient, notably the Chinese market and governmental marine sales.

Despite COVID-19, we reached major landmarks across all of our five key strategic opportunities during the year. These five opportunities are: capturing growth in power generation, increasing share in China, expanding our gas portfolio, enhancing services, and shifting towards integrated system solutions with a renewable energy focus.

In power generation, economic uncertainty impacted order intake during 2020 however, longer term, we continue to anticipate rising demand led by mission-critical back-up power solutions for data centres and hospitals.

In China, economic conditions recovered quickly and we continued to drive our strategy of partnerships and local production. In November, we announced a record level of provisional agreements at the China International Import Expo, for almost 1,000 MTU engines and systems. In addition, we signed two new strategic partnerships with Chinese companies from the marine, power generation and mining industries.

Our gas portfolio expansion continued with the launch of the new MTU Series 500 engine for power generation, which will initially be offered for operation with natural gas but from end 2021 will also be available for power by biogas. The 500 series is also hydrogen-ready, which means that the engines can be converted to hydrogen operation at a later date. In addition, 2020 saw the premiere of our twin 16-cylinder gas engines with Dutch shipping company Doeksen.

In July, we took a further step in enhancing our services platform, signing an MoU with MAN Energy Solutions to collaborate on mya, an open asset and fleet management system.

Most importantly, we reached a number of milestones in our effort to transition towards complete system solutions and low carbon products. These milestones included:

- the creation of a new organisational unit called 'Power Lab' to focus on innovative energy solutions to support our net zero drive;
- significant advancements in battery storage products, beginning with the acquisition of a majority stake in storage specialist Qinous in January, which is now central to our microgrid solutions business. We also increased our capacity for producing battery containers with the announcement of a new production facility in Bavaria;
- the acquisition of Kinolt, a specialist in dynamic, uninterruptible power supply systems, completes our product offering in backup power generation; and
- the announcement of a partnership with Daimler Truck AG on stationary fuel-cell generators, as CO2-neutral emergency power generators for safety-critical facilities including data centres and hospitals.

Power Systems outlook

Uncertainty remains over the near-term economic outlook. However, based on Power Systems' short-cycle exposures and the growth potential in key markets such as China, we expect an improvement in order intake during the first half of 2021, converting into a recovery in sales from the second half of the year with revenues returning to approximately 2019 levels in 2022. Longer term there are significant growth opportunities for Power Systems across both existing activities (notably in mission critical back-up power and expansion in China) and in new low carbon solutions such as microgrids, hydrogen and hybrid-electric power solutions.

Defence

Defence is a market leader in aero engines for military transport and patrol aircraft with strong positions in combat and helicopter applications. It has significant scale in naval and is the technical authority for through-life support of the nuclear power plant for the Royal Navy's submarine fleet.

UNDERLYING REVENUE	UNDERLYING OPERATING PROFIT	ORDER BACKLOG
£3,366m 2019: £3,250m	£448m 2019: £415m	£7.5bn 2019: £8.6bn
UNDERLYING REVENUE MIX	UNDERLYING REVENUE MIX BY SECTOR	
OE: 43% Services: 57%	Transport : 33% Combat: 24% Submarines: 18% Naval : 11% Other: 14%	

Overview of 2020

Defence had a strong year in 2020, growing underlying revenue and underlying operating profit despite COVID-19. Throughout the pandemic, Rolls-Royce has received support from its customer base with several government customers accelerating payments and programmes. All Defence facilities remained open throughout the year with decisive and early actions taken to protect employees and maintain the supply chain.

£m	2020	2019	Change	Organic change
Underlying revenue	3,366	3,250	4%	4%
Underlying OE revenue	1,436	1,461	(2)%	(1)%
Underlying services revenue	1,930	1,789	8%	8%
Underlying gross profit	686	669	3%	3%
Gross margin %	20.4%	20.6%	(0.2)%pt	(0.2)%pt
Commercial and administration costs	(151)	(158)	(4)%	(4)%
Research and development costs	(96)	(105)	(9)%	(9)%
Joint ventures and associates	9	9	-	-
Underlying operating profit	448	415	8%	8%
Underlying operating margin %	13.3%	12.8%	0.5%pt	0.5%pt

Financial overview

Defence had a strong year, with resilient financial performance despite the COVID-19 pandemic. Government customers remained supportive throughout the year, and effective business continuity plans were enacted to minimise the disruptions experienced to the supply chain and facilities.

- **Order intake** was £2.4bn, representing a book to bill ratio of 0.7x. This follows on from a record order intake of £5.3bn in 2019 (1.6x book-to-bill) and an average book to bill ratio of 1.2x between 2015 and 2019. Order cover for 2021 is in excess of 90% and the healthy order book currently represents approximately 2.3 years of Defence sales.
- **Underlying revenue** increased by 4% to £3.4bn. This was largely driven by higher LiftSystem aftermarket revenues as the in-fleet service expands together with international sales of the EJ200 engine powering the Eurofighter Typhoon. Naval sales and UK parts sales also improved compared to the prior year.
- **Underlying gross profit** of £686m was 3% higher year-over-year. This reflects the higher sales volumes, with gross margin relatively stable at 20.4%.
- **Commercial and administration costs** were 4% lower year-on-year at £(151)m despite the underlying business growth.
- **Research and development costs** fell by £9m despite an increase in expenditure on key strategic programmes in the period to support new growth opportunities.
- **Underlying operating profit** increased by 8% to £448m, with margins 0.5%pts higher. This reflected the stronger gross profit and modestly lower C&A and R&D charges outlined above.

Operational and strategic review

2020 was another strong year for Defence with a healthy pipeline of orders and steady growth in revenue and profits. The business' resilient revenue growth with low cyclical and high cash conversion provided support for the Group.

Operations were largely unaffected by COVID-19, including the \$400m investment project to revitalise our Indianapolis facilities. The new building opened during 2020, with work now ongoing to demolish the previous site. Other milestones included the delivery of the 400th V-22 Osprey tiltrotor, which is powered by our AE 1107C engine, and further test flying for the MQ-25 Stingray aircraft, which will provide unmanned, carrier-based air-to-air refuelling.

Consistent demand for parts and services in Defence helped support the broader aerospace supply chain, particularly those suppliers suffering from reduced activity in commercial aviation. In addition, the growth opportunities in our Defence business enabled some of the experienced colleagues whose roles were removed in the Civil Aerospace restructuring to remain in the Group.

2020 has seen a number of notable orders. The German Air Force placed an order for 56 EJ200 engines and Rolls-Royce's MT30 engine was chosen by the Republic of Korea Navy for its FFX Batch III frigate. Additionally, the UK selected the Rolls-Royce nuclear propulsion system, Pressurised Water Reactor 3 (PWR3), as the preferred bidder for the next generation of attack submarines.

Progress was also promising on new opportunities in the US, including B-52 re-engining competition and the Future Vertical Long Range Assault Aircraft (FLRAA). Combined, these two programmes an estimated potential lifetime value for Rolls-Royce of over £7bn. For the B-52, we are proposing the F130 engine, which is based on proven and efficient BR725 commercial engine. The outcome is expected to be announced in 2021. On the FLRAA competition, we reached agreement with Bell Textron in 2020 to provide the propulsion for the V-280 Valor aircraft as it moves forward in the petition. A final decision is expected by 2022. Finally, our LibertyWorks team completed rig testing on a new core design for all engine, successfully executing a rapid prototyping plan from design to test in under a year; and delivered an upgraded thermal management and power system for directed energy applications to heed Martin for integration and testing.

In the UK, the Tempest programme welcomed new partners in 2020. A lateral memorandum of understanding was signed by the respective Defence Ministers of the UK, Sweden and Italy, and trilateral industry discussions were initiated with leading defence companies, in preparation for the formal launch of the concept and assessment phase 21. Work continued at pace on the programme, with our engineers developing advanced combustion system technology and exploring composite materials and additive manufacturing to produce lightweight, more power-dense components capable of operating at higher temperatures. Rolls-Royce is the leading propulsion company in Team Tempest, which is expected to secure our combat engine revenues and expertise for years to come.

We also announced a new strategic partnership agreement with Reaction Engines. This aims to develop high-speed aircraft propulsion systems and to explore the application of their thermal management technology within civil and defence aerospace gas turbine engines, as well as hybrid-electric systems.

Defence outlook

We anticipate another good year for Defence in 2021. Revenue is expected to be stable, with a strong level of order cover coming into the year. Operating margins are also expected to be broadly flat at approximately 13%. We continue to pursue large opportunities in the US which would drive a step-change in growth prospects for Defence, notably the B-52 engine replacement programme for the US Air Force and the Future Vertical Long Range Assault Aircraft competition for the US Army. We also continue to progress Project Tempest in UK air combat. Finally, we are investing in adjacent technologies such as small engines and directed energy power systems in order to drive further medium-term growth.

ITP Aero

ITP Aero is a global leader in aero-engine subsystem design. Alongside the development, manufacturing, assembly and testing of engine components, it provides MRO services for regional airlines, business aviation, industrial and defence applications.

UNDERLYING REVENUE	UNDERLYING OPERATING PROFIT	ORDER BACKLOG
£705m 2019: £936m	£68m 2019: £111m	£0.8bn 2019: £0.9bn
UNDERLYING REVENUE MIX	UNDERLYING REVENUE MIX BY SECTOR	
OE: 76% Services: 24%	Civil: 73% Defence: 18% In-Service Support: 9%	

Overview of 2020

ITP Aero was materially impacted by COVID-19, with similar trends to those seen in Civil Aerospace. Due to the reduction in Rolls-Royce Civil Aerospace deliveries, demand for ITP Aero's widebody modules also reduced significantly, with more modest decreases in ITP Aero's business aviation and narrowbody activities. In response, a restructuring programme was launched and plans are also underway to enhance the scope of ITP Aero's activities. These actions should position ITP Aero for recovery and enhance the potential disposal value of the business.

£m	2020	2019	Change	Organic change
Underlying revenue	705	936	(25)%	(26)%
Underlying OE revenue	537	782	(31)%	(32)%
Underlying services revenue	168	154	9%	8%
Underlying gross profit	133	206	(35)%	(36)%
Gross margin %	18.9%	22.0%	(3.1)%pt	(3.2)%pt
Commercial and administration costs	(38)	(62)	(39)%	(40)%
Research and development costs	(27)	(33)	(18)%	(18)%
Underlying operating profit	68	111	(39)%	(39)%
Underlying operating margin %	9.6%	11.9%	(2.3)%pt	(2.1)%pt

Financial overview

Due to ITP Aero's significant exposure to civil aviation, which accounted for around 70% of its revenues in 2020, performance was heavily negatively impacted by the COVID-19 pandemic.

- **Underlying revenue** was £705m, down 26% versus 2019, primarily reflecting lower engine (OE) volumes on civil programmes, particularly in widebody. Defence OE revenue was more resilient, supported by EJ200 orders. Service revenue increased 8%.
- **Commercial and administration costs** of £(38)m were 40% lower year-on-year, including some benefit from management actions to reduce discretionary costs, with headcount 13% lower at the year-end compared to 2019.
- **Research and development costs** were £6m lower in the period mainly due to phasing of projects.
- **Underlying operating profit** of £68m, 39% lower year-on-year, reflecting the lower OE revenues and under-utilisation of the fixed cost base.

Operational and strategic review

Similar to trends seen in Civil Aerospace, ITP Aero's 2020 performance was materially impacted by COVID-19 as the majority of the business' sales relate to civil aviation. ITP Aero's largest exposure is on Rolls-Royce widebody programmes, however the business also has significant activities in the business aviation and narrowbody markets. This diversity was beneficial in 2020 as these markets were less impacted than widebody which relies on demand for long-haul travel. In the defence market, COVID-19 has had a limited impact, with the reduction in sales in 2020 largely driven by phasing on key programmes. In response to the impact of COVID-19 on ITP Aero's core markets, we launched a substantial restructuring programme which aims to reduce ITP Aero's global headcount by approximately 15% by the end of the first half of 2021. In addition, in conjunction with the footprint review in Civil Aerospace, we proposed an increase to the business' manufacturing, engineering, and supply chain capabilities. This involves the integration of Civil Aerospace's facility and workforce in Hucknall, UK, into ITP Aero, as well as the transfer of aero engines structures activities into ITP, currently carried out in Barnoldswick, UK. These actions will enhance ITP Aero's position as a major tier one aerospace company. Our planned disposal of ITP Aero is progressing well with ongoing conversations with a number of potential buyers.

Despite COVID-19, ITP Aero made further progress on future programmes in 2020, including the design and manufacture of the first intermediate pressure turbine (IPT) casing for the future Rolls-Royce UltraFan engine.

In defence, we formalised our participation as the leader of the engine technology pillar in Spain for the next generation weapon system/future combat air system (NGWS/FCAS). In November, the EUROJET consortium signed a contract to provide 56 new EJ200 engines for the German Air Force's new order of Tranche 4 Typhoon aircraft. ITP Aero is a member of the consortium alongside Rolls-Royce, MTU Aero Engines and Avio Aero.

ITP Aero outlook

We expect some stabilisation in 2021 followed by a recovery in our performance from 2022 onwards reflecting the wider recovery in commercial aerospace as well as the outcomes from our actions to reduce costs to improve profitability. We remain focused on cost savings, including the workforce capacity adjustment of approximately 15% globally from 2019 levels, which is already well underway and will be completed by the end of the first half of 2021. Our planned sale of ITP Aero is progressing well with ongoing conversations with a number of potential buyers.

Principal risks

COVID-19 created exceptional circumstances in civil aviation in 2020. Consequently, we reviewed the principal risks and how we manage them in light of COVID-19 at both the half-year and year-end. In our 2019 Annual Report, we identified infectious disease as a root cause of our Business Continuity risk and a reduction in air travel and customer disruption as root causes of our Market and Financial Shock risk. As a result, additional actions and controls have been identified and implemented to mitigate the impact to the Group and protect our people and businesses.

Our approach to emerging risks has also been dominated by COVID-19 and our response to the pandemic. We have considered many emerging risks as a result of COVID-19, with regard to the changing risk landscape and the most appropriate response.

Our risk and internal control system

The Rolls-Royce Holdings plc Board has established procedures to manage risk and oversee the risk management system (RMS). The Rolls-Royce Holdings plc 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 Rolls-Royce Holdings plc 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 Rolls-Royce Holdings plc Audit Committee, on behalf of its Board, performs an annual review of the RMS and its effectiveness. During the year, the Rolls-Royce Holdings plc Board completed a robust 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 risks, 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 and regular Rolls-Royce Holdings plc Board and Board Committee meetings.

At least once a year the Rolls-Royce Holdings plc Audit Committee, on behalf of its Board conducts a review of the effectiveness of the RMS and where required identifies areas for improvement (more details of this review can be found on page 38).

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 simplified our policies and guidance and provided support to risk owners in assessing the effectiveness of mitigating controls and on our current risk level relative to our risk appetite. We conducted a Group-wide review into our response to COVID-19 and, as part of this review, we reassessed our risks.

In 2021, we will seek to build on our work this year and embed more of the lessons learned from COVID-19 in our business-as-usual approach. We will continue to improve the quality of our risk assessment and management activities in relation to our restructuring programmes, financial planning and critical decision-making.

COVID-19 and changes in our principal risk levels

The scale and impact of the pandemic and actions taken to control its spread have resulted in some increased risks to and uncertainty in our operations.

Risk level unchanged: We have concluded no change for Product Safety or Compliance given no significant changes to our operational or regulatory landscape during 2020, supported by the output from our relevant assurance and incident reporting frameworks in these areas. We have concluded no change for Climate Change or Cyber given the priority that was already placed on mitigating these risks to our business. Our climate change risks are managed in the same way as other risks. Given the events of 2020, we have concluded that the most critical risk is the impact of our products and services on the environment and have revised our principal risk description accordingly as set out on page 33. Given the criticality of protecting our business against cyber threat, additional mitigations, including the strict safe-guards required to be in place to enable more of our employees to work from home, were carefully considered as part of our COVID-19 response.

Increased risks: COVID-19 itself, subsequent changes to our ways of working in our facilities and from home, and indirect changes due to our restructuring have increased our People Safety and Talent and Capability risks. Business Continuity increased as our supply chain may face difficulties in fulfilling requirements due to the pandemic. COVID-19 has caused us to reconsider the nature of our Competitive Environment and the likelihood and impact of a Financial or Market Shock. Our Political risks have increased due to changes in a various geopolitical environments across the globe both independent of and related to the pandemic. We have reset our restructuring targets as a result of COVID-19, which may be harder to meet than previously assessed.

Other specific risks

- Human capital
- Human trafficking and slavery

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 Executive Team meeting at least once each year, before a review by the Rolls-Royce Holdings plc Board or one of its Board committees.

Changes were made at the half-year to our principal risks due to COVID-19 and these changes remain relevant at the year-end. In particular: Market and Financial Shock were split into two separate risks, and Major Product Programme Delivery has been incorporated within Competitive Environment. Our current principal risks (including those most significantly impacted by COVID-19) together with how we manage them, how we assure them (by activities and functions other than internal audit) and the Rolls-Royce Holdings plc Board and Board committees providing oversight are set out in the table below.

Emerging risks

We continue to review additional emerging risks that could significantly impact or challenge our current strategy and business model. Any emerging risks identified have been recorded in our RMS and are being managed and monitored alongside our existing risks.

Following the UK's exit from the European Union on 31 January 2020 and the trade deal announced in December 2020, we continue to review the details of the agreement and to ensure there is no interruption in our service to customers. We continue to work closely with the UK government and relevant trade bodies to ensure they are aware of our priorities.

How we manage principal risks

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	CHANGE ¹
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 <ul style="list-style-type: none"> Our product safety management system includes activities 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. People <ul style="list-style-type: none"> Our HSE management system includes activities 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 	Product Product safety assurance team Technical product life cycle audits	Rolls-Royce Holdings plc's Safety, Ethics & Sustainability Committee Product safety boards	Static
		Safety case interventions HSE audit team	Rolls-Royce Holdings plc's Safety, Ethics & Sustainability Committee	Increased
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); 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.	<ul style="list-style-type: none"> 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 practice 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	Rolls-Royce Holdings plc's Audit Committee	Increased

¹ Change in risk level in 2020 (last 12 months including changes to risk level resulting from COVID-19 and our response).

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	CHANGE ¹
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.	<ul style="list-style-type: none"> 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. 	Strategic planning Innovation hub activities Investment reviews Group sustainability team	Rolls-Royce Holdings plc's Safety, Ethics & Sustainability Committee Rolls-Royce Holdings plc's Science & Technology Committee	Static
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 an NPI project 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.	<ul style="list-style-type: none"> We review product life cycles. 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. 	Strategic planning Innovation hub activities Investment reviews	Rolls-Royce Holdings plc's Board Rolls-Royce Holdings plc's Science & Technology Committee	Increased
Compliance Non-compliance by the Group with legislation, the terms of DPAs 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.	<ul style="list-style-type: none"> 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	Rolls-Royce Holdings plc's Safety, Ethics & Sustainability Committee	Static

¹ Change in risk level in 2020 (last 12 months including changes to risk level resulting from COVID-19 and our response).

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	CHANGE ¹
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.	<ul style="list-style-type: none"> We deploy web gateways, filtering, firewalls, intrusion, advanced persistent threat detectors and integrated reporting. We test software. We use our crisis management framework. 	Group cyber security team and security operations centre	Rolls-Royce Holdings plc's data security committee	Static
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 current and predicted air traffic, fuel prices and age/replacement rates of customer fleets.	<ul style="list-style-type: none"> 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. 	Annual target setting and strategic planning Investment reviews	Rolls-Royce Holdings plc's Board	Increased
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.	<ul style="list-style-type: none"> 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. 	Annual target setting and strategic planning Finance risk committee	Rolls-Royce Holdings plc's Audit Committee	Increased
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.	<ul style="list-style-type: none"> We develop Group and country strategies and consider associated dependencies. We horizon scan for political implications and dependencies including around Brexit. We include diversification considerations in our investment and procurement choices. 	Strategic planning Brexit steering group Investment reviews Supplier sourcing and strategy reviews Government relations teams	Rolls-Royce Holdings plc's Board	Increased

¹ Change in risk level in 2020 (last 12 months including changes to risk level resulting from COVID-19 and our response).

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	CHANGE ¹
Restructuring Failure to deliver our restructuring, including changing our behaviours could result in: missed opportunities; dissatisfied customers; disengaged employees; ineffective use of our scarce resources; and increasing the likelihood of other principal risks occurring. This could lead to a business that is overly dependent on a small number of products and customers; failure to achieve our vision; non-delivery of financial targets; and not meeting investor expectations.	<ul style="list-style-type: none"> • We develop, implement and review status of restructuring programme and project plans including on M&A, transformation and restructuring activities. • We maintain knowledge management systems. • We simplify the processes in our management systems whilst ensuring we comply with our legal, contractual and regulatory requirements. 	Strategic planning Executive Team Restructuring and transformation reviews	Rolls-Royce Holdings plc's Board	Increased
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.	<ul style="list-style-type: none"> • We undertake succession planning and monitor the talent pipeline. • We survey employee opinion. • We develop, implement and review strategic resourcing plans. 	People leadership team	Rolls-Royce Holdings plc's Nominations & Governance Committee	Increased

¹ Change in risk level in 2020 (last 12 months including changes to risk level resulting from COVID-19 and our response).

Section 172(1) statement

The Board believes that, individually and together, they have acted in the way they consider, in good faith, would be most likely to promote the success of the Company for the benefit of its members as a whole having regard to the stakeholders and matters set out in s172(1)(a)-(f) of the Companies Act 2006 in the decisions taken during the year ended 31 December 2020. This statement sets out the Board's approach to decision making, its stakeholder engagement, why its stakeholders matter and some key decisions made during 2020. To give greater understanding to this, we have provided clear cross-referencing to where more detailed information can be found in this Annual Report. When making key strategic decisions, the Board considers for each matter the likely consequences of any decision in the long term, identifies stakeholders who may be affected, and carefully considers their interests and any potential impact as part of the decision making process. Our report on stakeholder engagement during the year is on pages 39 to 41.

The Board's approach

We remain a particularly active Board, with a heightened degree of oversight and scrutiny during the COVID-19 pandemic to ensure we are aware of the impacts on all our stakeholders.

Purpose, vision and strategy (see page 6)

- purpose refined during the year to reflect our sustainability ambitions;
- we have clearly articulated purpose recognising our role in society;
- our key focus in the near term was refined in response to COVID-19; and
- corporate narrative aligned with both vision and strategy.

Group policies

- annual review of Group policies; and
- mandatory ethics training focused on decision making.

Culture and people

- oversight of implementation of strict safety measures to protect against the spread of COVID-19 at our sites around the world;
- increased our focus on health and wellbeing;
- tracked progress and sought feedback on our people framework throughout the restructuring activity in 2020 through reports from the management team and the Employee Champions; and
- Code of Conduct clearly communicated and enforced.

Risk and internal control framework (see page 38)

- additional actions and controls have been identified and implemented to mitigate the impact of COVID-19 on the Group and to protect our people and businesses (see pages 38 to 39);
- COVID-19 created exceptional circumstances in Civil Aviation in 2020. Consequently, we reviewed all risks and mitigating actions at both the half-year and year-end (see pages 38 to 39); and
- reviewed process for the preparation of the going concern statement (see pages 43 to 46).

'Freedom within a framework' (see page 38)

- communication of freedom within a framework culture.

Our stakeholder engagement

Our activities are global and complex. Touching upon a wide variety of stakeholders, we aim to create trusted relationships to understand the needs of all our stakeholders so we can continue to deliver value and build a resilient business. This was important in a challenging year for our end markets and for civil aviation in particular.

Customers

In a year of significant impact, particularly in the civil aviation industry but also in other end markets, we had continuous dialogue with our customers. Focusing on the needs of our customers is critical to the success of our business. We maintain a high degree of customer intimacy in order to anticipate and understand the future power needs of our customers, building on our years of experience in delivering for our markets. We collaborate and innovate with our customers to improve product performance and value and to promote best practice in the industry to combat issues such as climate change.

Investors

It was critical that our existing and potential bond holders understood our strategy and rationale as we sought their support for our bond issuance in 2020. Continued access to capital is vital to long-term performance of our Business. We work to ensure that our investors and investment analysts have a strong understanding of our strategy, performance, ambition and culture.

Employees

Employee engagement is critical to our success. During the fundamental restructuring in the year we continued to work to create a diverse and inclusive workplace where every employee can reach their full potential and be at their best. We engage with our people to ensure we are delivering to their expectations, supporting wellbeing and making the right business decisions. This ensures we can retain and develop best talent.

Partners and suppliers

Our external supply chain and our suppliers are vital to our performance. We engage with them to build trusting relationships from which we can mutually benefit and to ensure they are performing to our standards and conducting business to our expectations. Business continuity discussions formed a vital part of the dialogue this year.

Communities

We were challenged in our traditional activities and sought new ways to enhance engagement with young people and disadvantaged groups who have been significantly impacted by disruption to education and social activities this year. We are committed to building positive relations with the communities in which we operate. We support communities and groups, local and relevant to our operations.

Governing bodies and regulators

Considerable engagement was undertaken with governments and regulators in this unprecedented year and to continue to work with them as we prepare for recovery in the civil aviation sector. We engage with national governments, national/transnational agencies and key politicians and regulators to ensure that we can help shape policy, have licence to operate, attract funding, enable markets and ultimately win business. We work with governments globally where we have operations or future business opportunities.

See pages 39 to 41 for the Board's engagement with our stakeholders and page 9 for our business model.

Our principal decisions in 2020**Redefining the strategy**

The COVID-19 pandemic had a sudden and material impact on the Group and on our markets globally and this led the Board to refine the strategy during the year. This is further explained in the Chief Executive's review (see pages 4 to 5) and also articulated in our purpose, vision and strategy (see pages 6 to 8). The Board considered all stakeholders as part of these considerations and received reports from the Executive Directors on their discussions with and feedback from employees, customers, suppliers & partners, governments and advisers.

As part of these discussions the Board strengthened the Group's commitment to combatting climate change recognising that we have a key role to play in creating a more sustainable future.

COVID-19 and rebuilding the balance sheet

The sudden and material impact of the COVID-19 pandemic resulted in a sharp deterioration in the financial performance of Civil Aerospace and, to a much lesser extent, in Power Systems. The Board committed to undertake a number of significant actions to mitigate the financial and operating impact in order to strengthen the financial position of the Group and in doing so considered the long-term interests of employees, customers, suppliers & partners and future and current investors.

Fundamental restructure and cost savings

The Board had oversight of the decisions by the Executive Team to fundamentally restructure the Group and of the impact these decisions had on employees and local communities in particular – noting discussions with UK Trade Unions and the European Works Council as well as with Government Ministers and Members of Parliament. The review of the UK defined benefit pensions scheme was also noted, the decision supported the Group's future financial position and ensured a more equal level of total reward going forward.

Strategic acquisitions

The Group made two acquisitions to accelerate the delivery of its electrification strategy. Both acquisitions remain in line with the Group's net zero emissions and post-pandemic recovery strategy.

Strategic Report approved by the Board on 12 March 2021 and signed on its behalf by:



Stephen Daintith

Director

DIRECTORS' REPORT

The Directors present their Directors' Report on the Rolls-Royce plc Group (the Group), together with the audited financial statements for the year ended 31 December 2020.

Directors

The Directors who held office during the year and up to the date of signing the Financial Statements were as follows:

Sir Ian Davis, Chairman
 Warren East CBE, Chief Executive
 Stephen Daintith, Chief Financial Officer
 Lewis Booth CBE, Non-Executive Director
 Sir Frank Chapman, Non-Executive Director
 George Culmer, Non-Executive Director
 (appointed 2 January 2020)
 Irene Dorner, Non-Executive Director

Beverly Goulet, Non-Executive Director
 Lee Hsien Yang, Non-Executive Director
 Nick Luff, Non-Executive Director
 Sir Kevin Smith, Senior Independent Director
 Jasmin Staiblin, Non-Executive Director
 Dame Angela Strank, Non-Executive Director
 (appointed 1 May 2020)

Directors' indemnities

The Directors have the benefit of an indemnity provision contained in the Articles. In addition, the Directors have been granted a qualifying third-party indemnity provision which was in force throughout the financial year and remains in force. Also, throughout the year, the Company purchased and maintained Directors' and Officers' liability insurance in respect of the Company and for its Directors and Officers.

Dividends

The Directors do not recommend the payment of a dividend (2019: £nil).

Corporate governance

The Board is responsible for the direction, management, performance and long-term sustainable success of the Group. The Board of Rolls-Royce Holdings plc sets the Group's strategy and objectives and oversees and monitors internal controls, risk management, principal risks and governance. It has established certain principal committees to assist in fulfilling its oversight responsibilities, providing dedicated focus on particular areas. Rolls-Royce Holdings plc is subject to the principles and provisions of the UK Corporate Governance Code 2018 (the 'Code').

The Company operates in compliance with the group's policies (including the diversity policy), procedures and governance framework. Details of the Rolls-Royce Holdings plc's compliance with the Code and the group's policies, procedures and governance framework are set out in the Rolls-Royce Holdings plc annual report 2020.

Roles and responsibilities

The roles of the Chairman and Chief Executive are clearly defined and the Board supports the separation of the two roles. The Chairman is responsible for the leadership and effectiveness of the Board. The Chief Executive is responsible for the running of the Group's business and leads the Executive Team which comes together to communicate, review and agree on issues and actions of Group-wide significance.

Non-Executive Directors support the Chairman and provide objective and constructive challenge to management.

The Company Secretary makes sure that appropriate and timely information is provided to the Board and is responsible for advising and supporting the Chairman and Board on all governance matters. All Directors have access to the Company Secretary and may take independent professional advice at the Company's expense in conducting their duties.

Freedom within a framework

The Executive Team has defined the framework in which the businesses have the maximum freedom, responsibility and accountability for their performance. The framework sets out how we are organised as a Group. Having the framework in place enables us to manage risk, drive critical business decisions and maintain standards across the Group. It means we can act with pace and confidence in a way that meets the expectations of our stakeholders.

The framework sets out the roles of the businesses, as well as head office, group business services and the innovation hub and defines what we mean by empowered businesses. Our people section sets out the capabilities, behaviours, competencies and values which enable us to deliver our strategy.

The governance model clarifies decision-making rights and points of accountability and includes an online support tool for all key decision-makers. It includes details of all governance bodies and decision-making committees within the Group that the decision-makers may need to consult or seek approval from. It also provides access and an overview of our mandatory Group policies which define the requirements for all our people when they are carrying out their day-to-day activities as well as sets out our risk management and internal control systems and assurance activities.

The Rolls-Royce management system (RRMS) promotes end-to-end value stream processes that standardise and simplify the way we deliver products and services across the Group. It is an important strand in our governance of product safety.

Together, these are set within the context of our vision and strategy and also link to our business model. All our people can see how everything joins together and how they are contributing to one of the world's leading industrial technology companies, connecting, powering and protecting society.

Internal control and risk management

Rolls-Royce Holdings plc's Audit Committee (the Committee) is responsible for recommending to its Board the financial reporting, focusing on accounting policies, judgements and estimates; disclosures; compliance with regulations; and whether the Annual Report is fair, balanced and understandable.

The Committee monitor the effectiveness of the Group's risk management and internal control environment and review concerns of financial fraud. The business continuity and financial shock Group principal risks are considered by the Committee while the cyber principal risk is reviewed by its data security committee.

In addition, the Committee provides oversight in respect of the scope, resources, results and effectiveness of internal audit. It is responsible for the relationship with and the effectiveness of the external auditors as well as approving their terms of engagement and fees.

Financial reporting

The Group has complex long-term contract accounting and every year the Committee spends much of its time reviewing the accounting policies and judgements implicit in the Group's financial results. In 2020, in addition to its scheduled workload, the Committee focused much of its time on the assumptions in respect of the recovery of civil aviation, in particular the implications of changes in Civil Aerospace engine flying hours (EFHs), and all areas impacted by this, such as going concern, impairments, long-term contract accounting, potential onerous contracts and customer losses.

The Committee has ensured that the disclosures in respect of all key areas of judgement are appropriate and balanced. In light of the increased regulatory guidance on enhancing disclosures, the Group has provided additional information with regard to the sensitivity of the estimates to changes in key assumptions which are summarised in note 1 of the Consolidated Financial Statements. In November 2020, the Financial Reporting Council (FRC) concluded on their review of the Group's 2019 Annual Report. Their role is to consider compliance with reporting requirements; their review does not provide assurance that the 2019 Annual Report was correct in all material aspects. The principal areas where the FRC required further information were in relation to distributable profits; provision for Trent 1000 costs; and free cash flow and the summary funds flow statement. The Committee reviewed all correspondence in this regard and in December 2020, the Group received a final letter from the FRC confirming their satisfaction with the responses provided and the closure of their enquiries. The Group welcomes the FRC's engagement and have incorporated improvements in our 2020 Annual Report based on their observations and extended disclosures where these have been considered material and relevant.

Risk management and the internal control environment

The Committee satisfied itself that improvements have been made in the Group's approach to risk management including simplifying policies and guidance which has improved the clarity of risk and control ownership and through the focus on mitigating controls and risk appetite. The Committee recommended that future improvements should focus on embedding more of the lessons learned from COVID-19 and in continuing to improve the quality of the Group's risk assessment and management activities in relation to Group restructuring programmes, financial planning and critical decision-making.

The Committee also satisfied itself that the processes for identifying and managing risks are appropriate and that all Group principal risks and mitigating actions had been subject, during the year, to a detailed review by the Rolls-Royce Holdings plc Board or one of its Committees. Based on this and the Committee's other activities, including consideration of the work of internal and external audit and attendance at the Committee by business and functional risk owners, they reported to the Rolls-Royce Holdings plc Board that a robust assessment of the principal risks facing the Group had been undertaken. Details of the Group principal risks are set out on pages 31 to 35.

Internal financial control

The Committee specifically reviews the Group's internal financial controls. During 2020, it reviewed the results of self-attestation and testing performed by the internal control and internal audit teams to confirm the effective operation of key financial controls across the Group. The Committee reviewed the ongoing impact of COVID-19 on the Group's financial control environment and additional mitigating activities established as a result. The Committee considered the external auditor's observations on the financial control environment. They reviewed the progress of the programme to strengthen financial reporting and compliance controls with particular focus on the use of spreadsheets, systems access and inventory management as well as the outcome of the increased supervisory review and oversight controls over balance sheet integrity and manual processes. It continued to review progress in and changes to the scope of the finance transformation programme with respect to financial control.

Effectiveness of risk management and internal control systems

The Committee conducted a review of the effectiveness of the Group's risk management and internal control systems, including those relating to the financial reporting process, and concluded that it is effective, whilst recognising the need for ongoing and continuous improvement. Where opportunities for improvement were identified, action plans have been put in place and progress is monitored by the Committee. The Committee consider that its review of the risk management and internal control systems, in place throughout 2020 and up to the date of this report, satisfies the requirements of the DTR and the FRC's guidance on risk management.

Employment of disabled persons

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 employment 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.

Employee engagement

Employee engagement continues to be a priority and is a key measure in our annual bonus 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 have held 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. In 2019, we launched our new employee engagement survey in partnership with Gallup and this simplified framework is now embedded across the Group. We have set a target to achieve top-quartile scores by the end of 2023, and our current results show we are on track to do so. We ran our third Gallup survey this year and maintained a good participation rate of 72%. We achieved a meaningful increase of +0.16 reaching a Group 'grand mean' of 3.68 which places us in the 31st percentile of manufacturing companies that partner with Gallup. This is an increase from the 13th percentile in 2019.

The Board recognises that it is through our people that we fulfil our potential, achieve our vision and execute our strategy. During 2020, the Board ensured that the safety and wellbeing of our employees remained at the heart of our decision-making. Our employees were provided with regular video messages on the Group's intranet from the Executive Team and were kept up to date on the rapidly changing environment and the impact of COVID-19 on our business. Following any decisions, communications were sent to all employees with FAQ sections and employees were invited to Q&A sessions held by the Executive Team via webcast. In addition to this, we took time to understand the impact of COVID-19 on employee resilience and continued to note progress with our injury rates.

We take the role of Employee Champion very seriously to ensure there is a voice of the employees in the boardroom. Irene Dorner has continued in her role as Employee Champion for a fourth year and where possible meets with employee groups and attends employee stakeholder engagement meetings. Irene also has regular dialogue with the Chief People Officer and together they review the outcomes from the employee surveys and Ethics Line reports. Irene can be contacted by any employee by email. Beverly Goulet also continued in her role as the Board's Employee Champion for our North American employees and Lee Hsien Yang has been appointed this year as the Board's Employee Champion for Asia Pacific. The Employee Champions are supported by an employee stakeholder engagement group where we discuss what we have learnt and plan future schedules. The Employee Champions provide regular feedback to the Board on employee topics of interest and/or concern. The direct link that they provide between the employees and the Directors is proving to be extremely valuable, particularly through a period of extensive change. Our Employee Champions recorded a video message to all employees in July 2020 and invited them to complete a survey suggesting other methods of engagement of benefit to them during such uncertain times and requested information on specific topics they want to discuss. A follow-up communication from our Employee Champions was made available to all employees on our internal website. Further engagement sessions have been scheduled for 2021 as a result of the survey, with a focus on D&I as a topic employees sought to discuss with our Employee Champions. We believe that these methods of engagement with our employees are effective in building and maintaining trust and communication. They also act as a platform for employees to influence change in relation to matters that affect them.

During 2020, Irene attended the European Works Council Select Committee with the most senior employee representatives across Europe, chaired by our head of employee relations. In November, Irene attended a Global D&I Council meeting and, together with Bev and Hsien Yang, a people leadership team meeting chaired by the Chief People Officer. The Board reviews both the behaviours and statistics on safety and diversity & inclusion as well as the talent management agenda at all levels across the Group. The Board also continued to receive feedback on the anti-bullying and harassment programme and other training. Furthermore, the Employee Champions ensured that the employee voice remained at the heart of Board debate on the fundamental restructuring.

Stakeholder engagement

At Rolls-Royce, we understand that who we are and how we behave matters not only to our people but to the many stakeholders who have an interest in our business. We believe that stakeholder engagement remains vital to building a sustainable business and we interact with many stakeholders at different levels of the organisation. Engagement is carried out by those most relevant to the stakeholder group or issue.

Below we have identified some of our stakeholders and how both the Company and the Board engage with them. There has been continuous dialogue with our stakeholders throughout the year and this has become part of our governance framework. We believe we have a clear responsibility to all our stakeholders to return the Group to strength with a sustainable and right-sized cost base, aimed at ensuring the Group's future success and the Board intends to take all appropriate actions to secure this outcome.

The Board considers the different stakeholder groups and our engagement programmes and identifies opportunities for strengthening both its relationships and understanding to facilitate the decisions and contributions made by the Board to the success of the business.

Customers

The Board recognises that the quality of the Group's customer relationships is based on mutual trust as well as its engineering expertise. We recognise that as we recover from the impact of the 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. In light of COVID-19, the Company and the Board have been regularly engaged with customers. Warren East reported on his meetings with Singapore Airlines, COMAC the aircraft manufacturer in China, and the Chairman of Gulf Air as well as a number of interactions he and Stephen Daintith had with our aircraft manufacturing customers. The Board regularly receives operational updates, including customer metrics and feedback, from each of the businesses with the Business Presidents regularly presenting to the Board. During the challenges faced as a result of COVID-19, the Board has kept very close to our customer engagement throughout the year and received specific feedback from each of the Business Presidents on the issues and mitigation plans including the impacts on our customers, which greatly influenced the Board's deliberations and support for the Executive Team when considering our strategy.

Investors

The investor relations team is the key interface between the investment community and the Board, providing frequent dialogue and feedback. 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, at conferences as well as at key points throughout the year. Crucially, in the second half of the year our Executive Team, supported by our Chairman, held a virtual roadshow with our debt investors to gain the support required to successfully achieve a bond issuance, which further supplemented the additional liquidity provided by the UK Government. More than ever we recognise the importance of our investors as key stakeholders in our discussions and endeavour to ensure that we are able to create confidence in our Company through financial performance and the economic impact of our decisions, robust governance and transparency of reporting and delivering a sustainable, stable and predictable performance.

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. 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. There are of course a number of critical suppliers to the Group who, like us, have been materially impacted by COVID-19. As part of the assessment of the business continuity risks, the Rolls-Royce Holdings plc Audit Committee has focused on business continuity and the supply chain during 2020 when reviewing the individual business' risk management programme.

Communities

COVID-19 has significantly impacted our planned community investment and education outreach activities during 2020. Many planned events were cancelled, and projects delivered with schools and other community-based partners severely disrupted. However, we have worked with our partners to sustain engagement by adapting events, programmes and activities to virtual wherever possible. In our STEM education outreach programme, we sought new opportunities to enhance engagement with young people and disadvantaged groups who have been significantly impacted by disruption to education and social activities. For example, our digital academy shared resources to help people of all ages around the globe to digitally upskill and we partnered with Scouts in the UK to share a library of educational activities with home-schooling parents. In addition, we introduced the 2020 Armed Forces Association (AFA) National Teacher of the Year at the virtual AFA annual conference in the US and created new STEM content for virtual delivery with many partners around the globe.

We responded to a variety of the challenges presented by COVID-19 so our 2020 contributions would be enhanced by a specific and rapid response to a dynamic situation. These contributions have been largely non-financial and include: manufacturing capability, including VentilatorChallengeUK Consortium to help increase the UK's supply of ventilators; local community involvement wherever Rolls-Royce has a footprint, including donations of hand sanitisers in China, to food banks in Derby, surplus PPE to Bristol NHS, and a policy change to encourage employees, furloughed or not, to become community volunteers at test centres etc, and providing our technical expertise, for example, some of our HSE personnel were seconded into Derby & Burton Hospitals Trust to assist in strategy planning.

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. The General Counsel provides regular updates to the Board on compliance with regulators and the Rolls-Royce Holdings plc 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 is updated on the Group's engagement with the tax authorities and the related regulatory landscape is discussed by both the Board and the Rolls-Royce Holdings plc Audit Committee.

In addition, meetings with ministers and senior officials are held as relevant throughout the year. During 2020, Sir Ian Davis, Warren East and Stephen Daintith met senior UK Government officials to discuss the financial status of the Group. Sir Ian also met with the President, European Council (representing 27 member states), to discuss competitiveness issues, as well as decarbonisation and digitalisation challenges for our industry. Sir Ian participated in a call with the President of the European Commission on the COVID-19 situation and the EU green deal, and in a virtual meeting with the EU Commissioner for Jobs and Social Rights to discuss an action plan for skills. Since then, we have been involved in the EU pact for skills for the aeronautic sector. Warren met senior government ministers during the COVID-19 crisis to explain the impact of the pandemic on the Group and the restructuring of the Civil Aerospace business. Warren also met with groups of MPs who are local to our facilities in the UK. Warren discussed with the members of the Aerospace and Defence Industries Association (CEOs level) to prepare a post-recovery support and fund to the EU commissioner for the industry. Sir Ian continued his involvement with the European Round Table for Industry.

Financial instruments and risk management

Details of financial instruments and risk management are set out in note 20 to the Consolidated Financial Statements.

Post balance sheet events

Details of important events affecting the Group which have occurred since the end of the financial year are set out in note 1 to the Consolidated Financial Statements.

Related party transactions

Details of related party transactions are set out in note 26 to the Consolidated Financial Statements.

Political donations

The Company's policy is that it does not, directly or through any subsidiary, make what are commonly regarded as donations to any political party. However, the Act defines political donations very broadly and so it is possible that normal business activities, such as sponsorship, subscriptions, payment of expenses, paid leave for employees fulfilling certain public duties and support for bodies representing the business community in policy review or reform, which might not be thought of as political expenditure in the usual sense, could be captured. Activities of this nature would not be thought of as political donations in the ordinary sense of those words.

During the year, expenses incurred by Rolls-Royce North America, Inc. in providing administrative support for the Rolls-Royce North America political action committee (PAC) was US\$68,100 (2019: US\$81,866). PACs are a common feature of the US political system and are governed by the Federal Election Campaign Act.

The PAC is independent of the Group and independent of any political party. The PAC funds are contributed voluntarily by employees and the Group cannot affect how they are applied, although under US law, the business expenses are paid by the employee's company.

Branches

Rolls-Royce is a global group and our activities and interests are operated through subsidiaries, branches of subsidiaries, joint ventures and associates which are subject to the laws and regulations of many different jurisdictions. Our subsidiaries, joint ventures and associates are listed on pages 145 to 151.

Greenhouse gas emissions

In 2020, our total gross greenhouse gas (GHG) emissions were 423,000 tonnes of carbon dioxide equivalent (tCO₂e). This represents a decrease of 14% compared with 494,000 tCO₂e in 2019.

Aspect	tCO ₂ e	2016	2017	2019	2019	2020
Emissions from activities for which the company own or control including the combustion of fuel and operation of facilities. [Direct GHG Emissions (Scope 1)]	Global (excluding UK)	135,647	158,217	160,029	164,359	140,676
	UK	100,791	99,454	84,868	91,698	88,353
Emissions from the purchase of electricity, heat, steam and cooling purchased for our own use. [Indirect GHG Emissions (Scope 2) location-based]	Global (excluding UK)	163,999	154,484	152,787	150,997	126,654
	UK	144,334	122,635	100,808	86,803	67,333
Total gross GHG emissions	Global (excluding UK)	299,646	312,701	312,816	315,356	267,330
	UK	245,125	222,089	185,677	178,501	155,687
Energy consumption used to calculate above emissions- kWh	Global (excluding UK)	1,112,270,000	1,158,262,000	1,182,643,000	1,178,103,000	1,000,063,000
	UK	821,460,000	810,020,000	761,816,000	772,438,000	702,092,000
Intensity Ratio (total GHG emissions per £m revenue)	Total	40.0	38.6	33.3	30.1	35.7
Emissions from the purchase of electricity, heat, steam and cooling purchased for our own use. [Indirect GHG Emissions (Scope 2) market-based]	Global (excluding UK)	-	-	-	303	2,399
	UK	-	-	-	952	2,090
Outside of Scopes	Global (excluding UK)	-	-	-	-	-
	UK	-	-	-	20,743	46,252
Additional Supporting Information						
Electricity purchased from renewable sources - kWh	Global (including UK)	-	-	-	245,315,000	311,619,000
Energy generated on-site from renewable sources KWh	Global (including UK)		3,202,000	5,076,000	7,518,000	8,811,000

The above figures include 311,619,000 kWh of renewable energy purchases either backed by the Renewable Energy Guarantees of Origin (REGO) scheme in the UK or the Guarantees of Origin (GoO) from a relevant EU Member State. This energy is used by the majority of our facilities in the UK and Germany. The source in the UK includes a proportion of electricity that was generated by the combustion of biofuel. The associated emissions are included above under the location-based Scope 2 emissions (using grid average emission factors). They are also reported separately as market-based Scope 2 emissions (covering the emissions of nitrous oxide and methane) and Outside of Scopes (covering the emissions of carbon dioxide). This has resulted in a net reduction of 31,000 tonnes from our total GHG emissions. In addition, the above figures include 8,811,000 kWh of electricity and heat generated on-site from renewable energy sources, including solar panels and ground source heat pumps.

The figures for 2016 through to 2019 have been restated to remove emissions associated with the North American Civil Nuclear business sold on 3 February 2020 and Trigno Energy S.r.l. sold in April 2020. We include the reporting of fugitive emissions of hydrofluorocarbons (HFCs), associated with air conditioning equipment, into our GHG emissions figures. These include emissions from our facilities in the US and Canada only. We do not anticipate that emissions from other facilities will have a significant impact on the above figures.

With the exceptions noted above, we have reported on the underlying energy use and emission sources required under the Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018. All these sources fall within the scope of our Consolidated Financial Statements.

We have used the GHG Protocol Corporate Accounting and Reporting Standard (revised edition) as of 31 December 2014 utilising the operational control approach, supplemented by the GHG Reporting Guidance for the Aerospace Industry (version 3) and emission factors from the UK

Government's GHG Conversion Factors for Company Reporting 2020. We report our emissions of: carbon dioxide; methane; nitrous oxide; hydrofluorocarbons and perfluorocarbons on a carbon dioxide equivalent basis. We had no emissions of sulphur hexafluoride or nitrogen trioxide.

Further details on our methodology for reporting and the criteria used can be found within our basis of reporting, available to download at rolls-royce.com.

Disclosures in the Strategic Report

The Board has taken advantage of section 414C(11) of the Act to include disclosures in the Strategic Report including:

- the future development, performance and position of the Group; and
- research and development activities.

Management report

The Strategic Report and the Directors' Report together are the management report for the purposes of Rule 4.1.8R of the DTRs.

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 and incentivising employees.

The processes for identifying and managing risk are described on pages 31 to 35. As described on these pages, the risk management process, and the going concern statement, are designed to provide reasonable but not absolute assurance.

Given the economic uncertainty of the COVID-19 pandemic, and taking into account the recent guidance issued by the FRC, the Directors have undertaken a comprehensive going concern review over an eighteen-month period to September 2022, considering the forecast cash flows of the Group and the liquidity headroom available over that eighteen-month period. The Group has modelled two scenarios in its assessment of going concern which have been considered by the Directors, along with a likelihood assessment of these scenarios, being:

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

Further details, including the analysis performed and conclusion reached, are set out below.

Background

The COVID-19 pandemic has had a significant impact on the Group, with the Civil Aerospace and ITP Aero businesses being the most significantly impacted. Uncertainty remains over the severity, extent and duration of the disruption caused by the COVID-19 pandemic and therefore the timing of recovery to pre-crisis levels. Safeguarding the health and wellbeing of our people and protecting our business have been at the heart of our decision-making from the outset of this pandemic. During 2020, we have taken decisive action to reduce cash expenditure and maintain liquidity through the following measures:

- A number of proactive steps starting in March 2020, to conserve cash, which delivered more than £1.0bn in-year cash cost savings compared to our pre COVID-19 cash costs in 2020. These savings were delivered through cutting non-critical capital expenditure, minimising discretionary costs, including projects, consulting spend, professional fees and sub-contractor costs, reviewing and re-phasing R&D spend, together with temporary 10% salary cuts for our senior management, and making use of the UK Government's Coronavirus Job Retention Scheme.
- Rolls-Royce Holdings plc did not approve its final shareholder payment in respect of 2019 and it will not make a shareholder payment in respect of 2020.
- In May 2020, the Group launched a major restructuring programme to reshape and resize the Group and in particular, the Civil Aerospace business. This will remove at least 9,000 roles across the Group, with forecast annualised savings of over £1.3bn by the end of 2022. At 31 December 2020, approximately 7,000 roles had been removed across the Group.
- In August 2020, the Group secured a £2bn term-loan facility, 80% of which is guaranteed by UK Export Finance (UKEF). This is repayable in August 2025.
- In October 2020, Rolls-Royce Holdings plc launched a rights issue which was completed in November 2020, raising £2bn of proceeds.
- In October 2020, the Group completed a £2bn bond issuance with maturities in 2026 and 2027 and secured a new £1bn loan facility that matures in October 2022.

Whilst vaccination programmes are now underway across the globe, uncertainties remain in respect of more contagious variants of the virus and the potential impact of this on the timing of recovery of demand, in particular in relation to the civil aviation industry. The actions we have taken during 2020 have been necessary to right-size the business to achieve a longer-term sustainable cost base that is fit for purpose in a post COVID-19 environment, as well as securing additional funding to provide sufficient liquidity headroom for the Group.

Going concern assessment

In assessing the adoption of the going concern basis of accounting in the Company and Consolidated Financial Statements, the Directors have considered the FRC Company Guidance (updated 20 May 2020) (COVID-19), which has encouraged companies to assess current forecasts with more vigour, and to consider the impact of different potential scenarios along with a likelihood assessment, taking into account both the uncertainty and the likely success of any realistic mitigations. In adopting this more vigorous approach, the Directors have assessed the Group's future financial performance, cash flows and liquidity headroom available over an eighteen-month period to September 2022, taking into account a base case and a severe but plausible downside scenario. The Directors have paid attention to the impact of the COVID-19 pandemic on the Group, particularly on the Civil Aerospace and ITP Aero businesses, which have been the most significantly impacted, recognising the challenges of reliably estimating and forecasting the effects of COVID-19 on the civil aviation industry, as well as the extent and timing of recovery to pre-crisis levels. Key areas of estimation uncertainty include:

- The magnitude of the impact on EFHs and consequently cashflows from the aftermarket business. The estimates in respect of EFHs and future recovery are influenced by assumptions in respect of:
 - the roll-out of vaccination programmes across the globe and their ability to deal with different variants of the COVID-19 virus;
 - the extent and timing of the easing of restrictions on cross-border movement, including quarantine rules; and
 - the recovery rate of flying hours with a potential growth in the number of people holidaying in their home country, and the increased use of video conferencing reducing the need for business travel.
- The extent of the impact of the pandemic on our customers, and consequently the purchase of new aircraft, and/or renew of after-market contracts in the future.
- A shift towards more efficient, lower-cost aircraft as airlines look to recover post COVID-19, leading to a risk of higher aircraft retirements in the future.
- Right-sizing the business is underpinned by the assumed size needed to meet future demand.

Given these estimation uncertainties, the Directors believe it is appropriate to provide additional disclosure of the key COVID-19 related assumptions underpinning the base case and severe but plausible downside scenario, as set out below.

Base case scenario

The Group's base case scenario assumes a deep impact on the Civil Aerospace and ITP Aero businesses, with a slow and gradual recovery in demand in 2021. Whilst new variants of the COVID-19 virus create some uncertainty, vaccination programmes are successfully rolled out and/or mass airport testing is introduced to alleviate quarantine restrictions in place across many countries. Widebody flying hours returns to 55% of the pre-crisis baseline in 2021 and approximately 80% in 2022, with slower growth to a full recovery to 2019 levels of widebody activity by the end of 2024 based on industry data.

The Civil Aerospace and ITP Aero forecast assumes:

- flying hours of widebody aircraft are 55% of 2019 level in 2021 recovering to 80% of 2019 level in 2022 (based on year averages);
- flying hours of business aviation are 2% above 2019 level in 2021 and increase to 10% above the 2019 level in 2022 (based on year averages);
- Widebody OE engine sales reduce from 450 in 2019 to 187 in 2021 (42% of 2019 level) before increasing to 204 in 2022 (45% of 2019 level);
- Widebody spare engine sales are 80% of 2019 level in 2021 and 75% of 2019 level in 2022;
- business aviation engine sales are 54% of 2019 level in 2021 increasing to 88% of 2019 level in 2022;
- newer aircraft fleets (A350, A330neo and 787) recover at a faster pace than older fleets due to the economics and investment value of the aircraft;
- older aircraft fleets (A330, A380 and 777) recover on a slower, more varied profile taking into account regional market recovery and unique market dynamics; and
- the pressure on the transitions market, driven by new aircraft delivery and volume of surplus assets, results in an elongation in transition time to ~ 24 months.

Severe but plausible downside scenario

As noted above, due to the inherent uncertainty over the extent and duration of the disruption caused by the COVID-19 pandemic and therefore the timing of recovery of civil aviation to pre-crisis levels, the Directors have also considered a severe but plausible downside scenario.

This severe but plausible downside is based in principle on a general assumption that recovery remains subdued due to ongoing infection rates and an increase in new variants of the COVID-19 virus, with a slower recovery in demand compared with the base case. Restrictions on travel between countries remain in place across many parts of the world during the first part of 2021, with a gradual recovery of the global economy and the Group taking place once those restrictions are lifted.

The resulting key underlying COVID-19 specific assumptions included in the severe but plausible downside scenario in relation to each of the Civil Aerospace and ITP Aero businesses are as follows:

- flying hours of widebody aircraft are 45% of 2019 level in 2021, recovering to 70% of 2019 level in 2022 (based on year averages);
- flying hours of business aviation are 1% above 2019 level in 2021 and increase to 8% above 2019 level in 2022 (based on year averages);
- Widebody OE engine sales are 28% of 2019 level in 2021 before falling to 26% of 2019 level in 2022;
- Widebody spare engine sales are 20% of 2019 in 2021 and remain at 20% of 2019 in 2022;
- business aviation engine sales are 54% of 2019 level in 2021 increasing to 80% of 2019 level in 2022;

- newer aircraft fleets (A350, A330neo and 787) recover at a faster pace than older fleets due to the economics and investment value of the aircraft;
- older aircraft fleets (A330, A380 and 777) recover on a slower, more varied profile taking into account regional market recovery and unique market dynamics; and
- the pressure on the transitions market, driven by new aircraft delivery and volume of surplus assets, results in an elongation in transition time to ~24 months.

Liquidity and borrowings

At 31 December 2020, the Group had liquidity of £9.0bn, including cash and cash equivalents of £3.5bn and undrawn facilities of £5.5bn.

The Group's committed borrowing facilities at 31 December 2020, March 2021 and September 2022 are set out below. None of the facilities are subject to any financial covenants or rating triggers which could accelerate repayment.

£m	31 Dec 2020	March 2021	September 2022
Issued Bond Notes ¹	4,634	4,634	3,995
Bank of England Commercial Paper ²	300	–	–
Other loans	87	87	61
UKEF Loan ³	2,000	2,000	2,000
Revolving Credit Facility ⁴	2,500	2,500	2,500
Bank Loan Facility ⁵	1,000	1,000	1,000
Total committed borrowing facilities	10,521	10,221	9,556

¹ The value of Issued Bond Notes reflects the impact of derivatives on repayments of the principal amount of debt. A €750m (£639m) bond matures in June 2021, a €550m bond matures in May 2024, and the remainder of the bonds mature between October 2025 and May 2028.

² The £300m CCFF facility matures in March 2021.

³ The £2,000m UKEF loan matures in August 2025 (currently undrawn).

⁴ The £2,500m Revolving Credit Facility matures in April 2025 (currently undrawn).

⁵ The £1,000m bank loan facility matures in October 2022 (currently undrawn).

Taking into account the maturity of borrowing facilities the Group had committed facilities of £10.5bn at 31 December 2020, £10.2bn at the end of March 2021 and £9.6bn will be available throughout the period to September 2022.

Under both of the scenarios modelled by the Directors (as detailed above), the projections indicate that the Group will continue to operate within its available committed borrowing facilities for the next eighteen months to September 2022 whilst maintaining a sufficient level of liquidity headroom when taking into account debt maturities across this eighteen-month period.

Mitigating actions

Mitigations that are within the control of the Directors and deliverable over the short term have been considered by the Directors. Such mitigations include the restriction of capital and other expenditure to only committed and essential levels, reduce or eliminate discretionary spend, reinstate the implementation of salary deferrals and undertake further restructuring.

Other mitigations that could be considered in more severe circumstances, which are not directly in the control of the Directors, include raising other new funding through the bond or bank markets, pursuing a £1bn increase in the existing £2bn UKEF-backed loan and raising further equity. The anticipated £2bn proceeds from business disposals announced in August 2020 have not been included when assessing the going concern, although completion of these disposals is anticipated during 2022 and within the eighteen-month period being considered. Further potential business disposals could be considered if required.

Company net liabilities

At 31 December 2020, the Company had net liabilities of £(6,599)m (page 50). In accordance with section 656 of the Companies Act 2006, the Directors called a general meeting of the Company, which was held on 10 March 2021, to consider "whether any, and if so what, steps should be taken to deal with the situation". The meeting considered that the net liabilities had arisen largely as a result of (i) accounting in accordance with IFRS 15 *Revenue from Contracts with Customers*; (ii) the requirement under IFRS 9 *Financial Instruments* to value foreign exchange derivatives (principally those entered into to hedge future US\$ cash flows) at fair value; (iii) the provisions recognised in respect of the Trent 1000 programme; and (iv) impairments and contract loss provisions recognised as a result of the impact of COVID-19. The meeting considered:

- accounting in accordance with IFRS 15 defers the recognition of profit. However, it has no impact on the cash flows of the contracts with customers;
- at the foreign exchange rates prevailing on 31 December 2020, this fair value of foreign exchange derivatives was a liability of £2.9bn. However, accounting standards do not permit the recognition of a corresponding asset in respect of the forecast US\$ cash flows (much of which is contracted) which have been hedged, and which will, when received, be valued at equivalent rates, offsetting the liability recognised at 31 December 2020;
- during 2020, the Company has entered into offsetting derivative positions to reduce the size of the hedge book as a result of the COVID-19 pandemic, the cash out flows on these closed out positions will occur in future years and are included in the cash flows included in the going concern assessment;
- at 31 December 2020, the Company held contract loss and Trent 1000 provisions of £1.2bn, which will be utilised over several years;
- impairments of £152m were recognised in the year, principally as a result of the COVID-19 pandemic, these are non-cash items and do not affect the cash flows included in the going concern assessment; and
- the Company's and the Group's forecasts and projections, taking into account reasonably possible changes in trading performance and the net liabilities noted above, show that the Company and the Group have sufficient financial resources.

Conclusion

After due consideration of the matters set out above, the Directors consider that the Group has sufficient liquidity headroom to continue in operational existence for a period of at least eighteen 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.

Responsibility statements

Statement of Directors' responsibilities in respect of the Financial Statements

The Directors are responsible for preparing the Annual Report and the Financial Statements in accordance with applicable law and regulation.

Company law requires the Directors to prepare financial statements for each financial year. Under that law the Directors have prepared the Group Financial Statements in accordance with International Financial Reporting Standards (IFRSs) as adopted pursuant to Regulation (EC) No 1606/2002 as it applies in the European Union and the parent company Financial Statements in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 Reduced Disclosure Framework, and applicable law).

Under company law, the Directors must not approve the Financial Statements unless they are satisfied that they give a true and fair view of the state of affairs of the Group and parent company and of the profit or loss of the Group and parent company for that period.

In preparing the Financial Statements, the Directors are required to:

- select suitable accounting policies and then apply them consistently;
- state whether, for the group and company, international accounting standards in conformity with the requirements of the Companies Act 2006 and, for the group, international financial reporting standards adopted pursuant to Regulation (EC) No 1606/2002 as it applies in the European Union, have been followed for the Group Financial Statements and United Kingdom Accounting Standards comprising FRS 101, have been followed for the Company Financial Statements, subject to any material departures disclosed and explained in the Financial Statements;
- make judgements and accounting estimates that are reasonable and prudent; and
- prepare the Financial Statements on the going concern basis unless it is inappropriate to presume that the Group and parent company will continue in business.

The Directors are also responsible for safeguarding the assets of the Group and parent company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the Group and parent company's transactions and disclose with reasonable accuracy at any time the financial position of the Group and parent company. This enables them to ensure that the Financial Statements and the Directors' Remuneration Report comply with the Companies Act 2006 and, as regards the Group's Consolidated Financial Statements, Article 4 of the IAS Regulation.

The Directors are responsible for the maintenance and integrity of the parent company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Directors' confirmations

The Directors consider that the Annual Report, taken as a whole, is fair, balanced and understandable and provides the information necessary to assess the Group and parent company's position and performance, business model and strategy.

Each of the Directors, whose names and functions are listed in the Directors' Report, confirm that to the best of his or her knowledge:

- the Group Financial Statements, which have been prepared in accordance with International Financial Reporting Standards adopted pursuant to Regulation (EC) No 1606/2002 as it applies in the European Union, give a true and fair view of the assets, liabilities, financial position and loss of the Group;
- the parent company Financial Statements, which have been prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 Reduced Disclosure Framework, and applicable law), give a true and fair view of the assets, liabilities, financial position and result of the Company;
- the Strategic Report includes a fair review of the development and performance of the business and the position of the Group and parent company, together with a description of the principal risks and uncertainties that it faces; and
- there is no relevant audit information of which the Company's auditor is unaware. The Director has taken all steps that he or she ought to have taken as a director in order to make himself or herself aware of any relevant audit information and to establish that the Company's auditor is aware of that information.

Directors' Report approved by the Board on 12 March 2021 and signed on its behalf by:



Stephen Daintith

Director

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CONSOLIDATED INCOME STATEMENT

For the year ended 31 December 2020

	Notes	2020 £m	2019 £m
Revenue	2	11,824	16,587
Cost of sales ^{1,2}		(12,034)	(15,645)
Gross (loss)/profit		(210)	942
Commercial and administrative costs ¹		(808)	(1,128)
Research and development costs	3	(1,254)	(770)
Share of results of joint ventures and associates	12	191	104
Operating loss		(2,081)	(852)
(Loss)/gain arising on acquisition and disposal of businesses ³	27	(14)	139
Loss before financing and taxation	2	(2,095)	(713)
Financing income	4	67	252
Financing costs ⁴	4	(882)	(314)
Net financing costs		(815)	(62)
Loss before taxation		(2,910)	(775)
Taxation	5	(259)	(440)
Loss for the year		(3,169)	(1,215)
Attributable to:			
Ordinary shareholders		(3,170)	(1,219)
Non-controlling interests		1	4
Loss for the year ⁵		(3,169)	(1,215)
Other comprehensive expense		(265)	(1,013)
Total comprehensive expense for the year		(3,434)	(2,228)
Underlying profit before taxation ⁵	2	(3,958)	583

¹ Included within cost of sales, commercial and administrative costs and research and development costs are: exceptional items relating to impairments and write-offs arising as a result of the financial and operational impact of COVID-19 plus other market-driven events; impairments and provisions related to the fundamental restructuring activity announced on 20 May 2020 to reshape and resize the Group have also been recorded; and reflecting the impact of COVID-19 and the work we have performed to reduce fleet AOG levels and improve the availability of spare engines, the Trent 1000 provision has been reduced. In the prior year, exceptional charges related to the Trent 1000 and Trent 900 Civil Aerospace programmes and restructuring costs were included within cost of sales and commercial and administrative costs. Further details can be found in notes 2, 11 and 21.

² Cost of sales includes a charge for expected credit losses of £119m (2019: £54m) - see note 14.

³ North America Civil Nuclear business was disposed of on 31 January 2020, Knowledge Management System business was disposed of on 3 February 2020, Trigno Energy Srl was disposed of on 7 May 2020 and Exostar LLC was disposed of on 6 July 2020. Qinous GmbH was acquired on 15 January 2020, Kinolt Group S.A was acquired on 1 July 2020 and Servowatch Systems Limited was acquired on 7 December 2020. Commercial Marine was disposed of on 1 April 2019 and Rolls-Royce Power Development Limited was disposed of on 15 April 2019. Sales proceeds on a prior period disposal has been adjusted during the year. Further details can be found in note 27.

⁴ Included within financing costs are fair value changes on derivative contracts. Further details can be found in notes 2, 4 and 20.

⁵ Loss before taxation disclosed on a statutory and underlying basis. Further details can be found in note 2.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2020

	Notes	2020 £m	2019 £m
Loss for the year		(3,169)	(1,215)
Other comprehensive expense (OCI)			
Actuarial movements on post-retirement schemes ¹	22	(590)	(934)
Share of OCI of joint ventures and associates	12	(1)	(1)
Related tax movements	5	195	324
Items that will not be reclassified to profit or loss		(396)	(611)
Foreign exchange differences on foreign operations		121	(313)
Reclassified to income statement on disposal of businesses	27	6	(98)
Movement on fair values credited/(debited) to cash flow hedge reserve		(16)	12
Reclassified to income statement from cash flow hedge reserve		26	10
Share of OCI of joint ventures and associates	12	(4)	(7)
Related tax movements	5	(2)	(6)
Items that may be reclassified to profit or loss		131	(402)
Total other comprehensive expense		(265)	(1,013)
Total comprehensive expense for the year		(3,434)	(2,228)
Attributable to:			
Ordinary shareholders		(3,435)	(2,232)
Non-controlling interests		1	4
Total comprehensive expense for the year		(3,434)	(2,228)

¹ Included in actuarial movements in post-retirement schemes is an experience loss of £188m which includes the impact of updated membership data and members leaving on voluntary severance. Included in the prior period is an asset re-measurement net loss estimated at £600m following the agreement to transfer the future pension obligation of circa 33,000 pensioners in the UK scheme to Legal & General Assurance Society Limited. See note 22 for further information.

CONSOLIDATED BALANCE SHEET

For the year ended 31 December 2020

	Notes	2020 £m	2019 £m
ASSETS			
Intangible assets	8	5,145	5,442
Property, plant and equipment	9	4,515	4,803
Right-of-use assets	10	1,405	2,009
Investments:			
Joint ventures and associates	12	394	402
Other	12	19	14
Other financial assets	20	687	467
Deferred tax assets	5	1,826	1,887
Post-retirement scheme surpluses	22	907	1,170
Non-current assets		14,898	16,194
Inventories	13	3,690	4,320
Trade receivables and other assets	14	5,786	7,293
Contract assets	15	1,510	2,095
Taxation recoverable		117	39
Other financial assets	20	107	86
Short-term investments		—	6
Cash and cash equivalents	16	3,452	4,434
Current assets		14,662	18,273
Assets held for sale	27	288	18
TOTAL ASSETS		29,848	34,485
LIABILITIES			
Borrowings and lease liabilities	17	(1,272)	(775)
Other financial liabilities	20	(580)	(462)
Trade payables and other liabilities	19	(6,654)	(8,460)
Contract liabilities	15	(4,187)	(4,228)
Current tax liabilities		(154)	(172)
Provisions for liabilities and charges	21	(826)	(858)
Current liabilities		(13,673)	(14,955)
Borrowings and lease liabilities	17	(6,058)	(4,910)
Other financial liabilities	20	(3,046)	(3,094)
Trade payables and other liabilities	19	(1,922)	(2,071)
Contract liabilities	15	(6,245)	(6,612)
Deferred tax liabilities	5	(494)	(618)
Provisions for liabilities and charges	21	(1,119)	(1,946)
Post-retirement scheme deficits		(1,580)	(1,378)
Non-current liabilities		(20,464)	(20,629)
Liabilities associated with assets held for sale	27	(228)	(15)
TOTAL LIABILITIES		(34,365)	(35,599)
NET LIABILITIES		(4,517)	(1,114)
EQUITY			
Called-up share capital	23	338	338
Share premium account		631	631
Cash flow hedging reserve		(94)	(96)
Merger reserve		650	650
Translation reserve		524	397
Accumulated losses		(6,588)	(3,056)
Equity attributable to ordinary shareholders		(4,539)	(1,136)
Non-controlling interests		22	22
TOTAL EQUITY		(4,517)	(1,114)

The Financial Statements on pages 48 to 118 were approved by the Board on 12 March 2021 and signed on its behalf by:

Warren East *Stephen Daintith*

Warren East
Chief Executive

Stephen Daintith
Chief Financial Officer

CONSOLIDATED CASH FLOW STATEMENT

For the year ended 31 December 2020

	Notes	2020 £m	2019 £m
Reconciliation of cash flows from operating activities			
Operating loss ¹		(2,081)	(852)
Loss/(profit) on disposal of property, plant and equipment		37	(13)
Share of results of joint ventures and associates	12	(191)	(104)
Dividends received from joint ventures and associates	12	60	92
Amortisation and impairment of intangible assets	8	902	372
Depreciation and impairment of property, plant and equipment	9	821	532
Depreciation and impairment of right-of-use assets	10	732	411
Adjustment of amounts payable under residual value guarantees within lease liabilities ²		(102)	–
Impairment of and other movements on investments	11	24	1
(Decrease)/increase in provisions		(801)	1,106
Increase/(decrease) in inventories		588	(43)
Movement in trade receivables/payables and other assets/liabilities		(2,653)	136
Movement in contract assets/liabilities		259	1,678
Financial penalties paid ³		(135)	(102)
Cash flows on other financial assets and liabilities held for operating purposes		(126)	(757)
Interest received		13	31
Net defined benefit post-retirement (credit)/cost recognised in loss before financing	22	(68)	222
Cash funding of defined benefit post-retirement schemes	22	(80)	(266)
Share-based payments	24	25	29
Net cash (outflow)/inflow from operating activities before taxation		(2,776)	2,473
Taxation paid		(231)	(175)
Net cash (outflow)/inflow from operating activities		(3,007)	2,298
Cash flows from investing activities			
Net movement in unlisted investments	12	(5)	3
Additions of intangible assets	8	(365)	(640)
Disposals of intangible assets	8	18	13
Purchases of property, plant and equipment		(585)	(747)
Disposals of property, plant and equipment		23	50
Acquisitions of businesses	27	(106)	(43)
Disposal of other businesses ⁴	27	23	453
Movement in investments in joint ventures and associates and other movements on investments	12	(19)	(7)
Decrease in short-term investments		6	–
Net cash outflow from investing activities		(1,010)	(918)
Cash flows from financing activities			
Repayment of loans ⁵		(2,884)	(1,136)
Proceeds from increase in loans ⁵		4,774	22
Capital element of lease payments		(284)	(271)
Net cash flow from increase/(decrease) in borrowings and leases		1,606	(1,385)
Interest paid		(88)	(104)
Interest element of lease payments		(74)	(88)
Fees paid on undrawn facilities		(97)	–
Cash flows on settlement of excess derivative contracts ⁶		(202)	–
Dividends to NCI		(1)	(4)
Movement on balances with parent company		1,887	(221)
Net cash inflow/(outflow) from financing activities		3,031	(1,802)
Change in cash and cash equivalents		(986)	(422)
Cash and cash equivalents at 1 January		4,426	4,952
Exchange gains/(losses) on cash and cash equivalents		56	(104)
Cash and cash equivalents at 31 December ⁷		3,496	4,426

¹ During the year, the Group has received £47m from the British Government as part of the UK furlough scheme. This has been recognised within operating loss.

² Where the cost of meeting residual value guarantees is less than that previously estimated, as costs have been mitigated or liabilities waived by the lessor, the lease liability has been remeasured. Where the value of this remeasurement exceeds the value of the right-of-use asset, the reduction in the lease liability is credited to cost of sales.

³ Relates to penalties paid on agreements with investigating bodies.

⁴ Including £5m adjustment of cash consideration on prior period disposal. Further detail is provided in note 27.

⁵ Repayment of loans includes repayment of the £2.5bn revolving credit facility. Proceeds from increase in loans includes the drawdown of £2.5bn revolving credit facility, proceeds of £2.0bn from new unsecured loan notes and £0.3bn cash received from the Covid Corporate Financing Facility (CCFF). Further detail is provided in note 17.

⁶ The impact of COVID-19 on the aerospace industry resulted in a deterioration in net US Dollar receipts across the Group leading to a net US Dollar outflow in the period. During the year, the Group incurred a cash outflow of £186m as a result of needing to buy US Dollars to settle \$1,211m of foreign exchange contracts that were originally in place to sell US Dollar receipts. The Group also incurred a cash outflow of £16m to settle excess jet fuel hedges. Further detail is provided in notes 2 and 4.

⁷ The Group considers overdrafts (repayable on demand) and cash held for sale to be an integral part of its cash management activities and these are included in cash and cash equivalents for the purposes of the cash flow statement.

The cash flow in the year includes the sale of goods and services to joint ventures and associates – see note 26.

CONSOLIDATED CASH FLOW STATEMENT CONTINUED

For the year ended 31 December 2020

	2020 £m	2019 £m
Reconciliation of movements in cash and cash equivalents to movements in net debt		
Change in cash and cash equivalents	(986)	(422)
Cash flow from (increase)/decrease in borrowings and leases	(1,606)	1,385
Less: Settlement of related derivatives included in fair value of swaps below	50	–
Cash flow from decrease/(increase) in short-term investments	(6)	–
Change in net funds resulting from cash flows	(2,548)	963
New leases and other non-cash adjustments to lease liabilities in the year	(38)	(217)
Net debt (excluding cash and cash equivalents) of previously unconsolidated subsidiary	–	(1)
Exchange gains/(losses) on net funds	143	(32)
Fair value adjustments	(126)	48
Debt assumed on acquisition of business	(24)	–
Transferred to liabilities associated with assets held for sale	11	3
Movement on net funds	(2,582)	764
Net (debts)/funds at 1 January excluding the fair value of swaps	(1,245)	318
Reclassifications ¹	–	(79)
Adoption of IFRS 16	–	(2,248)
Net debt at 1 January restated	(1,245)	(2,009)
Net debt at 31 December excluding the fair value of swaps	(3,827)	(1,245)
Fair value of swaps hedging fixed rate borrowings	251	243
Net debt at 31 December	(3,576)	(1,002)

¹ In 2019, the Group reclassified £79m as borrowings previously included in other financial liabilities. These borrowings mature during periods to 2029.

CONSOLIDATED CASH FLOW STATEMENT CONTINUED

For the year ended 31 December 2020

The movement in net debt (defined by the Group as including the items shown below) is as follows:

	At 1 January ² £m	Funds flow £m	Net funds on acquisition/ disposal £m	Exchange differences £m	Fair value adjustments £m	Reclassifi- cations £m	Other movements in lease liabilities £m	At 31 December £m
2020								
Cash at bank and in hand	816	172	–	3	–	(51)	–	940
Money market funds	1,095	(426)	–	–	–	–	–	669
Short-term deposits	2,523	(733)	–	53	–	–	–	1,843
Cash and cash equivalents (per balance sheet)	4,434	(987)	–	56	–	(51)	–	3,452
Cash and cash equivalents included within assets held for sale	–	–	–	–	–	51	–	51
Overdrafts	(8)	1	–	–	–	–	–	(7)
Cash and cash equivalents (per cash flow statement)	4,426	(986)	–	56	–	–	–	3,496
Short-term investments	6	(6)	–	–	–	–	–	–
Other current borrowings	(427)	134	(24)	(1)	–	(686)	(2)	(1,006)
Non-current borrowings	(2,896)	(1,974)	–	38	(126)	686	(2)	(4,274)
Lease liabilities	(2,354)	284	–	50	–	11	(34)	(2,043)
Financial liabilities	(5,677)	(1,556)	(24)	87	(126)	11	(38)	(7,323)
Net debt excluding the fair value of swaps	(1,245)	(2,548)	(24)	143	(126)	11	(38)	(3,827)
Fair value swaps hedging fixed rate borrowings ¹	243	(50)	–	(42)	114	(14)	–	251
Net debt	(1,002)	(2,598)	(24)	101	(12)	(3)	(38)	(3,576)
Net funds (excluding lease liabilities)	1,352							(1,533)
2019								
Cash at bank and in hand	1,023	(188)	–	(19)	–	–	–	816
Money market funds	1,222	(124)	–	(3)	–	–	–	1,095
Short-term deposits	2,729	(124)	–	(82)	–	–	–	2,523
Cash and cash equivalents (per balance sheet)	4,974	(436)	–	(104)	–	–	–	4,434
Overdrafts	(22)	14	–	–	–	–	–	(8)
Cash and cash equivalents (per cash flow statement)³	4,952	(422)	–	(104)	–	–	–	4,426
Short-term investments	6	–	–	–	–	–	–	6
Other current borrowings	(816)	799	–	2	5	(417)	–	(427)
Non-current borrowings	(3,674)	315	(1)	4	43	417	–	(2,896)
Lease liabilities	(2,477)	271	–	66	–	3	(217)	(2,354)
Financial liabilities	(6,967)	1,385	(1)	72	48	3	(217)	(5,677)
Net debt excluding fair value swaps	(2,009)	963	(1)	(32)	48	3	(217)	(1,245)
Fair value swaps hedging fixed rate borrowings	293	–	–	–	(50)	–	–	243
Net debt	(1,716)	963	(1)	(32)	(2)	3	(217)	(1,002)
Net funds (excluding lease liabilities)	761							1,352

¹ Fair value of swaps hedging fixed rate borrowings reflects the impact of derivatives on repayments of the principal amount of debt. Net debt therefore includes the fair value of derivatives included in fair value hedges (2020 £293m, 2019 £229m) and the element of fair value relating to exchange differences on the underlying principal of derivatives in cash flow hedges (2020 £(42)m and 2019 £nil). During the year, the Group reclassified £14m relating to the fair value of derivatives for which hedge accounting was not applied as these relate to the future payments of interest only.

² In 2019, the Group reclassified £79m as borrowings previously included in other financial liabilities. These borrowings mature during periods up to 2029.

³ In 2019, included Trent 1000 insurance receipts of £173m.

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2020

The following describes the nature and purpose of each reserve within equity:

Share capital – The nominal value of ordinary shares of 20p each in issue.**Share premium** – Proceeds received in excess of the nominal value of ordinary shares issued, less the costs of issue.**Cash flow hedging reserve** – Cumulative gains and losses on hedging instruments deemed effective in cash flow hedges.**Merger reserve** – The premium on issuing shares to acquire a business where merger relief in accordance with the Companies Act 2006 applies.**Translation reserve** – Gains and losses arising on retranslating the net assets of overseas operations into sterling.**Accumulated losses** – All other net gains and losses and transactions with owners not recognised elsewhere and ordinary shares held for the purpose of share-based payment plans.**Non-controlling interests** – The share of net assets or liabilities of subsidiaries held by third parties.

Notes	Attributable to ordinary shareholders							Non-controlling interests (NCI)	Total equity
	Share capital	Share premium	Cash flow hedging reserve	Merger reserve	Translation reserve	Accumulated losses	Total		
	£m	£m	£m	£m	£m	£m	£m		
At 1 January 2020	338	631	(96)	650	397	(3,056)	(1,136)	22	(1,114)
Loss for the year	–	–	–	–	–	(3,170)	(3,170)	1	(3,169)
Foreign exchange translation differences on foreign operations	–	–	–	–	121	–	121	–	121
Reclassified to income statement on disposal of businesses	27	–	–	–	–	6	–	6	–
Movements on post-retirement schemes	22	–	–	–	–	–	(590)	(590)	–
Movement on fair values credited/(debited) to cash flow hedge reserve	–	–	(16)	–	–	–	(16)	–	(16)
Reclassified to income statement from cash flow hedge reserve	–	–	26	–	–	–	26	–	26
OCI of joint ventures and associates	12	–	–	(4)	–	–	(1)	(5)	–
Related tax movements	5	–	–	(4)	–	–	197	193	–
Total comprehensive expense for the year	–	–	2	–	127	(3,564)	(3,435)	1	(3,434)
Share-based payments – direct to equity ²	–	–	–	–	–	27	27	–	27
Transactions with NCI	–	–	–	–	–	–	–	(1)	(1)
Related tax movements	5	–	–	–	–	–	5	5	–
Other changes in equity in the year	–	–	–	–	–	32	32	(1)	31
At 31 December 2020	338	631	(94)	650	524	(6,588)	(4,539)	22	(4,517)
At 1 January 2019	334	631	(106)	405	809	(1,256)	817	22	839
Loss for the year	–	–	–	–	–	(1,219)	(1,219)	4	(1,215)
Foreign exchange translation differences on foreign operations	–	–	–	–	(313)	–	(313)	–	(313)
Reclassified to income statement on disposal of Commercial Marine	–	–	–	–	(98)	–	(98)	–	(98)
Movements on post-retirement schemes	22	–	–	–	–	–	(934)	(934)	–
Credited to cash flow hedge reserve	–	–	10	–	–	–	10	–	10
Reclassified to income statement from cash flow hedge reserve	–	–	12	–	–	–	12	–	12
OCI of joint ventures and associates	12	–	–	(7)	–	–	(1)	(8)	–
Related tax movements	5	–	–	(5)	–	(1)	324	318	–
Total comprehensive expense for the year	–	–	10	–	(412)	(1,830)	(2,232)	4	(2,228)
Shares issued in respect of acquisition of ITP Aero ¹	4	–	–	245	–	–	249	–	249
Share-based payments – direct to equity ²	–	–	–	–	–	29	29	–	29
Transactions with NCI	–	–	–	–	–	–	–	(4)	(4)
Related tax movements	5	–	–	–	–	–	1	1	–
Other changes in equity in the year	4	–	–	245	–	30	279	(4)	275
At 31 December 2019	338	631	(96)	650	397	(3,056)	(1,136)	22	(1,114)

¹ During 2019, the Company issued 28,973,262 new ordinary shares relating to the final three (of eight) instalments for the acquisition of ITP Aero.² Share-based payments - direct to equity is the share-based payment charge for the year less actual cost of vesting excluding those vesting from own shares and cash received on share-based schemes vesting.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

1 Accounting policies

The Company

Rolls-Royce plc (the 'Company') is a public company limited by shares incorporated under the Companies Act 2006 and domiciled in England in the United Kingdom. The Consolidated Financial Statements of the Company for the year ended 31 December 2020 consist of the audited consolidation of the Financial Statements of the Company and its subsidiaries (together referred to as the Group) together with the Group's interest in jointly controlled and associated entities.

Basis of preparation and statement of compliance

The Company has elected to prepare its individual Company Financial Statements under FRS 101 Reduced Disclosure Framework. They are set out on pages 119 to 148 with the associated accounting policies from page 117.

In accordance with the Companies Act 2006 and European Union (EU) regulations, the Consolidated Financial Statements have been prepared in accordance with international accounting standards in conformity with the requirements of the Companies Act 2006 and international financial reporting standards adopted pursuant to Regulation (EC) No 1606/2002 as it applies in the EU.

The Consolidated Financial Statements have been prepared on a going concern basis as described on page 43. The historical cost basis has been used except where IFRS require the revaluation of financial instruments to fair value and certain other assets and liabilities on an alternative basis, most significantly post-retirement scheme obligations are valued on the basis required by IAS 19 *Employee Benefits*.

The Consolidated Financial Statements are presented in sterling which is the Company's functional currency.

The preparation of Consolidated Financial Statements requires management to make judgements and estimates that affect the reported amounts of assets and liabilities at the date of the Consolidated Financial Statements and the reported amounts of revenue and expenses during the reporting period. Actual future outcomes could differ from those estimates.

Going concern

Given the economic uncertainty of the COVID-19 pandemic, the Directors have undertaken a comprehensive going concern review over an eighteen-month period to September 2022, considering the forecast cash flows of the Group and the liquidity headroom available over that eighteen-month period. The Group has modelled two scenarios in its assessment of going concern which have been considered by the Directors, along with a likelihood assessment of these scenarios, being:

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

Further details are given in the Going Concern Statement on page 43. After due consideration the Directors consider that the Group has sufficient liquidity headroom to continue in operational existence for a period of at least eighteen months from the date of this report and there are no material uncertainties that may cast doubt on the Company's going concern status, accordingly they are satisfied that it is appropriate to adopt the going concern basis of accounting in preparing the Consolidated and Company Financial Statements.

Climate change

In preparing the Consolidated Financial Statements management has considered the impact of climate change, particularly in the context of the disclosures included in the Strategic Report this year and the stated net zero targets. These considerations did not have a material impact on the financial reporting judgements and estimates, consistent with the assessment that climate change is not expected to have a significant impact on the Group's going concern assessment to September 2022 nor the viability of the Group over the next five years. The following specific points were considered:

- The Group continues to invest in new technologies including hybrid electric solutions in Power Systems, continued development of the more efficient UltraFan aero engine, testing of sustainable aviation fuels, SMRs and hybrid and fully electric propulsion.
- The Group continues to invest in onsite renewable energy generation solutions for our facilities and investment is included in our five year forecasts to enable us to meet our 2030 target for zero greenhouse gas emissions (scope 1 and 2) from our operations and facilities.
- Management has considered the impact of climate change on a number of key estimates within the financial statements, including:
 - the estimates of future cash flows used in impairment assessments of the carrying value of non-current assets (such as programme intangible assets and goodwill) (see note 8);
 - the estimates of future profitability used in our assessment of the recoverability of deferred tax assets in the UK (see note 5); and
 - the long-term contract accounting assumptions, such as the level of EFHs assumed, which consider our future expectations of consumer and airline customer behaviour (see note 15).

Presentation of underlying results

The Group measures financial performance on an underlying basis and discloses this information as an alternative performance measure. This is consistent with the way that financial performance is measured by management and reported to the Board in accordance with IFRS 8 *Operating Segments*. The Group believes this is the most appropriate basis to measure the in-year performance as underlying results reflect the substance of trading activity, including the impact of the Group's foreign exchange forward contracts, which economically hedge net foreign currency cash flows at predetermined exchange rates. In addition, underlying results exclude the accounting impact of business acquisitions and disposals, impairment charges where the reasons are outside of normal operating activities, exceptional items, and other items which are market driven and outside of the control of management. Further details are given in note 2.

IFRS applicable in 2020

No new standards and interpretations issued by the IASB had a significant impact on the Consolidated Financial Statements.

1 Accounting policies continued

Key areas of judgement and sources of estimation uncertainty

The determination of the Group's accounting policies requires judgement. The subsequent application of these policies requires estimates; the actual outcome may differ from that calculated. The key judgements and key sources of estimation uncertainty at the balance sheet date, that have a significant risk of causing material adjustment to the carrying amounts of assets and liabilities within the next financial year, are summarised below. Further details are included within the significant accounting policies as indicated.

Area	Key judgements	Key sources of estimation uncertainty	Page
Revenue recognition and contract assets and liabilities	Whether Civil Aerospace Original Equipment (OE) and aftermarket contracts should be combined How performance on long-term aftermarket contracts should be measured Whether any costs should be treated as wastage Whether sales of spare engines to joint ventures are at fair value	Estimates of future revenue and costs of long-term contractual arrangements Determination of the time period and profile over which the aerospace industry will recover	58
Risk and revenue sharing arrangements	Determination of the nature of entry fees received		59
Taxation		Estimates necessary to assess whether it is probable that sufficient suitable taxable profits will arise in the UK to utilise the deferred tax assets	59
Business combinations and goodwill	Identification of acquired assets and liabilities		61
Research and development	Determination of the point in time where costs incurred on an internal programme development meet the criteria for capitalisation Determination of the basis for amortising capitalised development costs		62
Lease liabilities	Determination of the lease term	Estimates of the payments required to meet residual value guarantees at the end of engine leases	63
Impairment of non-current assets		Estimates of cash flow forecasts and discount rates to support the carrying value of intangible assets (including programme-related intangible assets)	63
Provisions	Whether any costs should be treated as wastage	Estimates of the time to resolve the technical issues on the Trent 1000, including the development of the modified HPT blade and estimates of the expenditure required to settle the obligation relating to Trent 1000 claims and to settle Trent 1000 long-term contracts assessed as onerous Estimates of the future revenues and costs to fulfil onerous contracts	64
Post-retirement benefits		Estimates of the assumptions for valuing the defined benefit obligation	65

1 Accounting policies continued

Significant accounting policies

The Group's significant accounting policies are set out below. These accounting policies have been applied consistently to all periods presented in these Consolidated Financial Statements.

Basis of consolidation

The Consolidated Financial Statements include the Company Financial Statements and its subsidiary undertakings together with the Group's share of the results in joint arrangements and associates made up to 31 December.

A subsidiary is an entity controlled by the Company. Control exists when the Company has power over an entity, exposure to variable returns from its involvement with an entity and the ability to use its power over an entity so as to affect the Company's returns. Subsidiaries are consolidated in accordance with IFRS 10 *Consolidated Financial Statements*.

A joint arrangement is an entity in which the Group holds a long-term interest and which is jointly controlled by the Group and one or more other investors under a contractual arrangement. Joint arrangements may be either joint ventures or joint operations. Joint ventures are accounted for using the equity method of accounting and joint operations are accounted for using proportionate accounting.

An associate is an entity that is neither a subsidiary nor a joint arrangement, in which the Group holds a long-term interest and where the Group has a significant influence. The results of associates are accounted for using the equity method of accounting.

All intra-group transactions, balances, income and expenses are eliminated on consolidation. Adjustments are made to eliminate the profit or loss arising on transactions with joint arrangements and associates to the extent of the Group's interest in the entity. Transactions with non-controlling interests are recorded directly in equity.

Any subsidiary undertaking, joint arrangement or associate sold or acquired during the year are included up to, or from, the date of change of control. Details of transactions in the year are set out in note 27.

Revenue recognition

Revenue recognised comprises sales to the Group's customers after discounts and amounts payable to customers. Revenue excludes value added taxes. The transaction price of a contract is typically clearly stated within the contract, although the absolute amount may be dependent on escalation indices and long-term contracts require the key estimates highlighted below. Refund liabilities where sales are made with a right of return are not typical in the Group's contracts. Where they do exist, and consideration has been received, a portion based on an assessment of the expected refund liability is recognised within other payables. The Group has elected to use the practical expedient not to adjust revenue for the effect of financing components where the expectation is that the period between the transfer of goods and services to customers and the receipt of payment is less than a year.

Sales of standard OE, spare parts and time and material overhaul services are generally recognised on transfer of control to the customer. This is generally on delivery to the customer, unless the specific contractual terms indicate a different point. The Directors consider whether there is a need to constrain the amount of revenue to be recognised on delivery based on the contractual position and any relevant facts, however, this is not typically required.

Sales of OE and services that are specifically designed for the contract (most significantly in the Defence business) are recognised by reference to the progress towards completion of the performance obligation, using the cost method described in the key judgements, provided the outcome of contracts can be assessed with reasonable certainty.

The Group generates a significant portion of its revenue on aftermarket arrangements arising from the installed OE fleet. As a consequence, in particular in the Civil Aerospace large engine business, the Group will often agree contractual prices for OE deliveries that take into account the anticipated aftermarket arrangements. Sometimes this may result in losses being incurred on OE. As described in the key judgements, these contracts are not combined. The consideration in the OE contract is therefore allocated to OE performance obligations and the consideration in the aftermarket contract to aftermarket performance obligations.

Key areas of the accounting policy are:

- Future variable revenue from long-term contracts is constrained to take account of the risk of non-recovery of resulting contract balances from reduced utilisation e.g. engine flying hours, based on historical forecasting experience and the risk of aircraft being parked by the customer.
- A significant amount of revenue and cost related to long-term contract accounting is denominated in currencies other than that of the relevant Group undertaking, most significantly US dollar transactions in sterling and euro denominated undertakings. These are translated at estimated long-term exchange rates.
- The assessment of stage of completion is generally measured for each contract. However, in certain cases, such as for CorporateCare agreements where there are many contracts covering aftermarket services each for a small number of engines, the Group accounts for a portfolio of contracts together as the effect on the Consolidated Financial Statements would not differ materially from applying the standard to the individual contracts in the portfolio. When accounting for a portfolio of long-term service arrangements the Group uses estimates and assumptions that reflect the size and composition of the portfolio.
- A contract asset/liability is recognised where payment is received in arrears/advance of the revenue recognised in meeting performance obligations.
- Where material, wastage costs (see key judgements below) are recorded as an exceptional non-underlying expense.

If the expected costs to fulfil a contract exceed the expected revenue, a contract loss provision is recognised for the excess costs.

1 Accounting policies continued

The Group pays participation fees to airframe manufacturers, its customers for OE, on certain programmes. Amounts paid are initially treated as contract assets and subsequently charged as a reduction to the OE revenue when the engines are transferred to the customer.

The Group has elected to use the practical expedient to expense as incurred any incremental costs of obtaining or fulfilling a contract if the amortisation period of an asset created would have been one year or less. Where costs to obtain a contract are recognised in the balance sheet, they are amortised over the performance of the related contract (average of three years).

Key judgement – Whether Civil Aerospace OE and aftermarket contracts should be combined

In the Civil Aerospace business, OE contracts for the sale of engines to be installed on new aircraft are with the airframers, while the contracts to provide spare engines and aftermarket goods and services are with the aircraft operators, although there may be interdependencies between them. IFRS 15 *Revenue from Contracts with Customers* includes guidance on the combination of contracts, in particular that contracts with unrelated parties should not be combined. Notwithstanding the interdependencies, the Directors consider that the engine contract should be considered separately from the aftermarket contract. In making this judgement, they also took account of industry practice.

Key judgement – How performance on long-term aftermarket contracts should be measured

The Group generates a significant proportion of its revenue from aftermarket arrangements. These aftermarket contracts, such as TotalCare and CorporateCare agreements in the Civil Aerospace business, cover a range of services and generally have contractual terms covering more than one year. Under these contracts, the Group's primary obligation is to maintain customers' engines in an operational condition and this is achieved by undertaking various activities, such as maintenance, repair and overhaul, and engine monitoring over the period of the contract. Revenue on these contracts is recognised over the period of the contract and the basis for measuring progress is a matter of judgement. The Directors consider that the stage of completion of the contract is best measured by using the actual costs incurred to date compared to the estimated costs to complete the performance obligations, as this reflects the extent of completion of the activities performed.

Key judgement – Whether any costs should be treated as wastage

In rare circumstances, the Group may incur costs of wasted material, labour or other resources to fulfil a contract where the level of cost was not reflected in the contract price. The identification of such costs is a matter of judgement and would only be expected to arise where there has been a series of abnormal events which give rise to a significant level of cost of a nature that the Group would not expect to incur and hence is not reflected in the contract price. Examples include technical issues that require resolution to meet regulatory requirements; have a wide-ranging impact across a product type; and cause significant operational disruption to customers. Similarly, in these rare circumstances, significant disruption costs to support customers resulting from the actual performance of a delivered good or service may be treated as a wastage cost. Provision is made for any costs identified as wastage when the obligation to incur them arises – see note 21.

Key judgement – Whether sales of spare engines to joint ventures are at fair value

The Civil Aerospace business maintains a pool of spare engines to support its customers. Some of these engines are sold to, and held by, joint venture companies. The assessment of whether the sales price reflects fair value is a key judgement. The Group considers that based upon the terms and conditions of the sales, and by comparison to the sales price of spare engines to other third parties, the sales made to joint ventures reflect the fair value of the goods sold.

Key estimate – Estimates of future revenue and costs on long-term contractual arrangements

The Group has long-term contracts that fall into different accounting periods and which can extend over significant periods (generally up to 25 years), the most significant of these are long-term service arrangements (LTSA) in the Civil Aerospace business. The estimated revenue and costs are inherently imprecise and significant estimates are required to assess: engine flying hours (EFHs), time-on-wing and other operating parameters; the pattern of future maintenance activity and the costs to be incurred; lifecycle cost improvements over the term of the contracts; and escalation of revenue and costs. The estimates take account of the inherent uncertainties, constraining the expected level of revenue as appropriate. In addition, many of the revenues and costs are denominated in currencies other than that of the relevant Group undertaking. These are translated at an estimated long-term exchange rate, based on historical trends and economic forecasts. During the year, changes to the estimate resulted in catch-up adjustments to revenue of £1.bn.

Key estimate – Determination of the time period and profile over which the aerospace industry will recover

The COVID-19 pandemic has resulted in significant uncertainty across the aerospace industry. Airline customers have grounded a significant number of their aircraft in response to COVID-19 which has resulted in a reduction to EFHs in Civil Aerospace during 2020. Further details have been included in the going concern disclosure on page 43. Estimates of future LTSA revenue within Civil Aerospace are based upon future EFH forecasts, influenced by assumptions over the recovery of the aerospace industry.

Based upon the stage of completion of all widebody LTSA contracts within Civil Aerospace as at 31 December 2020, the following changes in estimates would result in catch-up adjustments being recognised in the period in which the estimates change (at underlying rates):

- A further reduction in forecast EFHs of 15% over the remaining term of the contracts would decrease LTSA income and to a lesser extent costs, resulting in a catch-up adjustment of £100m – £130m. An estimated 90% of this would be expected to be a reduction in revenue with the remainder relating to onerous contracts which would be an increase in cost of sales.
- A 2% increase or decrease in revenue over the life of the contracts would lead to a catch-up adjustment of £200m.
- A 5% increase or decrease in shop visit costs over the life of the contracts would lead to a catch-up adjustment of £150m.

Risk and revenue sharing arrangements (RRSAs)

Cash entry fees received are initially deferred on the balance sheet within trade payables and other liabilities. They are then recognised as a reduction in cost of sales incurred. Individual programme amounts are allocated pro rata to the estimated number of units to be produced. Amortisation commences as each unit is delivered and then charged on a 15-year straight-line basis.

The payments to suppliers of their shares of the programme cash flows for their production components are charged to cost of sales when OE sales are recognised or as LTSA costs are incurred.

The Group also has arrangements with third parties who invest in a programme and receive a return based on its performance, but do not undertake development work or supply parts. Such arrangements (financial RRSAs) are financial instruments as defined by IAS 32 *Financial Instruments: Presentation* and are accounted for using the amortised cost method.

1 Accounting policies continued

Key judgement – Determination of the nature of entry fees received

RRSAs with key suppliers (workshare partners) are a feature of the Civil Aerospace business. Under these contractual arrangements, the key commercial objectives are that: (i) during the development phase the workshare partner shares in the risks of developing an engine by performing its own development work, providing development parts and paying a non-refundable cash entry fee; and (ii) during the production phase it supplies components in return for a share of the programme cash flows as a 'life of type' supplier (i.e. as long as the engine remains in service). The non-refundable cash entry fee is judged by the Group to be a contribution towards the development expenditure incurred. These receipts are deferred on the balance sheet and recognised against the cost of sales over the estimated number of units to be delivered on a similar basis to the amortisation of development costs – see 62.

Royalty payments

Where a government or similar body has previously acquired an interest in the intellectual property of a programme, royalty payments are matched to the related sales.

Government grants

Government grants received are varied in nature and are recognised in the income statement so as to match them with the related expenses that they are intended to compensate. Where grants are received in advance of the related expenses, they are initially recognised as liabilities within trade payables and other liabilities and released to match the related expenditure. Non-monetary grants are recognised at fair value.

Interest

Interest receivable/payable is credited/charged to the income statement using the effective interest method. Where borrowing costs are attributable to the acquisition, construction or production of a qualifying asset, such costs are capitalised as part of the specific asset.

Taxation

The tax charge/credit on the profit or loss for the year comprises current and deferred tax:

- Current tax is the expected tax payable for the year, using tax rates enacted or substantively enacted at the balance sheet date, and any adjustment to tax payable in respect of previous years.
- Deferred tax is provided using the balance sheet liability method, providing for temporary differences between the carrying amounts of the assets and liabilities for financial reporting purposes and the amounts used for tax purposes and is calculated using the enacted or substantively enacted rates that are expected to apply when the asset or liability is settled. In the UK, the deferred tax liability on the pension scheme surplus is recognised consistently with the basis for recognising the surplus i.e. at the rate applicable to refunds from a trust.

Tax is charged or credited to the income statement or OCI as appropriate, except when it relates to items credited or charged directly to equity in which case the tax is also dealt with in equity.

Deferred tax liabilities are recognised for taxable temporary differences arising on investments in subsidiaries and joint arrangements, except where the Group is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax is not recognised on taxable temporary differences arising on the initial recognition of goodwill or for temporary differences arising from the initial recognition of assets and liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit.

Deferred tax assets are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised. Further details on the Group's tax position can be found on page 75.

Key estimate – Estimates necessary to assess whether it is probable that sufficient suitable taxable profits will arise in the UK to utilise the deferred tax assets

Deferred tax assets are recognised to the extent it is probable that future taxable profits will be available, against which the deductible temporary difference can be utilised, based on management's assumptions relating to the quantum of future taxable profits. Future taxable profits require significant estimates to be made, including the pattern of future maintenance activity and the costs to be incurred; lifecycle cost improvements over the term of the contracts, and escalation of revenue and costs. The estimates take account of the inherent uncertainties, constraining the expected level of profit as appropriate. Changes in these estimates will affect future profits and therefore the recoverability of the deferred tax assets. Further details can be found in note 5.

A 5% change in margin in the main Civil Aerospace widebody programmes or a 5% change in the number of shop visits (driven by EFHs which are influenced by a number of factors including climate change) over the remaining life of the programmes, would result in an increase/decrease in the deferred tax asset by around £100m.

Foreign currency translation

Transactions denominated in currencies other than the functional currency of the transacting Group undertaking are translated into the functional currency at the average monthly exchange rate when the transaction occurs. Monetary assets and liabilities denominated in foreign currencies are translated into the relevant functional currency at the rate prevailing at the year end. Exchange differences arising on foreign exchange transactions and the retranslation of monetary assets and liabilities into functional currencies at the rate prevailing at the year end are included in profit/(loss) before taxation.

The trading results of Group undertakings are translated into sterling at the average exchange rates for the year. The assets and liabilities of overseas undertakings, including goodwill and fair value adjustments arising on acquisition, are translated at the exchange rates prevailing at the year end. Exchange adjustments arising from the retranslation of the opening net assets, and from the translation of the profits or losses at average rates, are recognised in OCI.

1 Accounting policies continued

Financial instruments – Classification and measurement

Financial assets primarily include trade receivables, cash and cash equivalents, short-term investments, derivatives (foreign exchange, commodity and interest rate contracts), and unlisted investments.

- Trade receivables are classified either as held to collect and measured at amortised cost, or as held to collect and sell and measured at fair value, with movements in fair value recognised through other comprehensive income (FVOCI). The Group may sell trade receivables due from certain customers before the due date. Any trade receivables from such customers that are not sold at the reporting date are classified as 'held to collect and sell'.
- Cash and cash equivalents (consisting of balances with banks and other financial institutions, money-market funds, short-term deposits) and short-term investments are subject to low market risk. Cash balances, short-term deposits and short-term investments are measured at amortised cost. Money market funds are measured at fair value, with movements in fair value recognised in the income statement as a profit or loss (FVPL).
- Derivatives and unlisted investments are measured at FVPL.

Financial liabilities primarily consist of trade payables, borrowings, derivatives and financial RRSAs.

- Derivatives are classified and measured at FVPL.
- All other financial liabilities are classified and measured at amortised cost.

Financial instruments – Impairment of financial assets and contract assets

IFRS 9 *Financial Instruments* sets out the basis for the accounting of expected credit losses (ECLs) on financial assets and contract assets resulting from transactions within the scope of IFRS 15 *Revenue from Contracts with Customers*. The Group has adopted the simplified approach to provide for ECLs, measuring the loss allowance at a probability weighted amount that considers reasonable and supportable information about past events, current conditions and forecasts of future economic conditions of customers. These are incorporated in the simplified model adopted by using credit ratings which are publicly available, or through internal risk assessments derived using the customer's latest available financial information. The ECLs are updated at each reporting date to reflect changes in credit risk since initial recognition. ECLs are calculated for all financial assets in scope, regardless of whether or not they are overdue.

Financial instruments – Hedge accounting

Forward foreign exchange contracts and commodity swaps (derivative financial instruments) are held to manage the cash flow exposures of forecast transactions denominated in foreign currencies or in commodities respectively. Derivative financial instruments qualify for hedge accounting when: (i) there is a formal designation and documentation of the hedging relationship and the Group's risk management objective and strategy for undertaking the hedge at the inception of the hedge; and (ii) the hedge is expected to be effective.

In general, the Group has chosen to not apply hedge accounting in respect of these exposures. Prior to its acquisition in 2017, ITP Aero adopted hedge accounting for its equivalent exposures. It has continued to do so, although the value of the derivatives is not significant relative to those held by the rest of the Group.

The Group economically hedges the fair value and cash flow exposures of its borrowings. Cross-currency interest rate swaps are held to manage the fair value or cash flow exposures of borrowings denominated in foreign currencies and are designated as fair value hedges or cash flow hedges as appropriate. Interest rate swaps are held to manage the interest rate exposures of fixed and floating rate borrowings and may be designated as fair value hedges or cash flow hedges as appropriate. If the swaps are not designated as fair value or cash flow hedges, the economic effect is included in the underlying results – see note 2.

Changes in the fair values of derivatives that are designated as fair value hedges are recognised directly in the income statement. The fair value changes of effective cash flow hedge derivatives are recognised in OCI and subsequently recycled in the income statement in the same period or periods during which the hedged expected future cash flows affect profit or loss. Any ineffectiveness in the hedging relationship is included in the income statement.

Hedge accounting is discontinued when the hedging instrument expires or is sold, terminated, exercised, or no longer qualifies for hedge accounting. At that time, for cash flow hedges and, if the forecast transaction remains probable, any cumulative gain or loss on the hedging instrument recognised in OCI is retained until the forecast transaction occurs. If a hedged transaction is no longer expected to occur, the net cumulative gain or loss is recycled to the income statement.

Financial instruments – Replacement of benchmark interest rates

Following the financial crisis, the reform and replacement of benchmark interest rates such as GBP LIBOR and other interbank offered rates (IBORs) has become a priority for global regulators. There is currently uncertainty around the timing and precise nature of these changes. The Group's risk exposure that is directly affected by the interest rate benchmark reform is its portfolio of long-term borrowings of £4.1bn. These borrowings are hedged, using interest rate swaps and cross-currency interest rate swaps, for changes in fair value and cash flows attributable to the relevant benchmark interest rate. However, as part of the reforms noted above, the UK Financial Conduct Authority has decided to no longer compel panel banks to participate in the IBOR submission process after the end of 2021 and to cease oversight of these benchmark interest rates. Regulatory authorities and private sector working groups have been discussing alternative benchmark rates for IBOR. It is currently anticipated that IBOR rates will be replaced with a backward-looking risk-free rate based on actual transactions.

Management is continuing to monitor developments. When the future position is clearer, a transition project to assess and implement changes to systems, processes, risk and valuation models, as well as managing related tax and accounting implications will be initiated. The Group currently anticipates that the areas of greatest change will be amendments to the contractual terms of IBOR-referenced floating-rate debt and swaps, and updating hedge designations.

1 Accounting policies continued

Due to the uncertainty around these changes the Group elected to early adopt in 2019 the Amendments to IFRS 9, IAS 39 and IFRS 7 *Interest Rate Benchmark Reform* issued in September 2019. In accordance with the transition provisions, the amendments were adopted retrospectively to hedging relationships that existed at the start of 2019 or were designated thereafter. The amendments provide temporary relief from applying specific hedge accounting requirements to hedging relationships directly affected by IBOR reform.

The reliefs have the effect that IBOR reform should not generally cause hedge accounting to terminate. However, any hedge ineffectiveness should continue to be recorded in the income statement. Furthermore, the amendments set out triggers for when the reliefs will end, which include the uncertainty arising from interest rate benchmark reform no longer being present.

In summary, the reliefs provided by the amendments that apply to the Group are:

- In assessing whether the hedge is expected to be highly effective on a forward-looking basis, the Group has assumed that the relevant IBOR interest rate on which the cash flows of the interest rate swap that hedges fixed-rate borrowings is not altered by IBOR reform.
- The Group has assessed whether the hedged IBOR risk component is a separately identifiable risk only when it first designates a borrowing as included in a hedging relationship and not on an ongoing basis. Any hedge ineffectiveness relating to fair value hedges is recognised immediately in the income statement.

Business combinations and goodwill

Goodwill recognised represents the excess of the fair value of the purchase consideration over the fair value to the Group of the net of the identifiable assets acquired and the liabilities assumed. On transition to IFRS on 1 January 2004, business combinations were not retrospectively adjusted to comply with IFRS and goodwill was recognised based on the carrying value under the previous accounting policies. Goodwill in respect of the acquisition of a subsidiary is recognised as an intangible asset. Goodwill arising on the acquisition of joint arrangements and associates is included in the carrying value of the investment.

Key judgement – Identification of acquired assets and liabilities

In allocating the purchase price to the acquired assets and liabilities, such as technology, patents and licences, customer relationships, trademarks and in-process development, judgement is required. The allocations are based on the Group's industry experience and the advice of third party valuers, if required. During the year the Group acquired intangible assets arising on acquisition of Kinolt Group S.A. of £61m including £37m of customer relationships and £22m of technology intangible assets. See note 27 for details.

Customer relationships

The fair value of customer relationships recognised as a result of a business combination relate to the acquired company's established relationships with its existing customers that result in repeat purchases and customer loyalty. Amortisation is charged on a straight-line basis over its useful economic life, up to a maximum of 15 years.

Certification costs

Costs incurred in respect of meeting regulatory certification requirements for new Civil Aerospace aero-engine/aircraft combinations including payments made to airframe manufacturers for this are recognised as intangible assets to the extent that they can be recovered out of future sales. They are charged to the income statement over the programme life. Individual programme assets are allocated pro rata to the estimated number of units to be produced. Amortisation commences as each unit is delivered and then charged on a 15-year straight-line basis.

Research and development

Expenditure incurred on research and development is distinguished as relating either to a research phase or to a development phase. All research phase expenditure is charged to the income statement. Development expenditure is recognised as an internally generated intangible asset (programme asset) only if it meets strict criteria, relating in particular to technical feasibility and generation of future economic benefits.

More specifically, development costs are capitalised from the point at which the following conditions have been met:

- the technical feasibility of completing the programme and the intention and ability (availability of technical, financial and other resources) to complete the programme asset and use or sell it;
- the probability that future economic benefits will flow from the programme asset; and
- the ability to measure reliably the expenditure attributable to the programme asset during its development.

Capitalisation continues until the point at which the programme asset meets its originally contracted technical specification (defined internally as the point at which the asset is capable of operating in the manner intended by management).

Subsequent expenditure is capitalised where it enhances the functionality of the programme asset and demonstrably generates an enhanced economic benefit to the Group. All other subsequent expenditure on programme assets is expensed as incurred.

Individual programme assets are allocated pro rata to the estimated number of units to be produced. Amortisation commences as each unit is delivered and then charged on a 15-year straight-line basis. In accordance with IAS 38 *Intangible Assets*, the basis on which programme assets are amortised is assessed annually.

1 Accounting policies continued

Key judgement – Determination of the point in time where costs incurred on an internal programme development meet the criteria for capitalisation

The Group incurs significant research and development expenditure in respect of various development programmes. Determining when capitalisation should commence and cease is a critical judgement, as is the determination of when subsequent expenditure on the programme assets should be capitalised. £232m of development expenditure was capitalised during the year.

Within the Group, there is an established Product Introduction and Lifecycle Management process (PILM) in place. Within this process, the technical feasibility, the commercial viability and financial assessment of the programme is assessed at certain milestones. When these are met, development expenditure is capitalised. Prior to this, expenditure is expensed as incurred.

Subsequent expenditure after entry into service which enhances the performance of the engine and the economic benefits to the Group is capitalised. This expenditure is referred to as enhanced performance and is governed by the PILM process referred to above. All other development costs are expensed as incurred.

Key judgement – Determination of the basis for amortising capitalised development costs

The economic benefits of the development costs are primarily those cash inflows arising from long-term service agreements, which are expected to be relatively consistent for each engine within a programme. Amortisation of development costs is recognised on a straight-line basis over the estimated period of operation of the engine by its initial operator.

Software

Software that is not specific to an item of property, plant and equipment is classified as an intangible asset, recognised at its acquisition cost and amortised on a straight-line basis over its useful economic life, up to a maximum of five years. The cost of internally developed software includes direct labour and an appropriate proportion of overheads.

Other intangible assets

These principally include intangible assets arising on acquisition of businesses, such as technology, patents and licences which are amortised on a straight-line basis over a maximum of 15 years and trademarks which are not amortised.

Property, plant and equipment

Property, plant and equipment are stated at acquisition cost less accumulated depreciation and any provision for impairment in value. The cost of self-constructed assets includes the cost of materials, direct labour and an appropriate proportion of overheads and, where appropriate, interest.

Depreciation is provided on a straight-line basis to write off the cost, less the estimated residual value, of property, plant and equipment over their estimated useful lives. No depreciation is recorded on assets in the course of construction. Estimated useful lives are reassessed annually and are as follows:

- Land and buildings, as advised by the Group's professional advisers:
 - freehold buildings - five to 50 years (average 24 years); and
 - no depreciation is provided on freehold land.
- Plant and equipment - four to 25 years (average 11 years).
- Aircraft and engines - five to 20 years (average 16 years).

Leases

Assets and liabilities arising from a lease are initially measured on a present value basis.

Lease liabilities include the net present value of the following lease payments:

- fixed payments less any lease incentive receivable;
- variable lease payments that are based on an index or a rate;
- amounts expected to be payable by the Group under residual value guarantees;
- the exercise price of a purchase option if the Group is reasonably certain to exercise that option; and
- payments of penalties for termination of the lease, if the lease term reflects the Group exercising that option.

Where leases commenced after the initial transition date, the lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the Group's incremental borrowing rate is used, being the rate that the Group would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions. Where appropriate, lease liabilities are revalued at each reporting date using the spot exchange rate.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability or a revaluation of the liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- restoration costs.

Each right-of-use asset is depreciated over the shorter of its useful economic life and the lease term on a straight-line basis unless the lease is expected to transfer ownership of the underlying asset to the Group, in which case the asset is depreciated to the end of the useful life of the asset.

1 Accounting policies continued

Short-term leases are leases with a lease term of 12 months or less. Payments associated with short-term leases and low-value leases are recognised on a straight-line basis as an expense in the income statement.

Key judgement – Determination of lease term

In determining the lease term, the Group considers all facts and circumstances that create an economic incentive to exercise an extension option, or not exercise a termination option. Extension options (or periods after termination) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated). Certain land and building leases have renewal options with renewal dates for the most significant property leases evenly spread between 2022–2028 and in 2041. The Group reviews its judgements on lease terms annually, including the operational significance of the site, especially where utilised for manufacturing activities.

Key estimates – Estimates of the payments required to meet residual value guarantees at the end of engine leases

Engine leases in the Civil Aerospace segment often include clauses that require the engines to be returned to the lessor with specific levels of useable life remaining or cash payments to the lessor. The costs of meeting these requirements are included in the lease payments. The amounts payable are calculated based upon an estimate of the utilisation of the engines over the lease term, whether the engine is restored to the required condition by performing an overhaul at our own cost or through the payments of amounts specified in the contract and any new contractual arrangements arising when the current lease contracts end. Amounts due can vary depending on the level of utilisation of the engines, overhaul activity prior to the end of the contract, and decisions taken on whether ongoing access to the assets is required at the end of the lease term. During the year, adjustments to return conditions at the end of leases resulted in a credit of £102m to the income statement. The lease liability at 31 December 2020 included £347m relating to the cost of meeting these residual value guarantees in the Civil Aerospace business. Up to £19m is payable in the next 12 months, £133m is due over the following four years and the remaining balance after five years.

Impairment of non-current assets

Impairment of non-current assets is considered in accordance with IAS 36 *Impairment of Assets*. Where the asset does not generate cash flows that are independent of other assets, impairment is considered for the cash-generating unit (CGU) to which the asset belongs. Goodwill, indefinite life intangible assets and intangible assets not yet available for use are tested for impairment annually. Other intangible assets (including programme-related intangible assets), property, plant and equipment and investments are assessed for any indications of impairment annually. If any indication of impairment is identified, an impairment test is performed to estimate the recoverable amount.

If the recoverable amount of an asset (or CGU) is estimated to be below the carrying value, the carrying value is reduced to the recoverable amount and the impairment loss is recognised as an expense. The recoverable amount is the higher of value in use or fair value less costs to dispose, if this is readily available. The value in use is the present value of future cash flows using a pre-tax discount rate that reflects the time value of money and the risk specific to the asset.

Key judgement – Determination of cash-generating units for assessing impairment of goodwill

The Group conducts impairment reviews at the CGU level. As permitted by IAS 36 Impairment of Assets, impairment reviews for goodwill are performed at the groups of CGUs level, representing the lowest level at which the Group monitors goodwill for internal management purposes and no higher than the Group's operating segments. The main CGUs for which goodwill impairment reviews have been performed are Rolls-Royce Deutschland Ltd & Co KG, Kinolt Group S.A. and at an aggregated Rolls-Royce Power Systems AG level.

Key estimate – Estimates of cash flow forecasts and discount rates to support the carrying value of intangible assets (including programme related intangible assets)

In accordance with IAS 36, COVID-19 is considered to be a trigger event to reassess whether an asset is impaired. The carrying value of intangible assets (including programme-related intangible assets) is dependent on the estimates of future cash flows which are influenced by assumptions over the recovery of the industries in which we operate and the discount rates applied. Details of the reviews performed are set out in note 11.

The carrying value of intangible assets on the balance sheet is dependent on the estimates of future cash flows arising from the Group's operations, in particular:

- The assessment of the recoverable value of development expenditure, certification costs, and customer relationships recognised as intangible assets (31 December 2020: £3,220m, 2019: £3,612m) is dependent on estimates of cash flows generated by the relevant programme, the discount rate used to calculate a present value and assumptions on foreign exchange rates.
- In addition, in relation to programme intangible assets, estimates comprise: product performance related estimates (including EFHs and time-on-wing); and estimates for future market share, pricing and cost for uncontracted business.

It remains possible that a weaker than expected recovery could result in a deterioration in the future cash flow forecasts that support Civil Aerospace programme intangible assets:

- For intangible assets that have been impaired, a 5% deterioration in EFHs (and hence future cash flows) across the life of the programmes would result in these intangible assets incurring an additional impairment of £50m. An increase in the discount rate of 1% would reduce the recoverable amount of the programme assets (£108m) to nil.
- For intangible assets where there is existing headroom in the impairment test (and thus no impairment) but where deteriorations in key assumptions over the next 12 months could lead to an impairment, any of the following individual changes in assumptions would cause the recoverable amount of the programme assets to equal the carrying value:
 - A reduction in engine sales that are forecast but not contracted by 14%
 - An increase in costs of 2%
 - An increase in discount rates of 1%

Joint ventures and associates

Where the Group makes sales to joint venture companies (most significantly the sale of spare engines to leasing joint ventures), the share of the profit relating to the Group's share of the investment in the joint venture is deferred and subsequently released to match the depreciation of the engines in the share of the joint ventures' retained profit. These adjustments are included in share of the results of joint ventures and associates in the income statement and investments – joint ventures and associates in the balance sheet.

1 Accounting policies continued

Inventories

Inventories are valued on a first-in, first-out basis, at the lower of cost and net realisable value. Cost comprises direct materials and, where applicable, direct labour costs and those direct and indirect overheads, including depreciation of property, plant and equipment, that have been incurred in bringing the inventories to their present location and condition. Net realisable value represents the estimated selling prices less all estimated costs of completion and costs to be incurred in marketing, selling and distribution. All inventories are classified as current as it is expected that they will be used in the Group's operating cycle, regardless of whether this is expected to be within 12 months of the balance sheet date.

Cash and cash equivalents

Cash and cash equivalents include cash at bank and in hand, investments in money-market funds and short-term deposits with a maturity of three months or less on inception. The Group considers overdrafts (repayable on demand) to be an integral part of its cash management activities and these are included in cash and cash equivalents for the purposes of the cash flow statement. Where the Group operates pooled banking arrangements across multiple accounts, these are presented on a net basis when it has both a legal right and intention to settle the balances on a net basis.

On a periodic basis the Group undertakes the sale of certain trade receivables to banks. These trade receivables are factored on a non-recourse basis (invoice discounting) and therefore are derecognised from the Group's balance sheet at the point of sale to the bank. Further details are disclosed in note 14.

The Group offers a supply chain financing (SCF) programme in partnership with banks to enable suppliers, including joint ventures, who are on our standard 75 day or more payment terms to receive their payment sooner. As the Group continues to have a contractual obligation to pay its suppliers and it does not retain any ongoing involvement in the SCF, the related payables are retained on the Group's balance sheet and classified as trade payables. Further details are disclosed in note 20.

Provisions

Provisions are recognised when the Group has a present obligation as a result of a past event, and it is probable that the Group will be required to settle that obligation. Provisions are discounted to present value where the effect is material.

The principal provisions are recognised as follows:

- Trent 1000 in-service issues when wastage costs are identified as described on page 105;
- contract losses based on an assessment of whether the direct costs to fulfil a contract are greater than the expected revenue;
- warranties and guarantees based on an assessment of future claims with reference to past experience and recognised at the earlier of when the underlying products and services are sold and when the likelihood of a future cost is identified; and
- restructuring when the Group has approved a detailed and formal restructuring plan, and the restructuring has either commenced or has created a valid expectation to those affected.

Key judgement – Whether any costs should be treated as wastage

As described further on page 105, in rare circumstances, the Group may incur costs of wasted material, labour or other resources to fulfil a contract where the level of cost was not reflected in the contract price. The identification of such costs is a matter of judgement and would only be expected to arise where there has been a series of abnormal events which give rise to a significant level of cost of a nature that the Group would not expect to incur and hence is not reflected in the contract price. Provision is made for any costs identified as wastage when the obligation to incur them arises.

Specifically for the Trent 1000 wastage costs, provision has been made as the Group is an owner of an engine Type Certificate under which it has a present obligation to develop appropriate design changes to address certain engine conditions that have been noted in issued Airworthiness Directives. The Group is also required to ensure engine operators can continue to safely operate engines within the terms of their LTSA agreements with the Group, and this requires the engines to be compliant with the requirements of those issued Airworthiness Directives. These requirements cannot be met without the Group incurring significant costs in the form of replacement parts and customer claims. Given the significant activities of the Group in designing and overhauling aero engines it is very experienced in making the required estimates in relation to the number and timing of shop visits, parts costs, overhaul labour costs and customer claims.

Key estimate – Estimates of the time to resolve the technical issues on the Trent 1000, including the development of the modified HPT blade and estimates of the expenditure required to settle the obligation relating to Trent 1000 claims and to settle Trent 1000 long-term contracts assessed as onerous

The Group has provisions for Trent 1000 exceptional costs at 31 December 2020 of £321m (2019: £1,382m). These represent the Directors' best estimate of the expenditure required to settle the obligations at the balance sheet date. These estimates take account of information available and different possible outcomes.

The Group considers that at 31 December 2020 the Trent 1000 contract loss provisions and the Trent 1000 exceptional cost provision are most sensitive to changes in estimates. A 12-month delay in the availability of the modified HPT blade could lead to a £60-100m increase in the Trent 1000 exceptional costs provision.

Key estimates – Estimates of the future revenues and costs to fulfil onerous contracts

The Group has provisions for onerous contracts at 31 December 2020 of £791m (2019: £773m). A reduction in Civil Aerospace widebody flying hours of 15% over the remaining term of the contracts and the associated decrease in revenues and costs could lead to a £10m - £15m increase in the provision for contract losses across all programmes. Further details have been included in the going concern disclosure on page 43.

1 Accounting policies continued

Post-retirement benefits

Pensions and similar benefits (principally healthcare) are accounted for under IAS 19 *Employee Benefits*.

For defined benefit plans, obligations are measured at discounted present value, using a discount rate derived from high-quality corporate bonds denominated in the currency of the plan, whilst plan assets are recorded at fair value. Surpluses in schemes are recognised as assets only if they represent economic benefits available to the Group in the future. Actuarial gains and losses are recognised immediately in OCI. The service and financing costs of such plans are recognised separately in the income statement:

- current service costs are spread systematically over the lives of employees;
- past-service costs and settlements are recognised immediately; and
- financing costs are recognised in the periods in which they arise.

In 2018 and 2020, following clarification provided by the UK High Court judgements on the Lloyds Banking Group on 26 October 2018 and 23 November 2020, the Group recognised the estimated impact of the obligation to equalise defined benefit pensions and transfer values respectively for men and women as a past-service cost – see note 22.

Payments to defined contribution schemes are charged as an expense as they fall due.

Key estimate – Estimates of the assumptions for valuing the defined benefit obligation

The Group's defined benefit pension schemes and similar arrangements are assessed annually in accordance with IAS 19 *Employee Benefits*. The valuation, which is based on assumptions determined with independent actuarial advice, resulted in a net deficit of £686m before deferred taxation being recognised on the balance sheet at 31 December 2020 (31 December 2019: deficit of £208m). The size of the net surplus/deficit is sensitive to the actuarial assumptions, which include the discount rate, price inflation, pension and salary increases, longevity and the number of plan members who take the option to transfer their pension to a lump sum on retirement or who choose to take the newly implemented Bridging Pension Option. Following consultation, the UK scheme closed to future accrual on 31 December 2020. The Group is in discussions with the employees' representatives and the Trustee regarding possible additional transitional protections that could be granted from the scheme. Based on the progress of the talks up to 31 December 2020, the Group has allowed for some reductions in the change to the obligation recognised at 31 December. The final details are expected to be agreed in 2021 when any differences will be recognised.

A reduction in the discount rate from 1.45% by 0.25% could lead to an increase in the defined benefit obligations of the RR UK Pension Fund of approximately £530m. This would be expected to be broadly offset by changes in the value of scheme assets, as the scheme's investment policies are designed to mitigate this risk.

A one-year increase in life expectancy from 21.8 years (male aged 65) and from 23.2 years (male aged 45) would increase the defined benefit obligations of the RR UK Pension Fund by approximately £455m.

It is assumed that 40% (31 December 2019: 45%) of members of the RR UK Pension Fund will transfer out of the fund on retirement. The reduction in this assumption is a result of the introduction of the Bridging Pension Option. An increase of 5% in this assumption would increase the defined benefit obligation by £45m.

Further details and sensitivities are included in note 22.

Share-based payments

The Group provides share-based payment arrangements to certain employees, which are settled in Rolls-Royce Holdings plc shares. These are principally equity-settled arrangements and are measured at fair value (excluding the effect of non-market based vesting conditions) at the date of grant. The fair value is expensed on a straight-line basis over the vesting period. The amount recognised as an expense is adjusted to reflect the actual number of shares or options that will vest, except where additional shares vest as a result of the total shareholder return (TSR) performance condition in the long-term incentive plan (LTIP), where no adjustment is required as allowance for this is included in the initial fair value.

Cash-settled share options (grants in the International ShareSave plan) are measured at fair value at the balance sheet date. The Group recognises a liability at the balance sheet date based on these fair values, taking into account the estimated number of options that will actually vest and the relative completion of the vesting period. Changes in the value of this liability are recognised in the income statement for the year.

See note 24 for a further description of the share-based payment plans.

Customer financing support

In connection with the sale of its products the Group will, on occasion, provide financing support for its customers. These arrangements fall into two categories: credit-based guarantees and asset-value guarantees. In accordance with the requirements of IFRS 9 *Financial Instruments* and IFRS 4 *Insurance Contracts*, credit-based guarantees are treated as insurance contracts. The Group considers asset-value guarantees to be non-financial liabilities and accordingly these are also treated as insurance contracts. As described on page 106, the Directors consider the likelihood of crystallisation in assessing whether provision is required for any contingent liabilities.

The Group's contingent liabilities relating to financing arrangements are spread over many years and relate to a number of customers and a broad product portfolio, and are reported on a discounted basis.

1 Accounting policies continued

Rewvisions to IFRS not applicable in 2020

Standards and interpretations issued by the IASB are only applicable if endorsed by the UK. Other than IFRS 17 *Insurance Contracts* described below, the Group does not consider that any standards, amendments or interpretations issued by the IASB, but not yet applicable will have a significant impact on the Consolidated Financial Statements. The Group is not expecting to adopt the amendment to IFRS 16 *Leases*, effective in 2021, which provides a practical expedient to not treat COVID-19 rent concessions as lease modifications. The Group did not adopt the equivalent practical expedient during 2020.

IFRS 17 *Insurance Contracts*

IFRS 17 is effective from the beginning of 1 January 2023. The new standard establishes the principles for the recognition, measurement, presentation and disclosure of insurance contracts within the scope of the Standard. The objective of IFRS 17 is to ensure that an entity provides relevant information that faithfully represents those contracts. The Group is in the process of assessing whether the new standard will impact on the Consolidated Financial Statements.

Post balance sheet events

We have taken the latest legal position in relation to ongoing legal proceedings and post balance events and reflected these in the 2020 results as appropriate. We entered into an agreement to sell Bergen Engines on 1 February 2021. Further details are included in note 27. The Spring Budget 2021 announced that the UK corporation tax rate will increase to 25% from 1 April 2023. Further details are included in note 5.

2 Segmental analysis

The analysis by business segment is presented in accordance with IFRS 8 *Operating Segments*, on the basis of those segments whose operating results are regularly reviewed by the Board (which acts as the Chief Operating Decision Maker as defined by IFRS 8). Our four divisions are set out below and referred to collectively as the core businesses.

Civil Aerospace	development, manufacture, marketing and sales of commercial aero engines and aftermarket services
Power Systems	development, manufacture, marketing and sales of reciprocating engines, power systems and nuclear systems for civil power generation
Defence	development, manufacture, marketing and sales of military aero engines, naval engines, submarine nuclear power plants and aftermarket services
ITP Aero	design, research and development, manufacture and casting, assembly and testing of aeronautical engines and gas turbines, and maintenance, repair and overhaul (MRO) services

Non-core businesses include the trading results of the Bergen Engines AS business (the Group signed a sales agreement on 1 February 2021), the results of the Civil Nuclear Instrumentation & Control business (the Group signed a sales agreement on 7 December 2020), the results of the North America Civil Nuclear business until the date of disposal on 31 January 2020, the results of the Knowledge Management System business until the date of disposal on 3 February 2020, the Commercial Marine business until the date of disposal on 1 April 2019, Rolls-Royce Power Development Limited (RRPD) until the date of disposal on 15 April 2019 and other smaller businesses including former Energy businesses not included in the disposal to Siemens in 2014 (Retained Energy). The segmental analysis for 2019 has been restated to reflect the 2020 definition of non-core.

From 1 January 2021, all non-core businesses will be referred to as other businesses, and the reporting of core and non-core will cease.

Underlying results

We present the financial performance of our businesses in accordance with IFRS 8 and consistently with the basis on which performance is communicated to the Board each month.

Underlying results are presented by recording all relevant revenue and cost of sales transactions at the average exchange rate achieved on settled derivative contracts in the period that the cash flow occurs. The impact of the revaluation of monetary assets and liabilities using the exchange rate that is expected to be achieved by the use of the hedge book is recorded in underlying cost of sales. Underlying financing excludes the impact of revaluing monetary assets and liabilities to period end exchange rates. Transactions between segments are presented on the same basis as underlying results and eliminated on consolidation. Unrecognised fair value gains and losses on foreign exchange contracts, which are recognised as they arise in the reported results, are excluded from underlying results. To the extent that the previously forecast transactions are no longer expected to occur, an appropriate portion of the unrealised fair value gain/(loss) on foreign exchange contracts is recorded immediately in the underlying results.

Amounts receivable/(payable) on interest rate swaps which are not designated as hedge relationships for accounting purposes are reclassified from fair value movement on a reported basis to interest receivable/(payable) on an underlying basis, as if they were in an effective hedge relationship.

As a result of the reduction in Civil Aerospace US Dollar (USD) receipts, in the first half of the year the Group was a net purchaser of USD, with the consequence that the achieved exchange rate GBP:USD of 1.24 on settled contracts was similar to the average spot rate in the period. In the second half of 2020, the Group remained a net purchaser of USD with the consequence that the achieved exchange rate of GBP:USD of 1.33 on settled contracts was similar to the average spot rate in the period.

Estimates of future USD cash flows have been determined using the Group's base-case forecast, significantly influenced by the estimate of future EFH forecasts. These USD cash flows have been used to establish the extent of future USD hedge requirements and determine the need to close-out any over-hedged positions. In response to the deterioration in the medium-term outlook caused by COVID-19 and the related reduction in anticipated net USD cash inflows, the Group took action to reduce the size of the USD hedge book by \$11.8bn across 2020-2026. An underlying charge of £1,689m relating to the total \$11.8bn reduction in the size of the USD hedge book is included within underlying financing costs at 31 December 2020. Further detail on this is included within note 4.

2 Segmental analysis continued

Underlying performance excludes the following:

- the effect of acquisition accounting and business disposals;
- impairment of goodwill and other non-current and current assets where the reasons for the impairment are outside of normal operating activities;
- exceptional items; and
- other items which are market driven and outside of the control of management.

Acquisition accounting, business disposals and impairment

We exclude these from underlying results so that the current year and comparative results are directly comparable.

Exceptional items

We classify items as exceptional where the Directors believe that presentation of our results in this way is more relevant to an understanding of our financial performance, as exceptional items are identified by virtue of their size, nature or incidence.

In determining whether an event or transaction is exceptional, management considers quantitative as well as qualitative factors such as the frequency or predictability of occurrence. Examples of exceptional items include one-time costs and charges in respect of aerospace programmes, costs of restructuring programmes and one-time past service charges and credits on our post-retirement schemes.

A risk-free discount rate is applied to exceptional onerous contract provisions. The risk-free rate is subject to movements in US bonds. Changes in the risk-free rate (US bonds) are market driven and the impact of any increase or decrease in the rate is included as a reconciling difference between underlying performance and reported performance.

Subsequent changes in exceptional items recognised in a prior period will also be recognised as 'exceptional'. All other changes will be recognised within underlying performance.

Exceptional items are not allocated to segments and may not be comparable to similarly titled measures used by other companies.

Other items

The financing component of the defined benefit pension scheme cost is determined by market conditions and has therefore been included as a reconciling difference between underlying performance and reported performance.

Penalties paid on agreements with investigating bodies are considered to be one-off in nature and are therefore excluded from underlying performance.

The tax effects of the adjustments above are excluded from the underlying tax charge. In addition, changes in tax rates or changes in the amount of recoverable advance corporation tax recognised are also excluded.

See page 72 for the reconciliation between underlying performance and reported performance.

2 Segmental analysis continued

The following analysis sets out the results of the core businesses on the basis described above and also includes a reconciliation of the underlying results to those reported in the consolidated income statement.

	Civil Aerospac e £m	Power Systems ¹ £m	Defence £m	ITP Aero £m	Corporate and inter- segment £m	Core businesses £m
Year ended 31 December 2020						
Underlying revenue from sale of original equipment	2,298	1,794	1,436	537	(293)	5,772
Underlying revenue from aftermarket services	2,791	951	1,930	168	(96)	5,744
Total underlying revenue	5,089	2,745	3,366	705	(389)	11,516
Gross (loss)/profit	(2,005)	681	686	133	(18)	(523)
Commercial and administrative costs	(302)	(337)	(151)	(38)	(52)	(880)
Research and development costs	(436)	(167)	(96)	(27)	–	(726)
Share of results of joint venture and associates	169	1	9	–	–	179
Underlying operating (loss)/profit	(2,574)	178	448	68	(70)	(1,950)
Year ended 31 December 2020						
Segment assets	16,723	3,497	3,127	1,988	(2,771)	22,564
Interests in joint ventures and associates	363	11	19	1	–	394
Segment liabilities	(22,317)	(1,352)	(3,078)	(1,036)	3,251	(24,532)
Net (liabilities)/assets	(5,231)	2,156	68	953	480	(1,574)
Investment in intangible assets, property, plant and equipment, right-of-use assets, and joint ventures and associates	774	181	122	28	–	1,105
Depreciation, amortisation and impairment	1,915	267	128	139	12	2,461
Year ended 31 December 2019						
Underlying revenue from sale of original equipment	3,246	2,183	1,461	782	(502)	7,170
Underlying revenue from aftermarket services	4,861	1,001	1,789	154	(75)	7,730
Total underlying revenue	8,107	3,184	3,250	936	(577)	14,900
Gross profit/(loss)	622	878	669	206	(64)	2,311
Commercial and administrative costs	(306)	(343)	(158)	(62)	(53)	(922)
Research and development costs	(374)	(166)	(105)	(33)	–	(678)
Share of results of joint venture and associates	102	(2)	9	–	–	109
Underlying operating profit/(loss)	44	367	415	111	(117)	820
Year ended 31 December 2019						
Segment assets	17,953	3,312	2,743	2,160	(247)	25,921
Interests in joint ventures and associates	365	18	19	–	–	402
Segment liabilities	(24,805)	(1,088)	(2,944)	(1,129)	2,645	(27,321)
Net (liabilities)/assets	(6,487)	2,242	(182)	1,031	2,398	(998)
Investment in intangible assets, property, plant and equipment, right-of-use assets, and joint ventures and associates	1,274	181	110	53	–	1,618
Depreciation, amortisation and impairment	807	201	109	88	–	1,205

¹ The underlying results for Power Systems for 31 December 2019 have been restated to reflect the 2020 non-core businesses as described above.

2 Segmental analysis continued

Reconciliation to reported results

	Core businesses £m	Non-core businesses ¹ £m	Total underlying £m	Underlying adjustments and adjustments to foreign exchange £m	Group at actual exchange rates £m
Year ended 31 December 2020					
Revenue from sale of original equipment	5,772	115	5,887	(68)	5,819
Revenue from aftermarket services	5,744	132	5,876	129	6,005
Total revenue	11,516	247	11,763	61	11,824
Gross (loss)/profit	(523)	11	(512)	302	(210)
Commercial and administrative costs	(880)	(24)	(904)	96	(808)
Research and development costs	(726)	(9)	(735)	(519)	(1,254)
Share of results of joint venture and associates	179	—	179	12	191
Operating loss	(1,950)	(22)	(1,972)	(109)	(2,081)
Loss arising on acquisition and disposal of businesses	—	—	—	(14)	(14)
Loss before financing and taxation	(1,950)	(22)	(1,972)	(123)	(2,095)
Net financing	(1,982)	(4)	(1,986)	1,171	(815)
Loss before taxation	(3,932)	(26)	(3,958)	1,048	(2,910)
Taxation	(37)	(2)	(39)	(220)	(259)
Loss for the year	(3,969)	(28)	(3,997)	828	(3,169)
Attributable to:					
Ordinary shareholders				(3,998)	828
Non-controlling interests				1	—
Year ended 31 December 2019					
Revenue from sale of original equipment	7,170	286	7,456	596	8,052
Revenue from aftermarket services	7,730	264	7,994	541	8,535
Total revenue	14,900	550	15,450	1,137	16,587
Gross profit/(loss)	2,311	76	2,387	(1,445)	942
Commercial and administrative costs	(922)	(71)	(993)	(135)	(1,128)
Research and development costs	(678)	(18)	(696)	(74)	(770)
Share of results of joint venture and associates	109	1	110	(6)	104
Operating profit/(loss)	820	(12)	808	(1,660)	(852)
Gain arising on disposal of businesses	—	—	—	139	139
Profit/(loss) before financing and taxation	820	(12)	808	(1,521)	(713)
Net financing	(221)	(4)	(225)	163	(62)
Profit/(loss) before taxation	599	(16)	583	(1,358)	(775)
Taxation	(280)	3	(277)	(163)	(440)
Profit/(loss) for the year	317	(11)	306	(1,521)	(1,215)
Attributable to:					
Ordinary shareholders				302	(1,521)
Non-controlling interests				4	—

¹ Non-core businesses are set out above. The underlying results for 31 December 2019 have been restated to reflect the 2020 non-core businesses.

2 Segmental analysis continued

Disaggregation of revenue from contracts with customers

Analysis by type and basis of recognition

	Civil Aerospace £m	Power Systems ¹ £m	Defence £m	ITP Aero £m	Corporate and inter- segment £m	Core businesses £m
Year ended 31 December 2020						
Original equipment recognised at a point in time	2,293	1,771	523	471	(262)	4,796
Original equipment recognised over time	4	23	912	66	(32)	973
Aftermarket services recognised at a point in time	1,170	827	797	85	(58)	2,821
Aftermarket services recognised over time	1,398	123	1,132	83	(37)	2,699
Total underlying customer contract revenue²	4,865	2,744	3,364	705	(389)	11,289
Other underlying revenue	224	1	2	–	–	227
Total underlying revenue	5,089	2,745	3,366	705	(389)	11,516
Year ended 31 December 2019						
Original equipment recognised at a point in time	3,246	2,108	567	702	(478)	6,145
Original equipment recognised over time	–	75	894	80	(24)	1,025
Aftermarket services recognised at a point in time	1,599	874	696	48	(32)	3,185
Aftermarket services recognised over time	3,138	127	1,093	106	(43)	4,421
Total underlying customer contract revenue²	7,983	3,184	3,250	936	(577)	14,776
Other underlying revenue	124	–	–	–	–	124
Total underlying revenue	8,107	3,184	3,250	936	(577)	14,900

¹ The underlying results for Power Systems for 31 December 2019 has been restated to reflect the 2020 non-core businesses as described above.

² Includes £(1,012)m (2019: £(93)m) of revenue recognised in the year relating to performance obligations satisfied in previous years.

	Core businesses £m	Non-core businesses ¹ £m	Total underlying £m	Underlying adjustments and adjustments to foreign exchange ² £m	Group at actual exchange rates £m
Year ended 31 December 2020					
Original equipment recognised at a point in time	4,796	114	4,910	(63)	4,847
Original equipment recognised over time	973	–	973	(6)	967
Aftermarket services recognised at a point in time	2,821	133	2,954	53	3,007
Aftermarket services recognised over time	2,699	–	2,699	110	2,809
Total underlying customer contract revenue	11,289	247	11,536	94	11,630
Other underlying revenue	227	–	227	(33)	194
Total underlying revenue	11,516	247	11,763	61	11,824
Year ended 31 December 2019					
Original equipment recognised at a point in time	6,145	217	6,362	596	6,958
Original equipment recognised over time	1,025	69	1,094	–	1,094
Aftermarket services recognised at a point in time	3,185	246	3,431	313	3,744
Aftermarket services recognised over time	4,421	18	4,439	228	4,667
Total underlying customer contract revenue	14,776	550	15,326	1,137	16,463
Other underlying revenue	124	–	124	–	124
Total underlying revenue	14,900	550	15,450	1,137	16,587

¹ Non-core businesses are set out above. The underlying results for 31 December 2019 have been restated to reflect the 2020 non-core businesses.

² Includes nil (2019: £(187)m) of revenue recognised in the year relating to performance obligations satisfied in previous years over and above that in underlying revenue.

2 Segmental analysis continued

Analysis by geographical destination

The Group's revenue by destination of the ultimate operator is as follows:

	2020 £m	2019 £m
United Kingdom	1,234	1,805
Germany	832	961
Switzerland	259	520
Spain	321	375
France	234	284
Italy	211	235
Russia	102	106
Norway	113	87
Rest of Europe	723	979
Europe	4,029	5,352
United States	3,805	4,720
Canada	322	298
North America	4,127	5,018
South America	133	377
Central America	63	78
United Arab Emirates	191	438
Rest of Middle East	719	714
Middle East	910	1,152
China	1,082	1,698
Singapore	341	702
Japan	327	607
South Korea	139	252
India	78	82
Rest of Asia	130	622
Asia	2,097	3,963
Africa	238	246
Australasia	225	361
Other	2	40
	11,824	16,587

Order backlog

Contracted consideration, translated at the estimated long-term exchange rates, that is expected to be recognised as revenue when performance obligations are satisfied in the future (referred to as order backlog) is as follows:

	2020			2019		
	Within five years £bn	After five years £bn	Total £bn	Within five years £bn	After five years £bn	Total £bn
Civil Aerospace	17.6	24.8	42.4	22.9	25.6	48.5
Power Systems	2.2	0.2	2.4	2.1	0.3	2.4
Defence	7.1	0.4	7.5	7.7	0.9	8.6
ITP Aero	0.6	0.2	0.8	0.7	0.2	0.9
Non-core businesses	0.6	-	0.6	0.5	-	0.5
	28.1	25.6	53.7	33.9	27.0	60.9

The parties to these contracts have approved the contract and our customers do not have a unilateral enforceable right to terminate the contract without compensation. The Group excludes Civil Aerospace OE orders (for deliveries beyond the next 7-12 months) that our customers have placed where they retain a right to cancel. Our expectation based on historical experience is that these orders will be fulfilled. Within the 0-5 years category, contracted revenue in: Defence will largely be recognised in the next three years; Power Systems will be recognised over the next two years as it is a short cycle business; and ITP Aero (where internal Group revenues have been eliminated) evenly spread over the next five years.

2 Segmental analysis continued

	2020				2019			
	Revenue £m	Profit before financing £m	Net financing £m	Tax ¹⁴ £m	Revenue £m	Profit before financing £m	Net financing £m	Tax ¹⁴ £m
Underlying performance	11,763	(1,972)	(1,986)	(39)	15,450	808	(225)	(277)
Impact of settled derivative contracts on trading transactions ¹	A 61	998	(324)	(40)	1,137	145	196	(120)
Unrealised fair value changes to derivative contracts held for trading ²	A –	8	(85)	(182)	–	(1)	(6)	(88)
Unrealised net losses on closing future over-hedged position ³	A –	–	1,503	(106)	–	–	–	–
Realised net losses on closing over-hedged position ⁴	A –	–	202	(38)	–	–	–	–
Unrealised fair value change to derivative contracts held for financing ⁵	A –	–	(86)	–	–	–	1	–
Exceptional programme charges ⁶	B –	620	(36)	–	–	(1,409)	–	–
Impact of discount rate changes ⁷	B –	–	3	–	–	–	(40)	–
Exceptional restructuring charges ⁸	B –	(489)	–	37	–	(136)	–	17
Impairments ⁹	C –	(1,293)	–	273	–	(84)	–	7
Other asset write-offs ¹⁰	C –	(124)	–	30	–	–	–	–
Effect of acquisitions accounting ¹¹	C –	(133)	–	34	–	(163)	(8)	41
Pension past-service credit ¹²	D –	308	–	(108)	–	–	–	–
Other	D –	(4)	(6)	(7)	–	(12)	20	(20)
(Loss)/gains arising on the acquisitions and disposals of businesses ¹³	C –	(14)	–	3	–	–	–	–
Impact of tax rate change	–	–	–	160	–	–	–	–
Derecognition of UK losses	–	–	–	(276)	–	–	–	–
Total underlying adjustments	61	(123)	1,171	(220)	1,137	(1,521)	163	(143)
Reported per consolidated income statement	11,824	(2,095)	(815)	(259)	16,587	(713)	(62)	(440)

A – FX, B – Exceptional, C – M&A and impairment, D – Other

- ¹ The impact of measuring revenues and costs and the impact of valuation of assets and liabilities using the period end exchange rate rather than the achieved rate or the exchange rate that is expected to be achieved by the use of the hedge book increased reported revenues by £61m (2019: £1,137m) and reduced loss before financing and taxation by £998m (2019: increased profit by £145m). Underlying financing excludes the impact of revaluing monetary assets and liabilities at the period end exchange rate.
- ² The underlying results exclude the fair value changes on derivative contracts held for trading. These fair value changes are subsequently recognised in the underlying results when the contracts are settled.
- ³ In response to the deterioration in the medium-term outlook caused by COVID-19 and the related reduction in anticipated net USD cash inflows, the Group has taken action to reduce the size of the USD hedge book by \$11.8bn predominately by transacting offsetting foreign exchange forward contracts across 2020-2026, resulting in a £1,689m charge to underlying results. The £1,503m included in unrealised loss (shown above) is the net cost of closing out the over-hedged position in future years. The cost related to future years has been included within the underlying performance. It is reversed in arriving at reported performance on the basis that, the cumulative fair value changes on these derivative contracts are recognised as they arise. Further detail is provided in note 4.
- ⁴ In 2020, the Group incurred cash outflows of £186m as a result of closing out \$1.2bn of the \$11.8bn hedge book reduction and a cash outflow of £16m to settle an over-hedged jet fuel position. The realised loss of £202m is included in underlying financing costs.
- ⁵ Includes the losses on hedge ineffectiveness in the year of £11m (2019: losses £13m) and net fair value losses of £75m (2019: profit £14m) on any interest rate swaps not designated into hedging relationships for accounting purposes.
- ⁶ In 2019, abnormal wastage costs were recorded in respect of the Trent 1000, related to remediation shop visit costs, customer disruption costs and contract losses. During the year ended 31 December 2020, the total estimated Trent 1000 abnormal wastage costs have reduced by £620m as a result of COVID-19 and the work we have performed to reduce fleet AOG levels and improve the availability of spare engines, made up of £390m (a gross provision release of £560m, offset by the impact of expected actual exchange rates and the share of the costs borne by RRSA) related to remediation shop visit costs and customer disruption costs, and an improvement of £230m in the position on contract losses.
- ⁷ Discount rates have increased on exceptional contract loss provisions in relation to the Trent 900 and Trent 1000.
- ⁸ At 31 December 2020, the Group recorded an exceptional charge of £489m following the announcement on 20 May 2020 of a fundamental restructuring to reshape and resize the Group due to the financial and operational impact of COVID-19 (see note 21 for more detail).
- ⁹ The Group has assessed the carrying value of its assets given the financial and operational impact of COVID-19 on the Group's future cash flow forecasts. Consequently, a number of impairments and write-offs have been recorded at 31 December 2020. Impairments comprise: intangible assets £567m, mainly related to programme intangibles; property, plant and equipment £318m (including £219m related to site rationalisation); right-of-use assets £384m, comprising engines of £311m; £69m of site rationalisation and £4m of other impairments; and a £24m impairment on the carrying value of investments held. Further details are provided in notes 8, 9, 10, 11 and 12.
- ¹⁰ Other write-offs include £149m of participation fees in contract assets, £2m in provisions for site rationalisation, offset by £(27)m for RRSA deferred cost contributions in payables. These write-offs are primarily a result of the impact of COVID-19.
- ¹¹ The effect of acquisition accounting includes the amortisation of intangible assets arising on previous acquisitions.
- ¹² The Group recorded a past-service gain of £308m (of which £248m was recorded at 30 June 2020) following changes to the pension benefits under the terms of the Rolls-Royce UK Pension Fund (RRUKPF), a defined benefit scheme - see note 22. Of the £308m gain, £79m related to the restructuring described in footnote 8 above. The gain also comprises £134m on introduction of the Bridging Pension Option, £67m as a result of the scheme closure and £35m as a result of manager consultation offset by a £7m past-service cost. In respect of the £248m gain recorded at 30 June 2020, £127m was subsequently recognised as actuarial losses through other comprehensive income at 31 December 2020 - see note 22.
- ¹³ Gains/(losses) arising on the acquisitions and disposals of businesses includes the acquisition of Qinous GmbH (increasing the Group's shareholding from 24% to 100%), the sale of the North America Civil Nuclear business, the sale of the Knowledge Management Systems business and the sale of Trigno Energy Srl. During the year, sales proceeds received on the disposal of L'Orange in a prior period. See note 27 for further details.
- ¹⁴ Appropriate rates of tax have been applied to adjustments made to (loss)/profit before tax in the table above. Adjustments in 2020 which impact the UK tax loss have an effective tax rate of zero. See note 5 for more details. The total underlying adjustments to loss before tax in 2020 are a charge of £220m (2019: £143m). The overall charge in 2020 includes a tax credit of £160m in respect of the change in the UK tax rate and a tax charge of £276m relating to the derecognition of some of the deferred tax asset on UK losses previously recognised.

2 Segmental analysis continued

Reconciliation to the balance sheet

	2020 £m	2019 £m
Reportable segment assets	22,564	25,921
Interests in joint ventures and associates	394	402
Non-core businesses	7	359
Assets held for sale	288	18
Cash and cash equivalents and short-term investments	3,452	4,440
Fair value of swaps hedging fixed rate borrowings	293	249
Deferred and income tax assets	1,943	1,926
Post-retirement scheme surpluses	907	1,170
Total assets	29,848	34,485
Reportable segment liabilities	(24,532)	(27,321)
Non-core businesses	(5)	(404)
Liabilities associated with assets held for sale	(228)	(15)
Borrowings and lease liabilities	(7,330)	(5,685)
Fair value of swaps hedging fixed rate borrowings	(42)	(6)
Deferred and income tax liabilities	(648)	(790)
Post-retirement scheme deficits	(1,580)	(1,378)
Total liabilities	(34,365)	(35,599)
Net liabilities	(4,517)	(1,114)

The carrying amounts of the Group's non-current assets including investments but excluding financial instruments, deferred tax assets and post-employment benefit surpluses, by the geographical area in which the assets are located, are as follows:

	2020 £m	2019 £m
United Kingdom	5,823	6,446
Germany	2,269	2,568
United States	1,267	1,506
Spain	1,380	1,324
Other	739	826
	11,478	12,670

3 Research and development

	2020 £m	2019 £m
Gross research and development costs	(1,252)	(1,459)
Contributions and fees ¹	353	341
Expenditure in the year	(899)	(1,118)
Capitalised as intangible assets	232	481
Amortisation and impairment of capitalised costs ²	(587)	(133)
Net cost recognised in the income statement	(1,254)	(770)
Underlying adjustments relating to effects of acquisition accounting, impairment and foreign exchange ³	519	74
Net underlying cost recognised in the income statement	(735)	(696)

¹ Includes funding from local governments.

² See note 8 for analysis of amortisation and impairment.

³ During the year, impairment of research and development of £481m was recorded. Of this, £1m was charged to underlying results and £480m was charged as exceptional. See note 2 and note 8 for more information.

4 Net financing

	2020		2019	
	Per consolidated income statement £m	Underlying financing ¹ £m	Per consolidated income statement £m	Underlying financing ¹ £m
Interest receivable	22	22	31	31
Net fair value gains on non-hedge accounted interest rate swaps ²	–	–	14	–
Financial RRSAs - foreign exchange differences and changes in forecast payments	17	–	11	–
Net fair value gains on commodity contracts	–	–	36	–
Financing on post-retirement scheme surpluses	28	–	60	–
Net foreign exchange gains	–	–	100	–
Financing income	67	22	252	31
Interest payable	(180)	(175)	(182)	(163)
Net fair value losses on foreign currency contracts	(23)	–	(43)	–
Net fair value losses on non-hedge accounted interest rate swaps ²	(75)	–	–	–
Unrealised net losses on closing future over-hedged position ³	–	(1,503)	–	–
Realised net losses on closing over-hedge position ^{3,4}	–	(202)	–	–
Financial RRSAs - foreign exchange differences and changes in forecast payments	(20)	–	(10)	–
Financial charge relating to financial RRSAs	(3)	(3)	(3)	(3)
Net fair value losses on commodity contracts	(62)	–	–	–
Financing on post-retirement scheme deficits	(29)	–	(37)	–
Net foreign exchange losses	(324)	–	–	–
Other financing charges	(166)	(125)	(39)	(90)
Financing costs	(882)	(2,008)	(314)	(256)
Net financing costs	(815)	(1,986)	(62)	(225)
Analysed as:				
Net interest payable	(158)	(153)	(151)	(132)
Net fair value (losses)/gains on derivative contracts	(160)	(1,705)	7	–
Net post-retirement scheme financing	(1)	–	23	–
Net foreign exchange (losses)/gains	(324)	–	–	–
Net other financing	(172)	(128)	59	(93)
Net financing costs	(815)	(1,986)	(62)	(225)

¹ See note 2 for definition of underlying results.

² The consolidated income statement shows the net fair value gain/(loss) on any interest rate swaps not designated into hedging relationships for accounting purposes. Underlying financing reclassifies the interest payable (2019: receivable) on these interest rates swaps from fair value movement to interest payable.

³ In response to the deterioration in the medium-term outlook caused by COVID-19 and the related reduction in anticipated net US Dollar cash inflows, the Group took action during the year to reduce the size of the US Dollar hedge book by \$11bn by transacting offsetting foreign exchange contracts across 2020-2026. A further \$0.8bn of hedges have also been closed out in early 2021. An underlying charge of £1,689m relating to the total \$11.8bn reduction in the size of the US Dollar hedge book is included within underlying financing costs. These costs are already recognised in the reported results as fair value losses on foreign currency contacts.

⁴ In 2020, the Group incurred a cash outflow of £186m as a result of closing out an over-hedged position of \$1,211m and a cash outflow of £16m to settle an over-hedged jet fuel position. The realised loss of £202m is included in underlying financing costs.

In response to the deterioration in the medium-term outlook caused by COVID-19 and the related reduction in anticipated net US Dollar cash inflows, the Group took action during the year to reduce the size of the US Dollar hedge book by \$11bn by transacting offsetting foreign exchange contracts across 2020-2026. A further \$0.8bn of hedges have also been closed out in early 2021. An underlying charge of £1,689m relating to the total \$11.8bn reduction in the size of the US Dollar hedge book is included within underlying financing costs. These costs are already recognised in the reported results as fair value losses on foreign currency contacts. The cash settlement costs of the £1,689m will occur over the period 2020-2026, including £186m of cash costs incurred in 2020. The Group estimates that future cash outflows of £460m will occur in 2021, £327m in 2022, and £716m spread over 2023 to 2026. Subsequent to year-end, the Group took action to align the contractual settlement of derivatives in future periods with the forecast of net US Dollar cash inflows by extending \$2bn of £/US Dollar hedging contracts from 2024-26 into 2027.

After taking into account the actions described above, the Group is forecast to be 100% hedged from 2021 to 2026 and approximately 90% hedged in 2027, based on Board approved forecasts. In the severe but plausible downside scenario forecast, the Group has modelled a further reduction in net US\$ cash inflows. This would lead to an additional charge to underlying finance costs of £222m, with the associated cash cost unwinding across 2021-2027.

5 Taxation

	UK		Overseas		Total	
	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m
Current tax charge for the year	12	15	167	228	179	243
Adjustments in respect of prior years	–	(4)	(27)	(3)	(27)	(7)
Current tax	12	11	140	225	152	236
Deferred tax charge/(credit) for the year	177	137	(373)	(24)	(196)	113
Adjustments in respect of prior years	(12)	20	42	(15)	30	5
Derecognition of deferred tax	433	86	–	–	433	86
Deferred tax credit resulting from increase in UK tax rate	(160)	–	–	–	(160)	–
Deferred tax	438	243	(331)	(39)	107	204
Charged/(credited) in the income statement	450	254	(191)	186	259	440

Other tax credits/(charges)

	OCI		Equity	
	Items that will not be reclassified		Items that may be reclassified	
	2020 £m	2019 £m	2020 £m	2019 £m
Deferred tax:				
Movement in post-retirement schemes	195	324	–	–
Share-based payments – direct to equity	–	–	–	5
Cash flow hedge	–	–	(4)	(5)
Net investment hedge	–	–	2	(1)
Other tax credits/(charges)	195	324	(2)	(6)
5	1			

Tax reconciliation

	2020 £m	2019 £m
Loss before taxation	(2,910)	(775)
Less share of results of joint ventures and associates (note 12)	(133)	(141)
Loss before taxation excluding joint ventures and associates	(3,043)	(916)
Nominal tax credit at UK corporation tax rate 19% (2019: 19%)	(578)	(174)
UK tax rate differential ¹	33	54
Overseas rate differences ²	(67)	57
Impairments	21	1
Exempt gain on the disposal of Commercial Marine	–	(20)
R&D credits	(22)	(34)
Other permanent differences	10	9
Benefit to deferred tax from previously unrecognised tax losses and temporary differences	(2)	–
Tax losses in year not recognised in deferred tax ³	588	463
Derecognition of deferred tax ⁴	433	86
Adjustments in respect of prior years	3	(2)
Increase in closing deferred taxes resulting from a change in the UK tax rate ⁵	(160)	–
	259	440
Underlying items (note 2)	39	277
Non-underlying items	220	163
	259	440

¹ The UK tax rate differential arises on the difference between the deferred tax rate and the UK statutory tax rate.

² Overseas rate differences mainly relate to tax on profits or losses in countries such as the US and Germany which have higher tax rates than the UK. In 2020 the impact is negative because of the loss in Germany relating to the impairment of the Business Aviation programme intangible assets.

³ Tax losses not recognised mainly relate to the UK - see page 75.

⁴ Derecognition of deferred tax assets relating to foreign exchange and commodity financial assets and liabilities and UK losses.- see page 75.

⁵ UK deferred tax was previously measured at 17%. The Spring Budget 2020 announced that the UK corporate tax rate would remain at 19% rather than reducing to 17%. The UK deferred tax balances have therefore been re-measured at 19%.

5 Taxation continued

Deferred taxation assets and liabilities

	2020 £m	2019 £m
At 1 January	1,269	1,149
Impact of adopting IFRS 16	–	8
Amount charged to income statement	(107)	(204)
Amount credited to other comprehensive income	197	323
Amount charged to cash flow hedge reserve	(4)	(5)
Amount credited to equity	5	1
On disposal/acquisition of businesses ¹	(20)	(3)
Transferred to assets held for sale ²	(4)	(2)
Exchange differences	(4)	2
At 31 December	1,332	1,269
Deferred tax assets	1,826	1,887
Deferred tax liabilities	(494)	(618)
	1,332	1,269

¹ The 2020 deferred tax relates to the acquisition of businesses detailed in note 27. The 2019 deferred tax on disposal of businesses relates to Commercial Marine.

² The 2020 deferred tax transferred to assets held for sale relates to the Bergen Engines AS and Civil Nuclear Instrumentation & Control business. The 2019 deferred tax transferred to assets held for sale relates to the North America Civil Nuclear business.

The analysis of the deferred tax position is as follows:

	At 1 January £m	Recognised in income statement £m	Recognised in OCI £m	Recognised in equity £m	Merger and acquisition related activity £m	Transferred to held for sale £m	Exchange differences £m	At 31 December £m
2020								
Intangible assets	(726)	160	–	–	(20)	–	19	(567)
Property, plant and equipment	(138)	153	–	–	(2)	–	21	34
Other temporary differences	374	48	5	(1)	6	(4)	(85)	343
Net contract liabilities	55	1	–	–	–	–	–	56
Pensions and other post-retirement scheme benefits	(154)	(48)	195	–	–	–	(1)	(8)
Foreign exchange and commodity financial assets and liabilities	425	(251)	(7)	–	(6)	–	26	187
Losses	1,017	(178)	–	6	2	–	3	850
R&D credit	253	8	–	–	–	–	13	274
Advance corporation tax	163	–	–	–	–	–	–	163
	1,269	(107)	193	5	(20)	(4)	(4)	1,332

	At 1 January £m	Impact of adopting IFRS 16 £m	At 1 January £m	Recognised in income statement £m	Recognised in OCI £m	Recognised in equity £m	Merger and acquisition related activity £m	Exchange differences £m	At 31 December £m
2019									
Intangible assets	(620)	–	(620)	(135)	–	–	(2)	31	(726)
Property, plant and equipment	(85)	(74)	(159)	10	–	–	(1)	12	(138)
Other temporary differences	163	82	245	147	(6)	1	2	(15)	374
Net contract liabilities	57	–	57	(2)	–	–	–	–	55
Pensions and other post-retirement scheme benefits	(461)	–	(461)	(1)	324	–	(3)	(13)	(154)
Foreign exchange and commodity financial assets and liabilities	625	–	625	(200)	–	–	–	–	425
Losses	1,030	–	1,030	(11)	–	–	(1)	(1)	1,017
R&D credit	277	–	277	(12)	–	–	–	(12)	253
Advance corporation tax	163	–	163	–	–	–	–	–	163
	1,149	8	1,157	(204)	318	1	(5)	2	1,269

5 Taxation continued

Unrecognised deferred tax assets

	2020 £m	2019 £m
Advance corporation tax	19	19
UK losses	1,181	438
Foreign exchange and commodity financial assets and liabilities	369	86
Losses and other unrecognised deferred tax assets	68	68
Deferred tax not recognised on unused tax losses and other items on the basis that future economic benefit is uncertain	1,637	611

Gross amount and expiry of losses and other deductible temporary differences for which no deferred tax asset has been recognised:

	2020			
	Total gross losses and deductible temporary differences £m	UK losses £m	Foreign exchange and commodity financial assets and liabilities £m	Other deductible temporary differences £m
Expiry within 5 years	26	-	-	26
Expiry within 6 to 30 years	281	-	-	281
No expiry	8,381	6,214	1,940	44
	8,688	6,214	1,940	183

	2019			
	Total gross losses and deductible temporary differences £m	UK losses £m	Foreign exchange and commodity financial assets and liabilities £m	Other deductible temporary differences £m
Expiry within 5 years	-	-	-	-
Expiry within 6 to 30 years	273	-	-	273
No expiry	3,314	2,575	503	234
	3,587	2,575	503	2

In addition to the gross balances shown above, advance corporation tax of £19m (2019: £19m) has not been recognised. Advance corporation tax has no expiry.

Deferred tax assets of £1,826m include £801m (2019: £1,010m) relating to UK tax losses and £163m (2019: £163m) relating to Advance Corporation Tax (ACT). These assets have been recognised based on the expectation that the business will generate taxable profits and tax liabilities in the future against which the losses and ACT can be utilised.

Most of the tax losses relate to the Civil Aerospace widebody business which makes initial losses through the investment period of a programme and then makes a profit through its contracts for services. The programme lifecycles typically range between 30 and 55 years with more of the widebody engine programmes forecast at the upper end of that range. In the past few years there have been four new engines that have entered into service (Trent 1000-TEN, Trent 7000 and Trent XWB-84 and Trent XWB-97).

Deferred tax assets are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised. A recoverability assessment has been undertaken, taking account of deferred tax liabilities against which the reversal can be offset and using latest UK forecasts, which are mainly driven by the Civil Aerospace widebody business, to assess the level of future taxable profits.

The recoverability of deferred tax assets relating to tax losses and ACT has been assessed in 2020 on the following basis:

- Using the most recent UK profit forecasts prepared by management, which are consistent with past experience and external sources on market conditions. These forecasts cover the next five years;
- The long-term forecast profit profile of certain of the major widebody engine programmes which is typically between 30 and 55 years from initial investment to retirement of the fleet, including the aftermarket revenues earned from airline customers; and
- The long-term forecast profit and cost profile of the other parts of the business.

The assessment takes into account UK tax laws that, in broad terms, restrict the offset of the carried forward tax losses to 50% of current year profits.

5 Taxation continued

Based on this assessment, the Group has recognised a deferred tax asset of £801m relating to losses and £163m relating to ACT. This reflects the conclusions that:

- It is probable that the business will generate taxable income and tax liabilities in the future against which these losses and the ACT can be utilised.
- Based on current forecasts and using various scenarios these losses and the ACT will be used in full within the expected widebody engine programme lifecycles.
- The Group has not recognised any deferred tax assets in respect of 2020 UK losses and de-recognised £327m of the deferred tax asset on the balance sheet at 31 December 2019. Of the total charge, £51m is underlying with the balance of £276m non-underlying.
- This is based on management's assumptions relating to the amounts and timing of future taxable profits and takes into account the impact of COVID-19 and climate change on existing widebody engine programmes.

Changes in future profits will impact the recoverability of the deferred tax assets and as explained in note 1, the key assumptions impact contract margins. A 5% change in such margins over the remaining life of the programmes, against which the recovery of the tax losses and ACT is assessed, would result in a variance of around £100m in the related deferred tax balances recorded on the balance sheet, assuming a 19% tax rate and the 50% loss offset restriction mentioned above.

The assessment also considered the potential impact of climate change on profit forecasts, including additional taxes and levies that could arise and changes in consumer behaviour which could result in a reduction in shop visits (driven by EFHs, which are influenced by a number of factors including climate change). A 5% reduction in shop visits over the remaining life of the programmes would result in a variance of around £100m in the related deferred tax balances.

The Group has also reassessed the recovery of other deferred tax assets, including those arising on unrealised losses on derivative contracts.

Any future changes in tax law or the structure of the Group could have a significant effect on the use of losses and ACT, including the period over which they can be used. In view of this and the significant judgement involved the Board continuously reassess this area.

In 2020 a net DTA also arises for the first time in respect of tax losses and other deductible temporary differences arising in Rolls-Royce Deutschland Ltd & Co KG, where the main business is Business Aviation. The total net DTA is £252m which has been recognised in full as it is considered probable that the business will generate taxable income in the future against which these assets can be utilised.

The Spring Budget 2020 announced that the UK corporation tax rate would remain at 19% rather than reducing to 17% from 1 April 2020. The new law was substantively enacted on 17 March 2020. The prior year UK deferred tax assets and liabilities were calculated at 17%, as this was the enacted rate at the 2019 balance sheet date. As the 19% rate has been substantively enacted before 31 December 2020, the UK deferred tax assets and liabilities have been re-measured at 19%.

The resulting credits and charges have been recognised in the income statement except to the extent that they relate to items previously credited or charged to equity. Accordingly, in 2020, £160m has been credited to the income statement and £6m has been credited directly to equity.

The Spring Budget 2021 announced that the UK corporation tax rate will increase to 25% from 1 April 2023. The deferred tax assets and liabilities of UK companies within the Group have been calculated at 19% as this rate has been substantively enacted at the balance sheet date. Had the 25% rate been substantively enacted on or before 31 December 2020 it would have had the effect of increasing the net deferred tax asset by £342m.

The unrecognised deferred tax assets on UK losses, foreign exchange financial assets and liabilities and other deductible temporary differences would increase by £373m, £116m, and £11m respectively if the 25% had been substantively enacted at the balance sheet date.

The temporary differences associated with investments in subsidiaries, joint ventures and associates, for which a deferred tax liability has not been recognised, aggregate to £907m (2019 restated: £770m). No deferred tax liability has been recognised on the potential withholding tax due on the remittance of undistributed profits as the Group is able to control the timing of such remittances and it is probable that consent will not be given in the foreseeable future.

6 Auditors' remuneration

	2020 £m	2019 £m
Fees payable to the Company's auditors and its associates for the audit of the Parent company and consolidated financial statements	4.9	5.3
Fees payable to the Company's auditor and its associates for the audit of the Company's subsidiaries pursuant to legislation	5.3	4.4
Total fees payable for audit services	10.2	9.7
Fees payable to the Company's auditor and its associates for other services:		
Audit related assurance services ¹	1.6	1.0
Other assurance services ²	0.5	0.1
Total fees payable to the Company's auditor and its associates³	12.3	10.8
Fees payable in respect of the Group's pension schemes:		
Audit	0.1	0.1

¹ This relates to the audit of grant claims and includes £1.0m (2019: £0.5m) for the review of the half-year report.

² This includes £0.5m in respect of the bond issuance.

³ Audit fees for overseas entities are reported at the average exchange rate for the year.

7 Employee information

	2020 Number	2019 Number
United Kingdom	22,000	23,300
Germany	9,800	9,800
United States	5,400	6,000
Spain	3,000	3,200
Nordics	700	1,300
Singapore	1,100	1,300
Canada	800	1,000
India	1,000	1,000
Italy	800	900
France	700	700
Rest of world	2,900	3,200
Monthly average number of employees	48,200	51,700
Civil Aerospace	23,300	26,100
Power Systems ¹	8,900	8,700
Defence	10,600	9,900
ITP Aero	3,800	3,900
Corporate ²	100	100
Core businesses	46,700	50,400
Non-core businesses ³	1,500	3,000
Monthly average number of employees	48,200	51,700
	£m	£m
Wages, salaries and benefits	2,568	3,075
Social security costs	433	473
Share-based payments (note 24)	25	29
Pensions and other post-retirement scheme benefits (note 22)	97	356
Group employment costs⁴	3,123	3,933

¹ Power Systems for 2019 has been restated to reflect the 2020 non-core businesses.

² Corporate consists of employees who do not provide a shared service to the business segments. Where corporate functions provide such a service, employees have been allocated to the business segments on an appropriate basis.

³ Non-core businesses are set out in note 2 on page 69. The Employee analysis for 2019 has been restated to reflect the 2020 definition of non-core.

⁴ Remuneration of key management personnel is shown in note 26.

8 Intangible assets

	Goodwill £m	Certification costs £m	Development expenditure £m	Customer relationships £m	Software ⁴ £m	Other £m	Total £m
Cost							
At 1 January 2019	1,087	948	2,883	1,384	964	811	8,077
Additions	–	15	481	–	101	43	640
Acquisitions of businesses	11	–	–	–	4	23	38
Transferred to assets held for sale ¹	(34)	–	(11)	(16)	(3)	(11)	(75)
Disposals	–	–	(8)	(1)	(111)	(19)	(139)
Reclassifications from PPE	–	–	17	–	19	(18)	18
Exchange differences	(40)	(1)	(68)	(64)	(7)	(26)	(206)
At 31 December 2019	1,024	962	3,294	1,303	967	803	8,353
Additions	–	3	232	–	89	40	364
Acquisitions of businesses (see note 27)	57	–	3	41	–	36	137
Transferred to assets held for sale ¹	(3)	–	(33)	–	(12)	(4)	(52)
Disposals	–	(1)	–	–	(93)	(2)	(96)
Reclassifications	4	(4)	(8)	–	10	(6)	(4)
Reclassifications from PPE	–	–	–	–	5	–	5
Exchange differences	30	3	76	59	2	26	196
At 31 December 2020	1,112	963	3,564	1,403	968	893	8,903
Accumulated amortisation and impairment							
At 1 January 2019	42	373	1,111	304	607	345	2,782
Charge for the year ²	–	19	113	72	88	26	318
Impairment	18	–	20	9	7	–	54
Transferred to assets held for sale ¹	(34)	–	(11)	(16)	(3)	(11)	(75)
Disposals	–	–	(7)	(1)	(99)	(19)	(126)
Reclassifications from PPE	–	–	–	–	10	(1)	9
Exchange difference	4	–	(25)	(14)	(5)	(11)	(51)
At 31 December 2019	30	392	1,201	354	605	329	2,911
Charge for the year ²	–	21	106	82	81	33	323
Impairment ³	8	17	481	31	5	37	579
Transferred to assets held for sale ¹	–	–	(20)	–	(12)	(4)	(36)
Disposals	–	(1)	–	–	(75)	(2)	(78)
Reclassifications	–	–	(2)	–	2	–	–
Exchange difference	–	–	37	11	1	10	59
At 31 December 2020	38	429	1,803	478	607	403	3,758
Net book value							
At 31 December 2020	1,074	534	1,761	925	361	490	5,145
At 31 December 2019	994	570	2,093	949	362	474	5,442

¹ Bergen Engines AS and the Civil Nuclear Instrumentation & Control business have been classified as disposal groups held for sale at 31 December 2020. The North America Civil Nuclear business was classified as a disposal group held for sale on 26 September 2019, prior to this an impairment of goodwill of £15m was recognised – see note 27.

² Charged to cost of sales and commercial and administrative costs except development costs, which are charged to research and development costs.

³ As a result of the financial and operational impact of COVID-19 the Group has assessed the carrying value of its intangible assets. Consequently, impairments have been recorded at 31 December 2020. The impairment of development expenditure has arisen as a result of the anticipated reduction in OE volumes and future engine flying hours, and the consequential recoverability of these assets. The impairment charge of £579m includes £12m charged to the income statement through underlying and £567m charged to non-underlying. See note 11 for further details.

⁴ Includes £110m (2019: £129m) of software under course of construction which is not amortised.

Goodwill

In accordance with the requirements of IAS 36 *Impairment of Assets*, goodwill is allocated to the Group's cash-generating units (CGUs), or groups of CGUs, that are expected to benefit from the synergies of the business combination that gave rise to the goodwill as follows:

	Primary reporting segment	2020 £m	2019 £m
Rolls-Royce Power Systems AG ¹	Power Systems	792	718
Rolls-Royce Deutschland Ltd & Co KG	Civil Aerospace	245	234
Other	Various	37	42
		1,074	994

¹ Power Systems CGU contains goodwill of Kinolt Group S.A of £46m which has been tested for impairment separately in 2020 but is expected to be tested within Power Systems in 2021 when the integration activities have been completed.

8 Intangible assets continued

The carrying amount and the residual life of the material intangible assets (excluding goodwill) for the Group is as follows:

	Residual life	Net book value	
		2020 £m	2019 £m
Trent programme intangible assets ¹	7-15 years	1,770	1,720
Business Aviation programme intangible assets ²	15 years	256	587
Customer relationship assets on acquisition of ITP Aero	typically 13-35 years	651	676
Intangible assets from acquisition of Power Systems ³		531	489
		3,208	3,472

¹ Included within the Trent programmes are the Trent 1000, Trent 7000 and Trent XWB.

² Included within Business Aviation are the Pearl 700 and Pearl 15.

³ Includes £115m (2019: £109m) in respect of a brand intangible asset which is not amortised. Remaining assets are amortised over a range of 2-10 years.

The carrying amount of goodwill or intangible assets allocated across multiple CGUs is not significant in comparison with the Group's total carrying amount of goodwill or intangible assets with indefinite useful lives.

At 31 December, the Group had expenditure commitments for software of £34m (2019: £35m). In 2019, committed spend for software was presented in note 9.

9 Property, plant and equipment

	Land and buildings £m	Plant and equipment £m	Aircraft and engines £m	In course of construction £m	Total £m
Cost					
At 1 January 2019	1,904	5,285	762	693	8,644
Additions	27	286	126	328	767
Acquisition of businesses	-	3	-	-	3
Transferred to assets held for sale ¹	(5)	(9)	-	(2)	(16)
Disposal of businesses	(4)	(168)	-	-	(172)
Disposals/write-offs	(54)	(187)	(17)	(4)	(262)
Reclassifications ²	186	390	11	(605)	(18)
Reclassification of joint venture to joint operations	5	3	-	-	8
Exchange differences	(39)	(106)	(6)	(9)	(160)
At 1 January 2020	2,020	5,497	876	401	8,794
Additions	14	145	162	232	553
Acquisition of businesses	9	7	-	1	17
Transferred to assets held for sale ¹	(32)	(77)	-	(9)	(118)
Disposal of businesses	-	(19)	-	-	(19)
Disposals/write-offs	(52)	(264)	(19)	(24)	(359)
Reclassifications ²	25	122	3	(150)	-
Reclassification to intangible assets ²	-	(5)	-	-	(5)
Exchange differences	10	36	3	-	49
At 31 December 2020	1,994	5,442	1,025	451	8,912

9 Property, plant and equipment continued

	Land and buildings £m	Plant and equipment £m	Aircraft and engines £m	In course of construction £m	Total £m
Accumulated depreciation					
At 1 January 2019	572	3,129	204	7	3,912
Charge for the year ³	67	381	43	–	491
Impairment	1	29	–	11	41
Transferred to assets held for sale ¹	(5)	(9)	–	(1)	(15)
Disposal of businesses	–	(165)	–	–	(165)
Disposals/write-offs	(45)	(150)	(5)	(1)	(201)
Reclassifications ²	9	6	(19)	(5)	(9)
Reclassification of joint venture to joint operations	1	3	–	–	4
Exchange differences	(10)	(57)	–	–	(67)
At 1 January 2020	590	3,167	223	11	3,991
Charge for the year ³	71	362	56	–	489
Impairment ⁴	71	137	97	27	332
Transferred to assets held for sale ¹	(29)	(74)	–	(8)	(111)
Disposal of businesses	–	(19)	–	–	(19)
Disposals/write-offs	(33)	(248)	(2)	(13)	(296)
Reclassifications ²	10	(1)	–	(9)	–
Exchange differences	(1)	12	–	–	11
At 31 December 2020	679	3,336	374	8	4,397
Net book value					
At 31 December 2020	1,135	2,106	651	443	4,515
At 31 December 2019	1,430	2,330	653	390	4,803

¹ Bergen Engines AS and the Civil Nuclear Instrumentation & Control business have been classified as disposal groups held for sale at 31 December 2020. In 2019, the North America Civil Nuclear business was classified as a disposal group held for sale on 26 September 2019 – see note 27.

² Includes reclassifications of assets under construction to the relevant classification in property, plant and equipment or intangible assets when available for use.

³ Depreciation charged to cost of sales or included in the cost of inventory as appropriate.

⁴ As a result of the financial and operational impact of COVID-19 the Group has assessed the carrying value of its property, plant and equipment. In addition, following the announcement on 20 May 2020 to reshape and resize the Group due to the financial and operational impact of COVID-19, certain assets have been impaired to their recoverable amount where the Group expects to exit the site. The impairment of £332m includes £14m charged to the income statement through underlying and £318m charged to non-underlying. See note 11 for further details.

Property, plant and equipment includes:

	2020 £m	2019 £m
Assets held for use in operating leases		
Cost	824	720
Depreciation	(277)	(214)
Net book value	547	506
Capital expenditure commitments ¹		
Cost of fully depreciated assets	145	317
	1,853	1,666

¹ Total committed spend in 2019 was £317m comprising £282m for property, plant and equipment and £35m for software. In 2020, expenditure commitment for software has been presented in note 8.

The Group's share of equity accounted entities' capital commitments is £8m (2019: £30m).

10 Right-of-use assets

	Land and buildings £m	Plant and equipment £m	Aircraft and engines £m	Total £m
Cost				
At 1 January 2019	453	106	1,654	2,213
Additions/modifications of leases	70	28	129	227
Transferred to assets held for sale ¹	(4)	–	–	(4)
Disposals	(2)	(4)	(13)	(19)
Exchange differences	(13)	(2)	(3)	(18)
At 31 December 2019	504	128	1,767	2,399
Additions/modifications of leases	(27)	33	129	135
Acquisition of businesses	–	1	–	1
Transferred to assets held for sale ¹	(13)	(3)	–	(16)
Disposals	(18)	(10)	(67)	(95)
Exchange differences	1	1	4	6
At 31 December 2020	447	150	1,833	2,430
Accumulated depreciation and impairment				
At 1 January 2019	–	–	–	–
Charge for the year	58	32	309	399
Impairment	1	1	10	12
Transferred to assets held for sale ¹	(1)	–	–	(1)
Disposals	(2)	(4)	(13)	(19)
Exchange differences	(1)	–	–	(1)
At 31 December 2019	55	29	306	390
Charge for the year	56	35	255	346
Impairment ²	66	9	311	386
Transferred to assets held for sale ¹	(5)	(2)	–	(7)
Disposals	(10)	(10)	(67)	(87)
Exchange differences	(3)	(1)	1	(3)
At 31 December 2020	159	60	806	1,025
Net book value				
At 31 December 2020	288	90	1,027	1,405
At 1 January 2020	449	99	1,461	2,009
Right-of-use assets held for use in operating leases where the Group is the lessor				
Cost	2	1	1,833	1,836
Depreciation	(1)	(1)	(806)	(808)
Net book value at 31 December 2020	1	–	1,027	1,028
Cost	4	2	1,767	1,773
Depreciation	(2)	(1)	(306)	(309)
Net book value at 31 December 2019	2	1	1,461	1,464

¹ Bergen Engines AS and the Civil Nuclear Instrumentation & Control business have been classified as disposal groups held for sale at 31 December 2020. In 2019, the North America Civil Nuclear business was classified as a disposal group held for sale on 26 September 2019 – see note 27.

² The impairment of £386m includes £2m charged to the income statement through underlying and £384m charged to non-underlying and is a result of the impact of COVID-19. See note 11 for further details.

11 Impairment of intangible assets, property, plant and equipment, right-of-use assets and investments

a) Summary

An impairment charge of **£1,321m** (2019: £108m) was recognised in the year. This was due to the impact of COVID-19, other market driven events and adverse foreign exchange movements reducing the recoverable amount of certain assets, as a result of reductions in the estimated OE volumes and aftermarket volumes (e.g. from lower EFHs) within the forecasts of future cash flows of each programme or CGU. These cash flow forecasts are discounted to generate the value in use of the programme intangible assets, lease engines (within property, plant and equipment), right-of-use assets and investments. The recoverable amount of other property, plant and equipment has been measured on a fair value less cost of disposal basis.

The impairment charges recognised in the year are as follows:

	Impairment charge in the year						Discount rate at 31 December 2020 (31 December 2019) ¹ £m
	Goodwill £m	Other intangible assets £m	Property, plant and equipment £m	Right-of-use assets £m	Investments £m	Total ³ £m	
Civil Aerospace – Trent programme assets (where impairment recognised)	–	39	86	311	–	436	– 11.0% (12%)
Civil Aerospace – Business Aviation programme assets (where impairment recognised)	–	437	–	–	–	437	108 11.9% (11%)
Civil Aerospace – Specific assets ²	–	–	219	69	15	303	397 n/a² (n/a)
Power Systems – Specific assets	–	35	7	1	9	52	96 11.7% (n/a)
ITP Aero – Specific assets	–	49	11	–	–	60	229 10.6% (11%)
Other	8	11	9	5	–	33	– Various
Total	8	571	332	386	24	1,321	

¹ Discount rate for 31 December 2019 disclosed where an impairment test was performed.

² The impairment charge for Civil Aerospace specific assets, other than investments (10.5% discount rate), has been calculated on a fair value less cost of disposal basis.

³ The impairment charge of £1,321m includes £28m charged to the income statement through underlying and £1,293m charged to non-underlying.

b) Intangible assets (see note 8)

Goodwill

Goodwill of £1,074m (31 December 2019: £994m) has been tested for impairment during 2020 on the following basis:

- The carrying values of goodwill have been assessed by reference to value in use, estimated using the expected cash flow approach allowable under IAS 36 *Impairment of Assets*. Cash flow forecasts used to derive value in use have been prepared by management using the most recent forecasts, which are consistent with external sources of information on market conditions. These forecasts generally cover the next five years, with cash flows beyond this period based on a growth rate of 2.0% that reflects the products, industries and countries in which the relevant CGU or group of CGUs operate. Whilst these forecasts represent management's best estimate, in addition, the impact on the cash flows of (i) a severe but plausible downside scenario and (ii) various sensitivities have also been considered.
- The key assumptions for the impairment tests are the discount rate and, in the cash flow projections, the programme assumptions, the growth rates and the impact of foreign exchange rates on the relationship between selling prices and costs. Impairment tests are performed using prevailing exchange rates. The principal value in use assumptions for goodwill balances considered to be individually significant are:

Rolls-Royce Power Systems AG

- Trading assumptions (e.g. volume of equipment deliveries, pricing achieved and cost escalation) that are based on current and known future programmes, estimates of market share and long-term economic forecasts;
- Plausible downside scenario included with a 15% weighting;
- Cash flows beyond the five-year forecasts that are assumed to grow at 2.0% (2019: 1.0%); and
- Pre-tax discount rate of 11.7% (2019: 12.0%).

The Directors do not consider that any reasonably possible changes in the key assumptions would cause the value in use of the goodwill to fall below its carrying value.

Rolls-Royce Deutschland Ltd & Co KG

- Trading assumptions (e.g. volume of engine deliveries, flying hours of installed fleet, including assumptions on the recovery of the aerospace industry, and cost escalation) that are based on current and known future programmes, estimates of market share and long-term economic forecasts;
- Plausible downside scenario included with a 25% weighting;
- Cash flows beyond the five-year forecasts that are assumed to grow at 2.0% (2019: 1.0%); and
- Pre-tax discount rate of 11.9% (2019: 12.0%).

The Directors do not consider that any reasonably possible changes in the key assumptions would cause the value in use of the goodwill to fall below its carrying value.

11 Impairment of intangible assets, property, plant and equipment, right-of-use assets and investments continued

Other cash generating units

Goodwill balances across the Group that are not considered to be individually significant were also tested for impairment, resulting in an impairment charge of £8m being recognised at 31 December 2020 (2019: £18m).

Other intangible assets (including programme-related intangible assets)

As a result of the impact of COVID-19 on expected OE and aftermarket volumes and adverse foreign exchange movements, other intangible assets have been reviewed for impairment in accordance with the requirements of IAS 36. Where there is a triggering event, and for indefinite life brand assets, impairment tests have been performed on the following basis:

- The carrying values have been assessed by reference to value in use as this represents the highest value to the Group in terms of the future cash flows that it can generate. Values in use have been estimated using the expected cash flow approach allowable under IAS 36. Cash flow forecast scenarios have been prepared by management using the most recent forecasts, which are consistent with external sources of information on market conditions over the lives of the respective programmes and incorporate management's best estimate of key assumptions utilising a stochastic analysis to allow for variation in the actual outcome where appropriate. A severe but plausible scenario was also modelled and, in order to risk adjust the cash flows, a weighting (25%/15% downside for Civil Aerospace/Power Systems respectively) was taken between the two scenarios based on management judgement.
- These forecasts include contracted business and management's expectation of speculative business over the life of the programme, together with the cash outflows that are necessary to maintain the current level of economic benefit expected to arise from the asset in its current condition.
- The key programme assumptions underlying the cash flow projections are forecast market share and pricing, programme timings, unit cost assumptions, EFHs, number of shop visits, cost of each shop visit, R&D, capital investment, discount rates and foreign exchange rates.
- The pre-tax cash flow projections have been discounted at **9.6%–11.9%** (31 December 2019: 7.0%–15.0%), based on the weighted average cost of capital of the relevant business.

It remains possible that a weaker than expected recovery could result in a deterioration in the future cash flow forecasts that support Civil Aerospace programme intangible assets:

- For intangible assets that have been impaired, a 5% deterioration in EFHs (and hence future cash flows) across the life of the programmes would result in these intangible assets incurring an additional impairment of £50m. An increase in the discount rate of 1% would reduce the recoverable amount of the programme assets (£108m) to nil.
- For intangible assets where there is existing headroom in the impairment test (and thus no impairment) but where deteriorations in key assumptions over the next 12 months could lead to an impairment, any of the following individual changes in assumptions would cause the recoverable amount of the programme assets to equal the carrying value:
 - A reduction in engines sales that are forecast but not contracted by 14%;
 - An increase in costs of 2%; or
 - An increase in discount rates of 1%.

c) Property, plant and equipment (see note 9)

Property, plant and equipment has been reviewed for impairment in accordance with the requirements of IAS 36. Following the announcement on the 20 May 2020 to reshape and resize the Group given the financial and operational impact of COVID-19, a strategic review of the Group's sites has been performed. Where the Group expects to exit a Civil Aerospace site, the carrying value of the land and buildings and related plant and equipment have been impaired to their recoverable amount by reference to their fair value (based on professional advice - Level 3 in the IFRS 13 hierarchy) less cost of disposal. The Group has also reviewed whether plant and equipment and assets under construction relating to these locations can be relocated to other parts of the Group for future use. Where no alternative use has been identified, the carrying value of these assets have been impaired to their recoverable amount by reference to their scrap values. An impairment charge of £219m has been recognised.

Impairment tests were also considered necessary for Civil Aerospace and ITP Aero engines. An impairment charge of £97m was recognised. The impairment tests were performed on the following basis:

- The carrying value of assets have been assessed by reference to their value in use, together with other assets as part of a larger CGU. These have been estimated using the expected cash flow approach allowable under IAS 36 as set out in note 11b above.
- The key assumptions underlying cash flow projections in relation to engines are utilisation of the asset, lease rate, condition of the engine and cost of maintaining, discount rates and foreign exchange rates.
- The pre-tax cash flow projections have been discounted at **10.6%–11.0%** based on the weighted average cost of capital of the relevant business.

Other smaller impairments totalling £16m were also recognised.

d) Right-of-use assets (see note 10)

Right-of-use (RoU) assets have been reviewed for impairment in accordance with the requirements of IAS 36. RoU assets have typically been assessed together with other assets as part of a larger CGU. Other than the items referred to below there have been no impairments of RoU assets.

Impairment tests were considered necessary for lease engines as a result of the impact of COVID-19 on expected future EFHs, operators' fleet plans and the resultant requirement for fewer lease engines to support the aircraft fleets. An impairment charge of £311m was recognised against lease engine RoU assets.

11 Impairment of intangible assets, property, plant and equipment, right-of-use assets and investments continued

Impairment tests were performed on the following basis:

- The carrying values of assets have been assessed by reference to their value in use as set out in note 11b above.
- The key assumptions underlying cash flow projections in relation to the lease engines are utilisation of the asset, lease rate, condition of the engine and cost of maintaining, discount rates and foreign exchange rates.
- The pre-tax cash flow projections have been discounted at **11.0%** based on the weighted average cost of capital of the relevant business.

The Civil Aerospace specific asset impairments in the period of £69m primarily relate to land and buildings and are a consequence of the strategic review of the Group's sites described above. Assets have been written down to reflect the higher of their revised value in use (11.0% discount rate) or fair value less cost of disposal.

Other smaller impairments totalling £6m were also recognised.

e) Investment impairment (see note 12)

As a result of reduced EFHs caused by COVID-19, joint venture investments in Civil Aerospace repair and overhaul facilities were tested for impairment. The value in use was estimated by discounting expected future dividends at 10.5% (cost of equity for the Civil Aerospace business). An impairment of £15m was recognised.

As a result of changes in the local market due to climate regulations impacting the offered product, and the impact of COVID-19 on market demand and the liquidity of the business, a Power Systems joint venture was tested for impairment. The value in use of the investment was estimated using the expected cash flow approach. The pre-tax cash flow projections were discounted at 11.7%. An impairment of £9m was recognised.

12 Investments

Composition of the Group

The entities contributing to the Group's financial results are listed on pages 149 to 155.

Where the Group does not own 100% of the shares of a Group undertaking, there are a number of arrangements with the other shareholder(s) that give the Group the option or potential obligation to acquire the third parties' shares. These arrangements have been assessed and are not considered to have a significant value, individually or in aggregate.

Non-controlling interests

The Group does not have any material non-wholly owned subsidiaries.

	Equity accounted			Other Unlisted £m
	Joint ventures £m	Associates £m	Total £m	
At 1 January 2019	412	–	412	22
Additions	8	–	8	2
Disposals	(4)	–	(4)	(6)
Transfer from joint venture to joint operation	(3)	–	(3)	–
Impairment	–	–	–	(1)
Consolidation of previously non-consolidated subsidiary	–	–	–	(4)
Share of retained profit ¹	12	–	12	–
Reclassification of deferred profit to deferred income ²	4	–	4	–
Exchange differences	(19)	–	(19)	1
Share of OCI	(8)	–	(8)	–
At 1 January 2020	402	–	402	14
Additions ³	19	–	19	5
Disposals ⁴	(6)	–	(6)	–
Impairment ⁵	(24)	–	(24)	–
Share of retained profit ¹	130	1	131	–
Reclassification of deferred profit to deferred income ²	(96)	–	(96)	–
Transfer to subsidiary ⁴	(4)	–	(4)	–
Exchange differences	(23)	–	(23)	–
Share of OCI	(5)	–	(5)	–
At 31 December 2020	393	1	394	19

¹ See table below.

² The Group's share of unrealised profit on sales to joint ventures is eliminated against the carrying value of the investment in the entity. Any excess amount once the carrying value is reduced to nil, is recorded as deferred income.

³ On 18 May 2020, the Group increased its shareholding in Reaction Engines Limited from 2% to 10.1%.

⁴ On 15 January 2020, the Group completed the acquisition of Qinous GmbH (increasing its shareholding from 24% to 100%). On the 6 July 2020, the Group completed the disposal of its 18% shareholding in Exostar LLC. See note 27.

⁵ During the year, the Group recognised an impairment of £24m charged to non-underlying. See note 11.

12 Investments continued

Reconciliation of share of retained profit to the income statement and cash flow statement:

	2020 £m	2019 £m
Share of results of joint ventures and associates	133	141
Adjustments for intercompany trading ¹	58	(37)
Share of results of joint ventures and associates to the Group (income statement)	191	104
Share of results of joint ventures and associates to the Group (cash flow statement)	(60)	(92)
Share of retained profit	131	12

¹ During the year, the Group sold spare engines to Rolls-Royce & Partners Finance, a joint venture company. The Group's share of the profit on these sales is deferred and released to match the depreciation of the engines in the joint venture's financial statements. In 2020, profit deferred on the sale of engines was lower than the release of that deferred in prior years.

The following joint ventures are considered to be individually material to the Group:

	Principal location	Activity	Ownership interest
Alpha Partners Leasing Limited (APL)	UK	Aero-engine leasing	50.0%
Hong Kong Aero Engine Services Limited (HAESL)	Hong Kong	Aero-engine repair and overhaul	50.0%
Singapore Aero Engine Services Pte Limited (SAESL)	Singapore	Aero-engine repair and overhaul	50.0%

Summarised financial information of the Group's individually material joint ventures is as follows:

	APL		HAESL		SAESL	
	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m
Revenue	330	322	1,995	1,907	1,178	1,529
Profit and total comprehensive income for the year	44	107	71	81	32	47
Dividends paid during the year	–	(29)	(62)	(76)	(14)	(42)
Profit for the year including the following:						
Depreciation and amortisation	(165)	(146)	(15)	(15)	(21)	(16)
Interest income	–	4	–	–	–	–
Interest expense	(83)	(89)	(2)	(3)	(5)	(6)
Income tax expense	(35)	(22)	(13)	(16)	(4)	(3)
Current assets	172	119	461	453	256	433
Non-current assets	3,191	3,319	102	113	164	172
Current liabilities	(201)	(230)	(287)	(269)	(156)	(264)
Non-current liabilities	(2,551)	(2,617)	(78)	(103)	(74)	(163)
Net assets	611	591	198	194	190	178
Included in the above:						
Cash and cash equivalents	64	25	29	4	47	14
Current financial liabilities ¹	(143)	(182)	(22)	–	–	–
Non-current financial liabilities ¹	(2,245)	(2,364)	(66)	(89)	(73)	(163)
Reconciliation to the carrying amount recognised in the Consolidated Financial Statements						
Ownership interest	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Group share of net assets above	306	296	99	97	95	89
Goodwill	–	–	34	35	77	94
Adjustments for intercompany trading	(306)	(296)	(3)	(7)	–	(1)
Included in the balance sheet	–	–	130	125	172	182

¹ Excluding trade payables and other liabilities.

12 Investments continued

The summarised aggregated results of the Group's share of equity accounted investments is as follows:

	Individually material joint ventures (above)		Other joint ventures		Associates		Total	
	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m
Assets:								
Non-current assets	1,729	1,802	734	745	–	–	2,463	2,547
Current assets	444	503	514	456	1	–	959	959
Liabilities: ¹								
Current liabilities	(322)	(382)	(303)	(322)	–	–	(625)	(704)
Non-current liabilities	(1,351)	(1,441)	(758)	(703)	–	–	(2,109)	(2,144)
Group adjustment for goodwill	111	129	17	–	–	–	128	129
Adjustment for intercompany trading	(309)	(304)	(113)	(81)	–	–	(422)	(385)
	302	307	91	95	1	–	394	402
¹ Liabilities include borrowings of:	(1,263)	(1,399)	(548)	(627)	–	–	(1,811)	(2,026)

13 Inventories

	2020 £m	2019 £m
Raw materials	417	522
Work in progress	1,139	1,652
Finished goods	2,111	2,119
Payments on account	23	27
	3,690	4,320
 Inventories stated at net realisable value		
Amount of inventory write-down	95	69
Reversal of inventory write-down	16	12

14 Trade receivables and other assets

	Current		Non-current		Total	
	2020 £m	2019 ⁴ £m	2020 £m	2019 ⁴ £m	2020 £m	2019 ⁴ £m
Trade receivables ¹	2,479	2,354	–	–	2,479	2,354
Receivables due on RRSAs	603	719	82	150	685	869
Amounts owed by joint ventures and associates ¹	486	197	16	12	502	209
Amounts owed by parent undertaking	331	2,228	–	–	331	2,228
Costs to obtain contracts with customers ²	12	12	50	33	62	45
Other taxation and social security receivable	225	187	6	29	231	216
Other receivables ³	639	766	20	2	659	768
Prepayments	412	356	425	248	837	604
	5,188	6,819	599	474	5,786	7,293

Trade receivables and other assets are analysed as follows:

Financial instruments (note 20):

Trade receivable and similar items	3,915	5,705
Other non-derivative financial assets	740	726
Non-financial instruments	1,131	862

¹ Includes £577m (2019: £267m) of trade receivables held to collect or sell and £361m (2019: £76m) receivables from joint ventures and associates held to collect or sell.

² These are amortised over the term of the related contract, resulting in amortisation of £10m (2019: £8m) in the year. There were no impairment losses recognised in either year.

³ Includes £2m owed by the UK Government at 31 December 2020 for amounts claimed by the Group under furlough arrangements. In addition, other receivables includes receivables arising from overhaul activity outside of LTSA coverage and other sundry receivables.

⁴ During the year the presentation of trade receivables and other assets has been analysed in greater detail, without changing the total amount previously reported. As a consequence some comparative balances and currency movements have been represented in additional and more appropriate line items. Trade receivables have decreased by £184m, costs to obtain contracts with customers have increased by £2m and other receivables have decreased by £903m. Receivables due on RRSAs and other taxation & social security receivable totalling £1,085m are now presented as separate lines. This has also resulted in an associated re-presentation between financial and non-financial assets, with an increase of non-financial instruments of £2m and a decrease in financial instruments of £2m (trade receivables and similar items £91m and other non-derivative financial assets £89m). The total amount of trade receivables and other assets from 2019 remains unchanged.

14 Trade receivables and other assets continued

The Group has historically undertaken the sale of trade receivables, without recourse, to banks (commonly known as invoice discounting or factoring). This activity has previously been used to normalise customer receipts as certain aerospace customers have extended their payment terms. This in turn has helped normalise Group cash flows in line with physical delivery volumes. During the year to 31 December 2020, invoice discounting has substantially reduced. At 31 December 2020, £54m was drawn under factoring facilities, a decrease of £1,063m compared to December 2019, representing cash collected before it was contractually due from the customer. Trade receivables factored are generally due within the following quarter.

The expected credit losses for trade receivables and other assets has increased by £114m to **£252m** (31 December 2019: £138m). This increase is mainly driven by the impact of COVID-19 on the Civil Aerospace business of £97m, of which £46m relates to the deterioration of the market credit ratings of our customers and £51m relates to updates to the recoverability of other receivables.

The assumptions and inputs used for the estimation of the expected credit losses are disclosed in the table below:

	2020			2019		
	Trade receivables and other financial assets	Loss allowance	Range of expected credit loss rate	Trade receivables and other financial assets	Loss allowance	Range of expected credit loss rate
	£m	£m	%	£m	£m	%
Investment grade	1,940	(33)	2%	1,230	(40)	3%
Non-investment grade	149	(7)	5%	271	(2)	1%
Without credit rating	2,816	(212)	8%	2,636	(96)	4%
	4,905	(252)	5%	4,137	(138)	3%

The movements of the Group expected credit losses provision are as follows:

	2020	2019
	£m	£m
At 1 January	(138)	(126)
Increases in loss allowance recognised in the income statement during the year	(119)	(54)
Loss allowance utilised	5	12
Releases of loss allowance previously provided	13	19
Other net movements	(13)	11
At 31 December	(252)	(138)

15 Contract assets and liabilities

	Current		Non-current ¹		Total	
	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m
Contract assets²						
Contract assets with customers	416	404	660	1,092	1,076	1,496
Participation fee contract assets	48	57	386	542	434	599
	464	461	1,046	1,634	1,510	2,095

¹ Contract assets and contract liabilities have been presented on the face of the balance sheet in line with the operating cycle of the business. Contract liabilities is further split according to when the related performance obligation is expected to be satisfied and therefore when revenue is estimated to be recognised in the income statement. Further disclosure of contract assets is provided in the table above, which shows within current the element of consideration that will become unconditional in the next year.

² Contract assets are classified as non-financial instruments.

Contract assets with customers includes **£726m** (2019: £1,086m) of Civil Aerospace LTSA assets, with most of the remainder relating to Defence. The main driver of the decrease in the Group balance is a result of revenue relating to performance obligations satisfied in previous years being adjusted by £599m in Civil Aerospace, primarily as a result of COVID-19 reducing engine flying hours below the levels previously estimated over the term of the contracts with a corresponding reduction in the contract asset.

Participation fee contract assets have reduced by **£(165)m** (2019: reduced by £(55)m) due to the impairment of engine programme participation fees of £(149)m, amortisation exceeding additions by £(36)m and foreign exchange on consolidation of overseas entities of £20m.

The absolute value of expected credit losses for contract assets has increased by £1m to **£14m** (2019: £13m) as a result of the current macro-economic climate and the impact of COVID-19.

No impairment losses of contract assets (2019: none) have arisen during the year to 31 December 2020.

15 Contract assets and liabilities continued

	Current		Non-current		Total	
	2020	2019	2020	2019	2020	2019
	£m	£m	£m	£m	£m	£m
Contract liabilities	4,187	4,228	6,245	6,612	10,432	10,840
Contract assets are analysed as follows:						
Financial instruments (note 20)					186	131
Non-financial instruments					10,246	10,709
					10,432	10,840

During the year £2,792m (2019: £3,491m) of the opening contract liability was recognised as revenue. Contract liabilities have decreased by £408m. The main driver of the change in the Group balance is as a result of a reduction in deposits held, reflecting utilisation of amounts received in previous years as engines and aftermarket services were delivered in 2020. As a result of COVID-19 the level of new deposits received were at lower than normal levels.

The Civil Aerospace LTSA liabilities increased by £58m to **£6,841m** (2019: £6,783m). LTSA revenue recognised as the performance obligations have been completed has exceeded cash receipts in the year due to the lower level of flying hours that drive cash receipts, decreasing the contract liability. This has been offset due to the 54% decrease in current year Civil Aerospace engine flying hours, together with a phased recovery, resulting in revenue relating to performance obligations satisfied in previous years being adjusted downwards by £462m which increases the contract liability.

16 Cash and cash equivalents

	2020	2019
	£m	£m
Cash at bank and in hand	940	816
Money-market funds	669	1,095
Short-term deposits	1,843	2,523
Cash and cash equivalents per the balance sheet	3,452	4,434
Cash and cash equivalents included within assets held for sale	51	-
Cash and cash equivalents per note 20	3,503	4,434
Overdrafts (note 17)	(7)	(8)
Cash and cash equivalents per cash flow statement (page 51)	3,496	4,426

Cash and cash equivalents at 31 December 2020 includes **£143m** (2019: £34m) that is not available for general use by the Group. This balance includes £103m which is held in an account that is exclusively for the general use of Rolls-Royce Submarines Limited. This cash is not available for use by other entities within the Group. The remaining balance relates to cash held in non-wholly owned subsidiaries and joint arrangements.

Balances are presented on a net basis when the Group has both a legal right of offset and the intention to either settle on a net basis or realise the asset and settle the liability simultaneously.

17 Borrowings and lease liabilities

	Current		Non-current		Total	
	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m
Unsecured						
Overdrafts	7	8	–	–	7	8
Bank loans	9	27	10	16	19	43
Commercial paper ¹	300	–	–	–	300	–
2.375% Notes 2020 US\$500m ²	–	378	–	–	–	378
2.125% Notes 2021 €750m ²	680	–	–	655	680	655
0.875% Notes 2024 €550m ³	–	–	511	481	511	481
3.625% Notes 2025 US\$1,000m ³	–	–	800	781	800	781
3.375% Notes 2026 £375m ⁴	–	–	420	410	420	410
4.625% Notes 2026 €750m ⁵	–	–	667	–	667	–
5.75% Notes 2027 US\$1,000m ⁵	–	–	724	–	724	–
5.75% Notes 2027 £545m	–	–	539	–	539	–
1.625% Notes 2028 €550m ³	–	–	545	501	545	501
Other loans	17	22	58	52	75	74
Total unsecured	1,013	435	4,274	2,896	5,287	3,331
Lease liability – Land and buildings	44	50	392	473	436	523
Lease liability – Plant and equipment	30	29	72	78	102	107
Lease liability – Aircraft and engines	185	261	1,320	1,463	1,505	1,724
Total lease liabilities	259	340	1,784	2,014	2,043	2,354
Total borrowings and lease liabilities	1,272	775	6,058	4,910	7,330	5,685

All outstanding items described as notes above are listed on the London Stock Exchange.

¹ On the 27 April 2020, the Group issued Commercial paper of £300m to the Covid Corporate Financing Facility (CCFF), a fund operated by the Bank of England on behalf of HM Treasury. The borrowings are repayable on 17 March 2021 and are held on the balance sheet at amortised cost.

² These notes are the subject of cross-currency interest rate swap agreements under which the Group has undertaken to pay floating rates of GBP interest, which form a fair value hedge.

³ These notes are the subject of cross-currency interest rate swap agreements under which the Group has undertaken to pay floating rates of GBP interest, which form a fair value hedge.

They are also subject to interest rate swap agreements under which the Group has undertaken to pay fixed rates of interest, which are classified as fair value through profit and loss.

⁴ These notes are the subject of interest rate swap agreements under which the Group has undertaken to pay floating rates of interest, which form a fair value hedge. They are also subject to interest rate swap agreements under which the Group has undertaken to pay fixed rates of interest, which are classified as fair value through profit and loss.

⁵ These notes are the subject of cross-currency interest rate swap agreements under which the Group has undertaken to pay fixed rates of GBP interest, which form a cash flow hedge.

During the year, the Group issued \$1,000m, €750m and £545m of bond notes, €750m of which matures in 2026 and \$1,000m and £545m in 2027. The Group also repaid a \$500m bond during the year. The Group issued £300m of commercial paper under the Covid Corporate Finance Facility made available by the Bank of England in response to COVID-19.

The Group also entered into a new £1,000m bank loan maturing in 2022 and new committed £2,000m loan maturing in 2025 (supported by an 80% guarantee from UK Export Finance and available to draw until June 2021). Also during 2020 the Group extended the maturity of the £2,500m committed revolving credit facility from 2024 to 2025. These facilities were undrawn at the year end. None of these facilities are subject to any financial covenant.

18 Leases

Leases as lessee

The net book value of lease right-of-use assets at 31 December 2020 was **£1,405m** (2019: £2,009m), with a lease liability of **£2,043m** (2019: £2,354m), see notes 10 and 17 respectively. Leases that have not yet commenced to which the Group is committed have a future liability of £2m and consist of mainly properties and cars. The consolidated income statement shows the following amounts relating to leases:

	2020 £m	2019 £m
Land and buildings depreciation and impairment ¹	(122)	(59)
Plant and equipment depreciation ²	(44)	(33)
Aircraft and engines depreciation and impairment ³	(566)	(319)
Total depreciation and impairment charge for right-of-use assets	(732)	(411)
Adjustment of amounts payable under residual value guarantees within lease liabilities ^{3, 4}	102	–
Expense relating to short-term leases of 12 months or less recognised as an expense on a straight-line basis ²	(18)	(23)
Expense relating to variable lease payments not included in lease liabilities ^{3, 5}	(1)	(1)
Total operating costs	(649)	(435)
Interest expense ⁶	(74)	(88)
Total lease expense	(723)	(523)
Income from sub-leasing right-of-use assets	97	79
Total amount recognised in income statement	(626)	(444)

¹ Included in cost of sales and commercial and administration costs depending on the nature and use of the right-of-use asset.

² Included in cost of sales, commercial and administration costs, or research and development depending on the nature and use of the right-of-use asset.

³ Included in cost of sales.

⁴ Where the cost of meeting residual value guarantees is less than that previously estimated, as costs have been mitigated or liabilities waived by the lessor, the lease liability has been remeasured. Where the value of this remeasurement exceeds the value of the right-of-use asset, the reduction in the lease liability is credited to cost of sales.

⁵ Variable lease payments primarily arise on a small number of contracts where engine lease payments are solely dependent upon utilisation rather than a periodic charge.

⁶ Included in financing costs.

The total cash outflow for leases in 2020 was **£377m** (2019: £383m). Of this £358m related to leases reflected in the lease liability, £18m to short-term leases where lease payments are expensed on a straight-line basis and £1m for variable lease payments where obligations are only due when the right-of-use assets are used. The timing difference between the income statement charge and cash flow relates to costs incurred at the end of leases for residual value guarantees that are recognised within depreciation over the term of the lease, the most significant amounts relate to engine leases.

The Group's leasing activities as a lessee and how they are accounted for

The Group leases aero engines that are used to support customers' aircraft fleets; land and buildings used for production, administration or training purposes; and equipment used in the manufacturing process and to support commercial and administrative activities. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease arrangements do not impose any covenants, but leased assets may not be used as security for borrowing purposes.

Right-of-use assets and lease liabilities arising over the lease term are now initially measured on a present value basis. The lease term represented is the non-cancellable period of the lease together with periods covered by an option to extend the lease where the Group is reasonably certain to extend. Lease liabilities include the net present value of the following lease payments where such flows exist:

- fixed payments less any lease incentive;
- variable lease payments that are based on an index or a rate;
- amounts expected to be payable by the Group under residual value guarantees;
- the exercise price of a purchase option if the Group is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease, if the lease term reflects the Group exercising that option.

Leases for engines typically contain no specific contractual right to renew. Certain land and building leases have renewal options with renewal dates for the most significant property leases evenly spread over 2022-2028 and in 2041. Such judgements on lease terms are made each period end and consider the specific terms of the lease and the operational significance of the site, especially where utilised for manufacturing activities. Lease obligations beyond the renewal dates are included in the lease liability where we are reasonably certain to extend the lease.

Engine leases in the Civil Aerospace business often include clauses that require the engines to be returned to the lessor with specific levels of useable life remaining. The cost of meeting these requirements are included in the estimate of the lease payments set out above. The amount payable is dependent upon the utilisation of the engines over the lease term, whether the engine is restored to the required condition by performing an overhaul at our own cost or through the payment of amounts specified in the contract and any new contractual arrangements arising when the current lease contracts end. Where estimates of payments change, an adjustment is made to the lease liability and the right-of-use asset. Liabilities in USD and other non-functional currencies are reported at the closing spot rates with changes arising from a change in exchange rates reported within financing.

18 Leases continued

On transition to IFRS 16 *Leases* on 1 January 2019, finance leases continued to be recognised at their 2018 closing value and operating leases were measured at the present value of the remaining lease payments discounted using an incremental borrowing rate appropriate to the lease. For new leases, the lease payments are discounted using the interest rate implicit in the lease or if that rate cannot be readily determined, which is generally the case for leases in the Group, the incremental borrowing rate, being the rate required to pay to borrow the funds necessary to obtain an asset of similar value to the right-of-use asset in a similar economic environment with similar terms, security and conditions.

To determine the incremental borrowing rate, the Group uses a build-up approach that starts with the risk-free interest rate which is then adjusted for credit risk to reflect the nature of the borrowing based on empirical evidence of similar external borrowings undertaken by the Group. The rate used reflects the term and currency of the lease.

The Group is exposed to potential future increases or reductions in lease payments where the amount paid is based on an index (such as LIBOR) or rate, which are not included in the lease liability until it takes effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is remeasured and an equivalent adjustment is made to the right-of-use asset except where the change results from a change in floating interest rates when a revised discount rate is used that reflects changes in those rates.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of the lease liability or a revaluation of the liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- restoration costs.

Each right-of-use asset is depreciated over the shorter of its useful life and the lease term on a straight-line basis unless the lease is expected to transfer ownership of the underlying asset to the Group, in which case the asset is depreciated to the end of the useful life of the asset.

Income from sub-leasing right-of-use assets is primarily generated from the use of engines by our Civil Aerospace customers. In a small number of circumstances current excess property capacity is sub-let at market rates.

Leases as lessor

The Group acts as lessor for engines to Civil Aerospace customers when they require engines to support their fleets. Lease agreements with the lessee provide protection over our assets. Usage in excess of specified limits and damage to the engine while on lease are covered by variable lease payment structures. Lessee bankruptcy risk is managed through the Cape Town Convention on International Interests in Mobile Equipment (including a specific protocol relating to aircraft equipment); an international treaty that creates common standards for the registration of lease contracts and establishes various legal remedies for default in financing agreements, including repossession and the effect of particular states' bankruptcy laws. Engines are only leased once we confirm that appropriate insurance documentation is established that covers the engine assets to pre-agreed amounts. All such contracts where we are lessor are operating leases. The Group also leases out a small number of properties, or parts of properties, where there is excess capacity under operating leases.

	2020 £m	2019 £m
Operating lease income – credited within revenue from aftermarket services ^{1,2}	194	127

¹ Includes variable lease payments received of £179m (2019: £97m) that do not depend on an index or a rate.

² Items of property, plant and equipment subject to an operating lease are disclosed in note 9.

Non-cancellable future operating lease rentals (undiscounted) are receivable as follows:

	2020 £m	2019 £m
Within one year	13	13
Between one and two years	12	14
Between two and three years	10	12
Between three and four years	6	8
Between four and five years	6	5
After five years	21	17
	68	69

In a limited number of circumstances the Group sublets property that are treated as a finance lease when the arrangement transfers substantially all the risks and rewards of ownership of the asset. At 31 December 2020, the total undiscounted lease payments receivable is £22m on annual lease income of £3m. The discounted finance lease receivable at 31 December 2020 is £19m (2019: nil). There was no (2019: nil) finance income recognised during the year.

19 Trade payables and other liabilities

	Current		Non-current		Total	
	2020	2019 ³	2020	2019 ³	2020	2019 ³
	£m	£m	£m	£m	£m	£m
Trade payables	1,418	1,906	–	62	1,418	1,968
Payables due on RRSAs	697	1,029	–	–	697	1,029
Amounts owed to parent undertaking	–	10	–	–	–	10
Amounts owed to joint ventures and associates	583	916	–	36	583	952
Customer concessions	1,536	1,463	514	495	2,050	1,958
Warranty credits	173	185	196	218	369	403
Accruals	1,322	1,712	117	89	1,439	1,801
Deferred receipts from RRSA workshare partners	17	17	507	516	524	533
Government grants ¹	16	12	66	71	82	83
Other taxation and social security	127	128	7	–	134	128
Other payables ²	765	1,082	515	584	1,280	1,666
	6,654	8,460	1,922	2,071	8,576	10,531

Trade payables and other liabilities are analysed as follows:

Financial instruments (note 20):

Trade payables and similar items ³	4,128	5,776
Other non-derivative financial liabilities ³	3,021	3,279
Non-financial instruments ³	1,427	1,476
	8,576	10,531

¹ During the year £10m (2019: £12m) of government grants were released to the income statement.

² Other payables includes financial penalties from agreements with investigating bodies, parts purchase obligations, payroll liabilities, HMG levies and deferred consideration for recent acquisitions.

³ During the year the presentation of trade payables and other liabilities has been analysed in greater detail, without changing the total amount previously reported. As a consequence some comparative balances and currency movements have been represented in additional and more appropriate line items. Trade payables have decreased by £332m, amounts owed to joint ventures and associates increased by £118m, accruals have decreased by £39m and other payables have decreased by £3,137. Payables due on RRSAs, customer concession credits and warranty credits totalling £3,390m are now presented as separate lines. This has also resulted in an associated representation between financial and non-financial liabilities, with an increase of financial instruments of £1,655m (trade payables and similar items £83m and other non-derivative financial liabilities £1,788m) and a decrease in non-financial instruments of £1,655m. The total amount of trade payables and other liabilities from 2019 remains unchanged.

Our payment terms with suppliers vary on the products and services being sourced, the competitive global markets we operate in and other commercial aspects of suppliers' relationships. Industry average payment terms vary between 90-120 days. We offer reduced payment terms for smaller suppliers, so that they are paid in 30 days. In line with aerospace industry practice, we offer a supply chain financing (SCF) programme in partnership with banks to enable suppliers who are on our standard 75-day payment terms to receive their payments sooner. The SCF programme is available to suppliers at their discretion and does not change our rights and obligations with suppliers nor the timing of our payment of suppliers. At 31 December 2020 suppliers had drawn £582m under the SCF scheme (2019: £859m).

20 Financial instruments

Carrying values and fair values of financial instruments

	Notes	Basis for determining fair value	Assets			Liabilities		Total
			Fair value through profit or loss £m	Fair value through OCI £m	Amortised cost £m	Fair value through profit or loss £m	Other £m	
2020								
Unlisted non-current asset investments	12	A	19	–	–	–	–	19
Trade receivables and similar items	14	B/C	–	938	2,975	–	–	3,913
Other non-derivative financial assets	14	B	–	–	740	–	–	740
Other assets	D	28	–	–	–	–	–	28
Derivative financial assets ¹	C	766	–	–	–	–	–	766
Short-term investments	B	–	–	–	–	–	–	–
Cash and cash equivalents	16	B	669	–	2,834	–	–	3,503
Borrowings	17	E/F	–	–	–	–	(5,287)	(5,287)
Lease liabilities	18	G	–	–	–	–	(2,043)	(2,043)
Derivative financial liabilities ¹	C	–	–	–	–	(3,472)	–	(3,472)
Financial RRSAs	H	–	–	–	–	–	(81)	(81)
Other liabilities	H	–	–	–	–	–	(73)	(73)
Trade payables and similar items	19	B	–	–	–	–	(4,128)	(4,128)
Other non-derivative financial liabilities	19	B	–	–	–	–	(3,021)	(3,021)
Contract liabilities	15	B	–	–	–	–	(186)	(186)
			1,482	938	6,549	(3,472)	(14,819)	(9,322)
2019								
Unlisted non-current asset investments	12	A	14	–	–	–	–	14
Trade receivables and similar items	14	B/C	–	344	5,361	–	–	5,705
Other non-derivative financial assets	14	B	–	–	726	–	–	726
Other assets	D	28	–	–	–	–	–	28
Derivative financial assets ¹	C	525	–	–	–	–	–	525
Short-term investments	B	–	–	–	6	–	–	6
Cash and cash equivalents	16	B	1,095	–	3,339	–	–	4,434
Borrowings	17	E/F	–	–	–	–	(3,331)	(3,331)
Lease liabilities	18	G	–	–	–	–	(2,354)	(2,354)
Derivative financial liabilities ¹	C	–	–	–	–	(3,374)	–	(3,374)
Financial RRSAs	H	–	–	–	–	–	(110)	(110)
Other liabilities	H	–	–	–	–	–	(72)	(72)
Trade payables and similar items	19	B	–	–	–	–	(5,776)	(5,776)
Other non-derivative financial liabilities ²	19	B	–	–	–	–	(3,279)	(3,279)
Contract liabilities	15	B	–	–	–	–	(131)	(131)
			1,662	344	9,432	(3,374)	(15,053)	(6,989)

¹ In the event of counterparty default relating to derivative financial assets and liabilities, offsetting would apply and financial assets and liabilities held with the same counterparty would net off. If this occurred with every counterparty, total financial assets would be £43m (2019: £13m) and liabilities £2,749m (2019: £2,862m).

² Balances as at 31 December 2019 have been re-presented. See note 14 and 19.

20 Financial instruments continued

Fair values equate to book values for both 2020 and 2019, with the following exceptions:

	Basis for determining fair value	2020		2019	
		Book value £m	Fair value £m	Book value £m	Fair value £m
Borrowings	E	(4,886)	(4,814)	(3,206)	(3,147)
Borrowings	F	(401)	(403)	(125)	(130)
Financial RRSAs	H	(81)	(89)	(110)	(112)

The fair value of a financial instrument is the price at which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arms-length transaction. Fair values have been determined with reference to available market information at the balance sheet date, using the methodologies described below.

- A These primarily comprise unconsolidated companies where fair value approximates to the book value.
- B Fair values are assumed to approximate to cost either due to the short-term maturity of the instruments or because the interest rate of the investments is reset after periods not exceeding six months. Money market funds are valued using level 1 methodology.
- C Fair values of derivative financial assets and liabilities and trade receivables held to collect or sell are estimated by discounting expected future contractual cash flows using prevailing interest rate curves. For commodity derivatives forward commodity prices are used to determine expected future cash flows. Amounts denominated in foreign currencies are valued at the exchange rate prevailing at the balance sheet date. These financial instruments are included on the balance sheet at fair value, derived from observable market prices (Level 2 as defined by IFRS 13 *Fair Value Measurement*).
- D Other assets are included on the balance sheet at fair value, derived from observable market prices or latest forecast (Level 2/Level 3 as defined by IFRS 13). At 31 December 2020, Level 3 assets totalled £15m (2019: £16m).
- E Borrowings are carried at amortised cost. Amounts denominated in foreign currencies are valued at the exchange rate prevailing at the balance sheet date. The fair value of borrowings is estimated using quoted prices. (Level 1 as defined by IFRS 13).
- F Borrowings are carried at amortised cost. Amounts denominated in foreign currencies are valued at the exchange rate prevailing at the balance sheet date. The fair value of borrowings is estimated by discounting contractual future cash flows. (Level 2 as defined by IFRS 13).
- G The fair value of lease liabilities are estimated by discounting future contractual cash flows using either the interest rate implicit in the lease or the Group's incremental cost of borrowing (Level 2 as defined by IFRS 13).
- H The fair value of RRSAs and other liabilities are estimated by discounting expected future cash flows. The contractual cash flows are based on future trading activity, which is estimated based on latest forecasts (Level 3 as defined by IFRS 13).

IFRS 13 defines a three level valuation hierarchy:

Level 1 - quoted prices for similar instruments

Level 2 - directly observable market inputs other than Level 1 inputs

Level 3 - inputs not based on observable market data

Carrying value of other financial assets and liabilities

	Derivatives						
	Foreign exchange contracts £m	Commodity contracts £m	Interest rate contracts ¹ £m	Total derivatives £m	Financial RRSAs	Other	Total £m
					£m	£m	£m
2020							
Non-current assets	396	18	258	672	–	15	687
Current assets	45	7	42	94	–	13	107
Assets	441	25	300	766	–	28	794
Current liabilities	(522)	(17)	(11)	(550)	(5)	(25)	(580)
Non-current liabilities	(2,790)	(19)	(113)	(2,922)	(76)	(48)	(3,046)
Liabilities	(3,312)	(36)	(124)	(3,472)	(81)	(73)	(3,626)
	(2,871)	(11)	176	(2,706)	(81)	(45)	(2,832)
2019							
Non-current assets	234	14	203	451	–	16	467
Current assets	16	9	49	74	–	12	86
Assets	250	23	252	525	–	28	553
Current liabilities	(394)	(5)	–	(399)	(31)	(32)	(462)
Non-current liabilities	(2,960)	(6)	(9)	(2,975)	(79)	(40)	(3,094)
Liabilities	(3,354)	(11)	(9)	(3,374)	(110)	(72)	(3,556)
	(3,104)	12	243	(2,849)	(110)	(44)	(3,003)

¹ Includes the foreign exchange impact of cross-currency interest rate swaps.

20 Financial instruments continued

Derivative financial instruments

The Group uses various financial instruments to manage its exposure to movements in foreign exchange rates. The Group uses commodity swaps to manage its exposure to movements in the price of commodities (jet fuel and base metals). To hedge the currency risk associated with a borrowing denominated in a foreign currency, the Group has currency derivatives designated as part of fair value or cash flow hedges. The Group uses interest rate swaps and forward rate agreements to manage its exposure to movements in interest rates.

Movements in the fair values of derivative financial assets and liabilities were as follows:

	Foreign exchange instruments		Commodity instruments		Interest rate instruments – hedge accounted ²		Interest rate instruments – non-hedge accounted		Total	
	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m
At 1 January	(3,104)	(3,764)	12	(34)	229	292	14	–	(2,849)	(3,506)
Movements in fair value hedges	–	–	–	–	139	(27)	–	–	139	(27)
Movements in cash flow hedges	18	(4)	6	13	(60)	–	–	–	(36)	9
Movements in other derivative contracts ¹	(23)	(43)	(62)	36	–	–	(75)	14	(160)	7
Contracts settled	238	707	33	(3)	(75)	(36)	4	–	200	668
At 31 December	(2,871)	(3,104)	(11)	12	233	229	(57)	14	(2,706)	(2,849)

¹ Included in net financing.

² Includes the foreign exchange impact of cross-currency interest rate swaps.

Financial risk and revenue sharing arrangements (RRSAs) and other financial liabilities

The Group has financial liabilities arising from financial RRSAs. These financial liabilities are valued at each reporting date using the amortised cost method. This involves calculating the present value of the forecast cash flows of the arrangements using the internal rate of return at the inception of the arrangements as the discount rate.

Movements in the carrying values were as follows:

	Financial RRSAs		Other assets		Other liabilities	
	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m
At 1 January as previously reported	(110)	(227)	16	–	(72)	(62)
Reclassification to borrowings ¹	–	79	–	–	–	–
At 1 January restated	(110)	(148)	16	–	(72)	(62)
Exchange adjustments included in OCI	(6)	10	–	–	(2)	1
Additions	–	(4)	–	–	(17)	(37)
Financing charge ²	(3)	(3)	–	–	(13)	(3)
Excluded from underlying profit:						
Changes in forecast payments ²	(3)	1	–	–	–	–
Exchange adjustments ²	–	6	–	–	–	–
Cash paid	39	28	(1)	–	18	29
Other	–	–	–	–	13	–
Reclassification from trade receivables	–	–	–	16	–	–
Reclassification to assets held for sale	2	–	–	–	–	–
At 31 December	(81)	(110)	15	16	(73)	(72)

¹ In 2019, the Group reclassified £79m as borrowings previously included in other financial liabilities.

² Included in financing.

20 Financial instruments continued

Effect of hedging instruments on the financial position and performance

To manage the risk of changes in the fair values of fixed rate borrowings (the hedged items) the Group has entered into fixed-to-floating interest rate swaps (the hedging instruments) which for accounting purposes are designated as fair value hedges. The impact of fair value hedges on the financial position and performance of the Group is as follows:

	Hedged item ¹				Hedging instrument ^{1,2}							Weighted average interest rate £m
	Nominal £m	FV adjustment in the period £m	FV adjustment since inception £m	Carrying amount £m	Nominal £m	Carrying amount asset £m	Carrying amount liability £m	FV movement in the period £m	Hedge ineffectiveness in the period £m	Weighted average FX rate £m		
At 31 December 2020												
Sterling	(375)	(10)	(46)	(420)	375	46	–	10	–	1.00	GBP LIBOR +0.893	
US Dollar	(658)	(18)	(144)	(800)	658	136	–	14	(4)	1.52	GBP LIBOR +1.4658	
Euro	(1,607)	(97)	(131)	(1,735)	1,607	111	–	90	(7)	1.15	GBP LIBOR +0.8301	
At 31 December 2020												
Sterling	(375)	(3)	(36)	(410)	375	36	–	3	–	1.00	GBP LIBOR +0.893	
US Dollar	(987)	(10)	(175)	(1,159)	987	172	–	2	(8)	1.52	GBP LIBOR +1.2575	
Euro	(1,607)	63	(34)	(1,637)	1,607	27	(6)	(69)	(6)	1.15	GBP LIBOR +0.8301	

¹ Hedged items are included in borrowings in the balance sheet.

² Hedging instruments are included in other financial assets or liabilities in the balance sheet.

³ Hedge ineffectiveness is included in net financing in the income statement.

To manage the foreign exchange rate risk in cash flows on fixed rate non-GBP borrowings (the hedged items) the Group has entered into fixed-to-fixed cross-currency interest rate swaps (the hedging instruments) to hedge the cashflows into GBP, which for accounting purposes are designated as cash flow hedges. The impact of cash flow hedges on the financial position and performance of the Group is as follows:

	Hedged item				Hedging instrument ^{1,2}				Cash flow hedge reserve		
	Nominal £m	FV movement in the period £m	Nominal £m	Carrying amount liability £m	FV movement in the period £m	Hedge ineffectiveness in the period £m	Weighted average FX rate £m	Weighted average interest rate £m	Amount recognised in OCI £m	Recycled to net financing £m	Closing cash flow hedge reserve £m
At 31 December 2020											
US Dollar	(772)	55	772	(55)	(55)	–	1.29	5.3263	55	(39)	16
Euro	(677)	5	677	(5)	(5)	–	1.11	5.4463	5	(3)	2

¹ Hedging instruments are included in other financial assets or liabilities in the balance sheet.

² No ineffectiveness during the period.

The Group has adopted the 'Amendments to IFRS 9, IAS 39 and IFRS 7 Interest Rate Benchmark Reform' issued in September 2019. In calculating the change in fair value attributable to the hedged risk for the fixed-rate borrowings, the Group has made the following assumptions that reflect its current expectations:

- the Group has assumed that pre-existing fallback provisions in the borrowings do not apply to IBOR reform;
- borrowings move to a risk-free rate during 2022, and the spread will be similar to the spread included in the interest rate swaps used as hedging instruments; and
- no other changes to the terms of the hedged borrowings are anticipated.

Risk management policies and hedging activities

The principal financial risks to which the Group is exposed are: foreign currency exchange rate risk; liquidity risk; credit risk; interest rate risk; and commodity price risk. The Board has approved policies for the management of these risks.

Foreign currency exchange rate risk - The Group has significant cash flows (most significantly US dollars, followed by the euro) denominated in currencies other than the functional currency of the relevant trading entity. To manage its exposures to changes in values of future foreign currency cash flows, so as to maintain relatively stable long-term foreign exchange rates on settled transactions, the Group enters into derivative forward foreign currency transactions.

20 Financial instruments *continued*

The Group economically hedges its GBP/USD exposure by forecasting highly probable net USD receipts up to ten years forward. Hedges are taken out within prescribed maximum and minimum hedge positions set out in the Group FX policy. The maximum and minimum policy bands decline gradually over the ten-year horizon and are calculated as a percentage of forecast net income. A similar policy is operated for the Group's EUR/USD exposure. For accounting purposes, these derivative contracts are not designated in hedging relationships with the exception of those taken out by the Group's Spanish subsidiary, ITP Aero, where they are designated in cash flow hedges. ITP Aero is exposed predominantly to net USD receipts that it hedges against EUR using foreign exchange forward contracts.

The Group also has exposures to cash flows on EUR and USD denominated fixed rate borrowings. To manage its exposures to changes in values of future foreign currency cash flows, the Group has entered into fixed-to-fixed cross-currency interest rate swaps which for accounting purposes are designated as cash flow hedges. The swaps have similar critical terms to the hedged items, such as the initial exchange amounts, payment dates and maturities. Therefore there is an economic relationship and the hedge ratio is established as 1:1. Possible sources of ineffectiveness in the cash flow hedge relationship are changes in the credit risk of either party to the interest rate swap. Another possible source of ineffectiveness would be if the notional of the borrowings is less than the notional of the derivative, for example in the event of a partial repayment of hedged debt prior to its maturity.

The Group regards its interests in overseas subsidiary companies as long-term investments. The Group aims to match its translational exposures by matching the currencies of assets and liabilities.

Liquidity risk - The Group's policy is to hold financial investments and maintain undrawn committed facilities at a level sufficient to ensure that the Group has available funds to meet its medium-term capital and funding obligations and to meet any unforeseen obligations and opportunities. The Group holds cash and short-term investments, which together with the undrawn committed facilities, enable the Group to manage its liquidity risk.

Credit risk - The Group is exposed to credit risk to the extent of non-payment by either its customers or the counterparties of its financial instruments. The effective monitoring and controlling of credit risk is a key component of the Group's risk management activities. The Group has credit policies covering both trading and financial exposures. Credit risks arising from treasury activities are managed by a central treasury function in accordance with the Group credit policy. The objective of the policy is to diversify and minimise the Group's exposure to credit risk from its treasury activities by ensuring the Group transacts strictly with 'BBB' or higher rated financial institutions based on pre-established limits per financial institution. At the balance sheet date, there were no significant concentrations of credit risk to individual customers or counterparties. The Group's revenue is generated from customers located across multiple geographical locations (see note 2), these customers are typically airframers and airline operators relating to Civil Aerospace; government defence departments for the UK and US; multiple smaller entities for Power Systems; and aero engine manufacturers for ITP Aero. Whilst there are a limited number of customers related to Civil Aerospace and Defence, they are spread across various geographical locations. The maximum exposure to credit risk at the balance sheet date is represented by the carrying value of each financial asset, including derivative financial instruments.

Interest rate risk - The Group's interest rate risk is primarily in relation to its fixed rate borrowings (fair value risk), floating rate borrowings and cash and cash equivalents (cash flow risk). Interest rate derivatives are used to manage the overall interest rate profile of the Group.

The fixed or floating rate interest rate decision on long-term borrowings is determined for each new agreement at the point it is entered into. The aggregate interest rate position of the Group is reviewed regularly and can be revised at any time in order to react to changes in market conditions or circumstances.

The Group also has exposures to the fair values of non-derivative financial instruments such as USD, EUR and GBP and fixed rate borrowings. To manage the risk of changes in these fair values, the Group has entered into fixed-to-floating interest rate swaps and cross-currency interest rate swaps which for accounting purposes are designated as fair value hedges. The swaps have similar critical terms to the hedged items, such as the reference rate, reset dates, notional amounts, payment dates and maturities. Therefore, there is an economic relationship and the hedge ratio is established as 1:1. Possible sources of ineffectiveness in the fair value hedge relationship are changes in the credit risk of either party to the interest rate swap and, for cross-currency interest rate swaps, the cross-currency basis risk as this risk is present in the hedging instrument only. Another possible source of ineffectiveness would be if the notional of the borrowings is less than the notional of the derivative, for example in the event of a partial repayment of hedged debt prior to its maturity.

The Group has exposure to changes in cash flows due to changes in interest rates. To manage this risk the Group has entered into floating-to-fixed interest rate swaps to hedge a proportion of its floating rate exposure to fixed rates. The swaps have similar critical terms to the floating leg of swaps that form part of the fair value hedges, such as the reference rate, reset dates, notional amounts, payment dates and maturities. For accounting purposes, these derivative contracts are generally not designated as hedging instruments.

The Group's subsidiary, ITP Aero, has also entered into a floating-to-fixed interest rate swap to hedge the cash flow risk on a floating rate borrowing which for accounting purposes is designated as a cash flow hedge.

Commodity risk - The Group has exposures to the price of jet fuel and base metals arising from business operations. To minimise its cash flow exposures to changes in commodity prices, the Group enters into derivative commodity transactions. The commodity hedging policy is similar to the Group FX policy, in that the Group forecasts highly probable exposures to commodities, and takes out hedges within prescribed maximum and minimum levels as set out in the policy. The maximum and minimum policy bands decline gradually over time.

For accounting purposes, these derivative contracts are generally not designated in hedging relationships.

Other price risk - The Group's cash equivalent balances represent investments in money-market instruments, with a term of up to three months. The Group does not consider that these are subject to significant price risk.

20 Financial instruments continued

The nominal amounts, analysed by year of expected maturity, and fair values of derivative financial instruments are as follows:

	Expected maturity					Fair value	
	Nominal amount £m	Within one year £m	Between one and two years £m	Between two and five years £m	After five years £m	Assets £m	Liabilities £m
At 31 December 2020							
Foreign exchange contracts:							
Cash flow hedges	544	206	187	151	-	30	(4)
Non-hedge accounted	35,715	6,172	6,495	17,956	5,092	411	(3,308)
Interest rate contracts:							
Fair value hedges	2,640	639	-	1,142	859	293	-
Cash flow hedges	1,461	4	4	4	1,449	-	(60)
Non-hedge accounted	2,001	-	-	1,142	859	7	(64)
Commodity contracts:							
Cash flow hedges	41	6	7	19	9	12	-
Non-hedge accounted	217	97	77	43	-	13	(36)
	42,619	7,124	6,770	20,457	8,268	766	(3,472)
At 31 December 2019							
Foreign exchange contracts:							
Cash flow hedges	646	266	206	174	-	13	(17)
Non-hedge accounted	29,878	5,151	4,704	13,300	6,723	237	(3,337)
Interest rate contracts:							
Fair value hedges	2,969	329	639	484	1,517	235	(6)
Cash flow hedges	15	4	4	7	-	-	-
Non-hedge accounted	2,001	-	-	484	1,517	17	(3)
Commodity contracts:							
Cash flow hedges	54	11	9	21	13	8	(1)
Non-hedge accounted	342	125	101	116	-	15	(10)
	35,905	5,886	5,663	14,586	9,770	525	(3,374)

As described above, all derivative financial instruments are entered into for risk management purposes, although these may not be designated into hedging relationships for accounting purposes.

Currency analysis

Foreign exchange contracts are denominated in the following currencies:

	Nominal amount of currencies purchased forward				Total £m	
	Sterling £m	US dollar £m	Euro £m	Other £m		
At 31 December 2020						
Currencies sold forward:						
Sterling ¹	-	7,132	-	226	7,358	
US dollar	23,857	-	3,910	486	28,253	
Euro	5	306	-	161	472	
Other	10	116	47	3	176	
At 31 December 2019						
Currencies sold forward:						
Sterling	-	4	-	221	225	
US dollar	24,411	-	4,468	581	29,460	
Euro	21	297	-	264	582	
Other	8	91	152	6	257	

¹ The amount of USD purchased forward has increased at 31 December 2020 due to offsetting foreign exchange contracts taken out to reduce the size of the USD hedge book. See note 4.

The nominal value of interest rate and commodity contracts are denominated in the following currencies:

	2020 £m	2019 £m
Sterling	2,376	2,376
US dollar	1,676	1,370
Euro	2,308	1,635

20 Financial instruments continued

Non-derivative financial instruments are denominated in the following currencies:

	Sterling £m	US dollar £m	Euro £m	Other £m	Total £m
At 31 December 2020					
Unlisted non-current investments	1	15	3	–	19
Trade receivables and similar items	483	2,933	440	57	3,913
Other non-derivative financial assets	80	599	44	17	740
Other assets	–	28	–	–	28
Short-term investments	–	–	–	–	–
Cash and cash equivalents	1,439	560	1,416	88	3,503
Assets	2,003	4,135	1,903	162	8,203
Borrowings	(1,266)	(1,526)	(2,494)	(1)	(5,287)
Lease liabilities	(211)	(1,559)	(67)	(206)	(2,043)
Financial RRSAs	–	–	(81)	–	(81)
Other liabilities	(16)	(57)	–	–	(73)
Trade payables and similar items	(682)	(2,707)	(554)	(185)	(4,128)
Other non-derivative financial liabilities	(333)	(2,540)	(125)	(23)	(3,021)
Contract liabilities	–	(186)	–	–	(186)
Liabilities	(2,508)	(8,575)	(3,321)	(415)	(14,819)
	(505)	(4,440)	(1,418)	(253)	(6,616)
At 31 December 2019					
Unlisted non-current investments	4	8	2	–	14
Trade receivables and similar items ¹	2,366	2,735	542	62	5,705
Other non-derivative financial assets ¹	33	649	23	21	726
Other assets	–	28	–	–	28
Short-term investments	–	–	6	–	6
Cash and cash equivalents	2,260	853	1,224	97	4,434
Assets	4,663	4,273	1,797	180	10,913
Borrowings	(416)	(1,172)	(1,739)	(4)	(3,331)
Lease liabilities	(225)	(1,784)	(76)	(269)	(2,354)
Financial RRSAs	–	(25)	(85)	–	(110)
Other liabilities	(29)	(43)	–	–	(72)
Trade payables and similar items ¹	(2,018)	(2,955)	(730)	(73)	(5,776)
Other non-derivative financial liabilities ¹	(526)	(2,546)	(136)	(71)	(3,279)
Contract liabilities	–	(131)	–	–	(131)
Liabilities	(3,214)	(8,656)	(2,766)	(417)	(15,053)
	1,449	(4,383)	(969)	(237)	(4,140)

¹ Balances as at 31 December 2019 have been re-presented. See note 14 and 19.

20 Financial instruments continued

Currency exposures

The Group's actual currency exposure on financial instruments after taking account of derivative foreign currency contracts, which are not designated as hedging instruments for accounting purposes are as follows:

Functional currency of Group operations	Sterling £m	US dollar £m	Euro £m	Other £m	Total £m
At 31 December 2020					
Sterling	-	-	-	(4)	(4)
US dollar	(11)	-	(2)	2	(11)
Euro	1	3	-	(17)	(13)
Other	78	9	59	-	146
At 31 December 2019					
Sterling	-	2	2	(4)	-
US dollar	-	-	(1)	-	(1)
Euro	1	(3)	-	(1)	(3)
Other	70	12	69	4	155

Ageing beyond contractual due date of financial assets

	Within terms £m	Up to three months overdue £m	Between three months and one year overdue £m	More than one year overdue £m	Total £m
At 31 December 2020					
Unlisted non-current investments	19	-	-	-	19
Trade receivables and similar items ¹	3,002	467	373	71	3,913
Other non-derivative financial assets	738	1	-	1	740
Other assets	28	-	-	-	28
Derivative financial assets	766	-	-	-	766
Short-term investments	-	-	-	-	-
Cash and cash equivalents	3,503	-	-	-	3,503
	8,056	468	373	72	8,969
At 31 December 2019					
Unlisted non-current investments	14	-	-	-	15
Trade receivables and similar items ²	5,330	210	92	73	5,705
Other non-derivative financial assets ²	722	2	1	1	726
Other assets	28	-	-	-	28
Derivative financial assets	525	-	-	-	525
Short-term investments	6	-	-	-	6
Cash and cash equivalents	4,434	-	-	-	4,434
	11,059	212	93	74	11,438

¹ Ageing on trade receivables and similar items beyond the contractual due date has increased as at 31 December 2020 due to the impact of COVID-19. See note 14.

² Balances as at 31 December 2019 have been re-presented. See note 14 and 19.

20 Financial instruments continued

Contractual maturity analysis of non-derivative financial liabilities

	Gross values				Carrying value £m
	Within one year £m	Between one and two years £m	Between two and five years £m	After five years £m	
At 31 December 2020					
Borrowings	(1,174)	(183)	(1,722)	(3,041)	(5,287)
Lease liabilities	(320)	(373)	(746)	(1,091)	(2,043)
Financial RRSAs	(6)	(5)	(7)	(69)	(81)
Other liabilities	(25)	(8)	(23)	(17)	(73)
Trade payables and similar items	(3,969)	(53)	(23)	(83)	(4,128)
Other non-derivative financial liabilities	(2,260)	(228)	(176)	(357)	(3,021)
Contract liabilities	(186)	—	—	—	(186)
	(7,940)	(850)	(2,697)	(4,658)	(14,819)
At 31 December 2019 ¹					
Borrowings	(511)	(722)	(662)	(1,704)	(3,331)
Lease liabilities	(425)	(306)	(872)	(1,258)	(2,354)
Financial RRSAs	(35)	(7)	(14)	(63)	(110)
Other liabilities	(34)	(23)	(10)	(5)	(72)
Trade payables and similar items	(5,542)	(124)	(20)	(90)	(5,776)
Other non-derivative financial liabilities	(2,465)	(381)	(160)	(273)	(3,279)
Contract liabilities	(131)	—	—	—	(131)
	(9,143)	(1,563)	(1,738)	(3,393)	(15,053)

¹ Balances as at 31 December 2019 have been re-presented. See note 14 and 19.

Expected maturity analysis of derivative financial instruments

	Gross values				Carrying value £m
	Within one year £m	Between one and two years £m	Between two and five years £m	After five years £m	
At 31 December 2020					
Derivative financial assets:					
Cash inflows	2,153	984	6,358	2,777	
Cash outflows	(2,038)	(937)	(6,122)	(2,634)	
Other net cash flows ¹	18	20	35	12	
	133	67	271	155	766
Derivative financial liabilities:					
Cash inflows	5,019	5,810	13,308	4,340	
Cash outflows	(5,557)	(6,398)	(15,189)	(4,993)	
Other net cash flows ¹	(36)	(27)	(40)	(4)	
	(574)	(615)	(1,921)	(657)	(3,472)
At 31 December 2019					
Derivative financial assets:					
Cash inflows	1,475	1,487	2,072	3,202	
Cash outflows	(1,376)	(1,448)	(2,035)	(3,085)	
Other net cash flows ¹	17	12	34	24	
	116	51	71	141	525
Derivative financial liabilities:					
Cash inflows	4,383	4,113	11,987	4,804	
Cash outflows	(4,960)	(4,737)	(13,872)	(6,186)	
Other net cash flows ¹	(5)	(5)	(4)	—	
	(582)	(629)	(1,889)	(1,382)	(3,374)

¹ Derivative financial assets and liabilities settled on a net cash basis.

20 Financial instruments continued

Interest rate risk

In respect of income-earning financial assets and interest-bearing financial liabilities, the following table indicates their effective interest rates. The value shown is the carrying amount, before taking account of swaps.

	2020			2019		
	Fixed rate £m	Floating rate £m	Total £m	Fixed rate £m	Floating rate £m	Total £m
Short-term investments	–	–	–	–	6	6
Cash and cash equivalents including cash held for sale ¹	–	3,503	3,503	–	4,434	4,434
Borrowings	(4,576)	(711)	(5,287)	(2,252)	(1,079)	(3,331)
Lease liabilities	(1,224)	(819)	(2,043)	(1,578)	(776)	(2,354)
	(5,800)	1,973	(3,827)	(3,830)	2,585	(1,245)
Weighted average interest rates						
Borrowings	3.1%	1.3%		1.9%	1.6%	
Lease liabilities ²	3.8%	2.4%		3.6%	3.1%	

¹ Cash and cash equivalents comprises bank balances and term deposits and earn interest based on short-term floating market interest rates.

² Interest rates for lease liabilities are considered to be the discount rates at the balance sheet date.

£15m of the Group's borrowings are subject to the Group meeting certain obligations, including customary financial covenants. If the Group fails to meet its obligations these arrangements give rights to the lenders, upon agreement, to accelerate repayment of the facilities. At 31 December 2020 none of these were in breach (2019: none). There are no rating triggers contained in any of the Group's facilities that could require the Group to accelerate or repay any facility for a given movement in the Group's credit rating.

£166m of the Group's lease liabilities include a customary loan-to-value covenant. The Group has several contractual cures available in the event the stipulated loan-to-value ratio is exceeded. Failure by the Group to satisfy its contractual obligations under the covenant gives rights to the lessor to terminate its lease and claim termination amounts for the outstanding lease balance. At 31 December 2020 the Group had not breached its contractual obligations under the covenant on any lease (2019: none).

Sensitivity Analysis

Sensitivities at 31 December (all other variables held constant) – impact on profit after tax and equity

	2020 £m	2019 £m
Sterling 10% weaker against the US dollar	(1,992)	(2,557)
Sterling 10% stronger against the US dollar	1,642	2,105
Euro 10% weaker against the US dollar	(315)	(376)
Euro 10% stronger against the US dollar	258	307
Sterling 10% weaker against the Euro	(14)	(32)
Sterling 10% stronger against the Euro	12	26
Commodity prices 10% lower	(20)	(32)
Commodity prices 10% higher	20	32
Interest rates 50 basis points lower	(77)	(82)
Interest rates 50 basis points higher	82	85

21 Provisions for liabilities and charges

	At 1 January 2020	Business acquisition	Charged to income statement ¹	Reversed	Transfers to utilised held for sale	Exchange differences	At 31 December 2020
	£m	£m	£m	£m	£m	£m	£m
Trent 1000 exceptional costs	1,382	–	40	(560)	(541)	–	321
Contract losses	773	–	438	(345)	(58)	(4)	808
Restructuring	68	–	411	(38)	(206)	–	1
Warranties and guarantees	345	3	95	(9)	(104)	(14)	327
Customer financing	22	–	–	(5)	–	–	17
Insurance	70	–	10	(12)	(8)	–	60
Tax related interest and penalties	55	–	16	(24)	(15)	–	1
Employer liability claims	49	–	4	(1)	(2)	–	50
Other	40	1	97	(15)	(29)	–	(1)
	2,804	4	1,111	(1,009)	(963)	(18)	1,945
Current liabilities		858					826
Non-current liabilities		1,946					1,119

¹ The charge to the income statement includes £48m as a result of the unwinding of the discounting of provisions previously recognised of which £15m has been charged to underlying and £33m charged to non-underlying.

Trent 1000 exceptional costs

In November 2019, the Group announced the outcome of testing and a thorough technical and financial review of the Trent 1000 TEN programme, following technical issues which were identified in 2019, resulting in a revised timeline and a more conservative estimate of durability for the improved HP turbine blade for the TEN variant. An exceptional charge of £1,361m (at underlying exchange rates) was recorded in 2019, £1,531m at prevailing exchange rates and net of £203m reflecting insurance receipts and contract accounting adjustments. Of the charge, £1,275m was recorded in relation to Trent 1000 exceptional costs, and £459m in relation to contract losses (see below). During the year ended 31 December 2020, and reflecting the impact of COVID-19 and the work we have performed to reduce fleet AOG levels and improve the availability of spare engines, the total estimated Trent 1000 cash costs relating to remediation shop visits and customer disruption reduced the provision by £560m, taking into account the expected underlying exchange rates and a share of the costs borne by the RRSAs the income statement impact was £390m (see note 2). In the year the Group has utilised £541m of the Trent 1000 exceptional costs provision. This represents customer disruption costs settled in cash and credit notes, and remediation shop visit costs. The remaining provision is expected to be utilised over the period 2021 to 2023.

A 12-month delay in the availability of the modified HPT blade could lead to a £60-100m increase in the Trent 1000 exceptional costs provision.

Contract losses

Provisions for contract losses are recorded when the direct costs to fulfil a contract are assessed as being greater than the expected revenue. Provisions for contract losses are expected to be utilised over the term of the customer contracts, typically within 10-15 years.

During 2019, contract losses of £459m (at prevailing exchange rates) were recognised relating to the upfront recognition of future losses on a small number of contracts which became loss making as a result of the margin impact of the updated HP turbine durability expectations on the Trent 1000 TEN. During the year, these Trent 1000 TEN loss-making contracts have improved by £230m (see note 2). For these contracts, a reduction in flying hours resulting from COVID-19 has allowed for a reassessment of shop visits required and the cost savings identified have more than offset the reduction in future revenue leading to an improvement in the overall position of these contracts.

Engine flying hours have reduced as a result of the impact of COVID-19. For certain Civil Aerospace contracts, the impact of this reduction across the contract term has been to significantly reduce revenue without an associated reduction in shop visit costs. Consequently, during the year there have been an increased number of contracts that have become loss-making. A reduction in Civil Aerospace widebody engine flying hours of 15% and the associated decrease in revenue and cost impact could lead to a £10m - £15m increase in the onerous contract provision.

Additional contract losses of £406m have been recognised in the year, together with £36m relating to changes in foreign exchange and the effect of discounting.

Warranties and guarantees

Provisions for warranties and guarantees primarily relate to products sold and generally cover a period of up to three years.

Restructuring

In May 2020, the Group announced a fundamental restructuring programme in response to the financial and operational impact caused by COVID-19. This activity will reshape and resize the Group with an anticipated headcount reduction of at least 9,000. As a consequence of this announcement, and based on the detailed plans communicated during 2020, a provision of £373m (net of reversals) has been recorded and recognised in cost of sales and commercial and administrative costs. During the year, £206m has been utilised as part of these plans. At 31 December 2020, the provision of £236m is expected to be utilised over the period 2021-2022. Included within the exceptional charge of £489m are costs of £116m associated with other initiatives to enable the restructuring charged directly to the income statement.

21 Provisions for liabilities and charges continued

Customer financing

Customer financing provisions have been made to cover guarantees provided for asset value and/or financing where it is probable that a payment will be made.

In addition to the provisions recognised, the Group has contingent liabilities for customer financing arrangements where they payment is not probable as described below.

In connection with the sale of its products the Group will, on some occasions, provide financing support for its customers, generally in respect of civil aircraft. The Group's commitments relating to these financing arrangements are spread over many years, relate to a number of customers and a broad product portfolio and are generally secured on the asset subject to the financing. These include commitments of **\$1.9bn** (2019: \$2.8bn) (on a discounted basis) to provide facilities to enable customers to purchase aircraft (of which approximately \$630m could be called during 2021). These facilities may only be used if the customer is unable to obtain financing elsewhere and are priced at a premium to the market rate. Significant events impacting the international aircraft financing market, including the COVID-19 pandemic, the failure by customers to meet their obligations under such financing agreements, or inadequate provisions for customer financing liabilities may adversely affect the Group's financial position.

Commitments on delivered aircraft in excess of the amounts provided are shown in the table below. These are reported on a discounted basis at the Group's borrowing rate to better reflect the time span over which these exposures could arise. These amounts do not represent values that are expected to crystallise. The commitments are denominated in US Dollars. As the Group does not generally adopt cash flow hedge accounting for future foreign exchange transactions, this amount is reported together with the sterling equivalent at the reporting date spot rate. The values of aircraft providing security are based on advice from a specialist aircraft appraiser.

	2020		2019	
	£m	\$m	£m	\$m
Gross commitments	38	52	60	79
Value of security ¹	(14)	(19)	(9)	(11)
Guarantees	(5)	(6)	(8)	(11)
Net commitments	19	27	43	57
Net commitments with security reduced by 20% ²	22	30	43	57

¹ Security includes unrestricted cash collateral of:

² Although sensitivity calculations are complex, the reduction of the relevant security by 20% illustrates the sensitivity of the contingent liability to changes in this assumption.

Insurance

The Group's captive insurance company retains a portion of the exposures it insures on behalf of the remainder of the Group. Significant delays occur in the notification and settlement of claims and judgement is involved in assessing outstanding liabilities, the ultimate cost and timing of which cannot be known with certainty at the balance sheet date. The insurance provisions are based on information currently available, however it is inherent in the nature of the business that ultimate liabilities may vary. Provisions for outstanding claims are established to cover the outstanding expected liability as well as claims incurred but not yet reported.

Tax related interest and penalties

Provisions for tax related interest and penalties relate to uncertain tax positions in some of the jurisdictions in which the Group operates. Utilisation of the provisions will depend on the timing of resolution of the issues with the relevant tax authorities.

Employer liability claims

The provision relating to employer healthcare liability claims is as a result of an historical insolvency of the previous provider and is expected to be utilised over the next 30 years.

Other

Other provisions comprise a number of liabilities with varying expected utilisation rates.

22 Pensions and other post-retirement and long-term employee benefits

The Group operates a number of defined benefit and defined contribution schemes:

- The UK defined benefit scheme is funded, with the assets held in a separate trustee administered fund. Employees are entitled to retirement benefits based on either their final or career average salaries and length of service.
- Overseas defined benefit schemes are a mixture of funded and unfunded plans and provide benefits in line with local practice. Additionally in the US, and to a lesser extent in some other countries, the Group's employment practices include the provision of healthcare and life insurance benefits for retired employees. These schemes are unfunded.

The valuations of the defined benefit schemes are based on the results of the most recent funding valuation, where relevant, updated by the scheme actuaries to 31 December 2020. In the UK, although the 31 March 2020 valuation is not yet finalised; the initial results have been used.

Changes to the UK defined benefit scheme

The defined benefit schemes expose the Group to actuarial risks such as longevity, interest rate, inflation and investment risks. In the UK, and in the principal US and Canadian pension schemes, the Group has adopted investment policies to mitigate some of these risks. This involves investing a significant proportion of the schemes' assets in liability driven investment (LDI) portfolios, which hold investments designed to offset interest rate and inflation rate risks. In addition during 2019, the scheme completed a partial buy-in/buy-out of UK pensioner liabilities.

22 Pensions and other post-retirement and long-term employee benefits continued

On 5 June 2019, the Group entered into a partial buy-in with Legal and General Assurance Society Limited covering the benefits of circa 33,000 in-payment pensioners. The buy-in was in anticipation of a buy-out, the final 10% of which concluded on 1 February 2020. Pension assets and liabilities of £422m were derecognised from the Group's balance sheet on this date and this had no impact on the income statement or OCI in the current period. In relation to this transaction, at 31 December 2019, an asset remeasurement net loss estimated at £600m was recognised within the line – 'Actuarial gains/(losses) recognised in OCI'.

A consultation with active managers in the UK scheme was concluded in January 2020. The consultation process agreed certain changes for the relevant manager group which would mitigate future funding cost increases. The changes gave rise to a past service gain of £35m which has been recognised as a non-underlying profit (see note 2).

On the 20 May 2020, the Group announced its intention to reshape and resize the Group due to the financial and operational impact of COVID-19. As part of this restructuring programme, a voluntary severance programme was offered to certain UK employees and pension liabilities were remeasured as at 30 June 2020 to reflect the number of members who were expected to leave the scheme. In addition, the Group agreed with the Trustee of the RRUKPF to offer a new Bridging Pension Option (BPO) to both active members and also those members leaving on severance. This option allows members to take a larger proportion of their pension prior to reaching the state retirement age and a lower amount thereafter. The accounting impact of these changes gave rise to a past service gain of £213m which was been recognised as a non-underlying profit in the period to 30 June 2020 (see note 2). The assumptions for members remaining employed have subsequently been updated to reflect actual experience, resulting in a demographic loss of £80m, which is included in Actuarial gains/(losses) recognised in OCI. In addition, for members leaving on severance, an experience loss of £47m is also included in Actuarial gains/(losses) recognised in OCI.

On the 29 July 2020, the Group announced a consultation with the active members of the UK scheme on a proposal to close the scheme to future accrual on 31 December 2020. Following the conclusion of this consultation, the closure of the scheme was confirmed, which gave rise to a non-underlying past-service credit of £67m. This primarily arises from the breakage of the link between accrued pensions and salaries for non-manager members (this link had already been largely broken for manager members as a result of the January 2020 consultation described below). Following the confirmation of the scheme closure, the Group is in discussions with the employees' representatives and the Trustee regarding possible additional transitional protections that could be granted from the scheme. Based on the progress of the talks up to 31 December 2020, the Group has allowed for some reductions in the change to the obligation recognised at 31 December. The final details are expected to be agreed in 2021 when any differences will be recognised.

Amounts recognised in the income statement

	2020			2019		
	UK schemes £m	Overseas schemes £m	Total £m	UK schemes £m	Overseas schemes £m	Total £m
Defined benefit schemes:						
Current service cost and administrative expenses	153	67	220	164	52	216
Other past service (credit)/cost ¹	(308)	20	(288)	–	6	6
	(155)	87	(68)	164	58	222
Defined contribution schemes	80	84	164	66	91	157
Operating cost	(75)	171	96	230	149	379
Net financing (credit)/charge in respect of defined benefit schemes	(26)	27	1	(59)	36	(23)
Total income statement charge	(101)	198	97	171	185	356

¹ The UK past-service credit of £308m comprises: £213m arising from the restructuring programme and the introduction of the BPO - see above; £67m as a result of the closure of the scheme to future accrual - see above; £35m as a result of the manager consultation - see above; offset by a £7m past-service cost recognised as a result of the 20 November High Court judgement that previous statutory transfer values including guaranteed minimum pensions built up between May 1990 and April 1997 must be equalised between men and women.

The operating cost is charged as follows:

	Defined benefit		Defined contribution		Total	
	2020 £m	2019 £m	2020 £m	2019 £m	2020 £m	2019 £m
Cost of sales	170	158	115	113	285	271
Commercial and administrative costs	(271)	40	26	26	(245)	66
Research and development costs	33	24	23	18	56	42
	(68)	222	164	157	96	379

Pension contributions to UK pension arrangements are generally paid via a salary sacrifice scheme under which employees agree to a reduction in gross contractual pay in return for the Group making additional pension contributions on their behalf. As a result, there is a decrease in wages and salaries and a corresponding increase in pension costs of £46m (2019: £47m) in the year.

22 Pensions and other post-retirement and long-term employee benefits continued

Net financing comprises:

	2020			2019		
	UK schemes	Overseas schemes	Total	UK schemes	Overseas schemes	Total
	£m	£m	£m	£m	£m	£m
Financing on scheme obligations	148	54	202	303	66	369
Financing on scheme assets	(174)	(27)	(201)	(362)	(30)	(392)
Net financing (income)/charge in respect of defined benefit schemes	(26)	27	1	(59)	36	(23)
Financing income on scheme surpluses	(26)	(2)	(28)	(59)	(1)	(60)
Financing cost on scheme deficits	–	29	29	–	37	37

Amounts recognised in OCI in respect of defined benefit schemes

	2020			2019		
	UK schemes	Overseas schemes	Total	UK schemes	Overseas schemes	Total
	£m	£m	£m	£m	£m	£m
Actuarial gains and losses arising from:						
Demographic assumptions ¹	(85)	34	(51)	309	38	347
Financial assumptions ²	(1,387)	(246)	(1,633)	(1,723)	(228)	(1,951)
Experience adjustments ³	(157)	(7)	(164)	79	29	108
Return on scheme assets excluding financing income	1,166	92	1,258	456	106	562
	(463)	(127)	(590)	(879)	(55)	(934)

¹ For the UK Scheme, this includes the change in assumption on the take-up rate for the BPO (see above) and reflects latest available CMI mortality projections and an update of the post-retirement mortality assumptions based on an analysis prepared for the 31 March 2020 funding valuation.

² These arise primarily due to changes in interest rates and inflation.

³ This reflects updated membership data available from the 31 March 2020 funding valuation, actual experience of options selected by members leaving employment under the voluntary severance arrangements (see above) offset by lower than expected pension and deferred pension increases.

Amounts recognised in the balance sheet in respect of defined benefit schemes

	2020			2019		
	UK schemes	Overseas schemes	Total	UK schemes	Overseas schemes	Total
	£m	£m	£m	£m	£m	£m
Present value of funded obligations	(8,879)	(895)	(9,774)	(8,499)	(842)	(9,341)
Fair value of scheme assets	9,762	894	10,656	9,640	845	10,485
Net asset/(liability) on funded schemes	883	(1)	882	1,141	3	1,144
Present value of unfunded obligations	–	(1,568)	(1,568)	–	(1,352)	(1,352)
Net asset/(liability) recognised in the balance sheet	883	(1,569)	(686)	1,141	(1,349)	(208)
Post-retirement scheme surpluses	883	24	907	1,141	29	1,170
Post-retirement scheme deficits	–	(1,580)	(1,580)	–	(1,378)	(1,378)
Included in liabilities associated with assets held for sale	–	(13)	(13)	–	–	–

¹ The surplus in the UK scheme is recognised as on an ultimate wind-up when there are no longer any remaining members, any surplus would be returned to the Group, which has the power to prevent the surplus being used for other purposes in advance of this event.

Overseas schemes are located in the following countries:

	2020			2019		
	Assets	Obligations	Net	Assets	Obligations	Net
	£m	£m	£m	£m	£m	£m
Canada	243	(293)	(50)	227	(275)	(48)
Germany	2	(1,016)	(1,014)	2	(853)	(851)
US pensions schemes	649	(669)	(20)	616	(635)	(19)
US healthcare schemes	–	(469)	(469)	–	(420)	(420)
Other	–	(16)	(16)	–	(11)	(11)
Net asset/(liability) recognised in the balance sheet	894	(2,463)	(1,569)	845	(2,194)	(1,349)

22 Pensions and other post-retirement and long-term employee benefits continued

Defined benefit schemes

Assumptions

Significant actuarial assumptions for UK schemes at the balance sheet date were as follows:

	2020	2019
Discount rate	1.45%	2.15%
Inflation assumption (RPI) ¹	3.10%	3.15%
Rate of increase in salaries ²	2.55%	3.15%
Transfer assumption (active/deferred)	40%/40%	45%/35%
BPO assumption	30%	n/a
Life expectancy from age 65: current male pensioner	21.8 years	21.8 years
future male pensioner currently aged 45	23.2 years	23.1 years
current female pensioner	23.6 years	23.1 years
future female pensioner currently aged 45	25.4 years	25.0 years

¹ This is the assumption for the Retail Price Index. The Consumer Price Index is assumed to be on average 0.55% lower, taking account of the announcement in 2020 that from 2030, RPI will be replaced by CPIH (2019: 1.0% lower).

² Following the closure to future accrual, future salaries do not affect the defined benefit obligation. This assumption (with zero increase in 2021) was made to determine the split between past-service credit arising from the closure included in the income statement and the actuarial gain or loss included in OCI.

Discount rates are determined by reference to the market yields on AA rated corporate bonds. The rate is determined by using the profile of forecast benefit payments to derive a weighted average discount rate from the yield curve.

The mortality assumptions adopted for the UK pension schemes are derived from the SAPS S3 'All' actuarial tables, with future improvements in line with the CMI 2019 core projections updated to reflect use of an 'A' parameter of 0.25% for future improvements and long-term improvements of 1.25%. Where appropriate, these are adjusted to take account of the scheme's actual experience.

The assumption for transfers and the BPO is based on actual experience and actuarial advice. The reduction in the transfer assumption is a result of the introduction of the BPO and assumes that 15% of retiring members opt for the BPO rather than transfer.

Other assumptions have been set on advice from the actuary, having regard to the latest trends in scheme experience and the assumptions used in the most recent funding valuation. The rate of increase of pensions in payment is based on the rules of the scheme, combined with the inflation assumption where the increase is capped.

Assumptions for overseas schemes are less significant and are based on advice from local actuaries. The principal assumptions are:

	2020 £m	2019 £m
Discount rate	1.80%	2.40%
Inflation assumption	1.90%	1.90%
Long-term healthcare cost trend rate	4.73%	4.80%
Male life expectancy from age 65: current pensioner	20.8 years	21.4 years
future pensioner currently aged 45	22.4 years	21.7 years

22 Pensions and other post-retirement and long-term employee benefits continued

Changes in present value of defined benefit obligations

	2020			2019		
	UK schemes £m	Overseas schemes £m	Total £m	UK schemes £m	Overseas schemes £m	Total £m
At 1 January	(8,499)	(2,194)	(10,693)	(10,847)	(2,047)	(12,894)
Exchange adjustments	-	(5)	(5)	-	71	71
Current service cost	(147)	(65)	(212)	(158)	(50)	(208)
Past-service credit	308	(15)	293	-	-	-
Finance cost	(148)	(53)	(201)	(303)	(66)	(369)
Contributions by employees	(2)	(3)	(5)	(2)	(3)	(5)
Benefits paid out	816	100	916	571	79	650
Acquisition of businesses	-	-	-	-	(2)	(2)
Disposal of businesses	-	-	-	-	28	28
Actuarial losses	(1,629)	(225)	(1,854)	(1,335)	(167)	(1,502)
Transfers	-	(3)	(3)	-	(37)	(37)
Settlement	422	-	422	3,575	-	3,575
At 31 December	(8,879)	(2,463)	(11,342)	(8,499)	(2,194)	(10,693)
Funded schemes	(8,879)	(895)	(9,774)	(8,499)	(842)	(9,341)
Unfunded schemes	-	(1,568)	(1,568)	-	(1,352)	(1,352)

The defined benefit obligations are in respect of:

Active plan participants ¹	(4,369)	(1,362)	(5,731)	(4,751)	(1,185)	(5,936)
Deferred plan participants	(2,750)	(197)	(2,947)	(2,154)	(171)	(2,325)
Pensioners	(1,760)	(904)	(2,664)	(1,594)	(838)	(2,432)
Weighted average duration of obligations (years)	23	16	22	23	16	22

¹ Although the UK scheme closed to future accrual on 31 December 2020, members who became deferred as a result of the closure and remain employed by the Group retain some additional benefits compared to other deferred members. The obligations for these members are shown as active plan participants.

Changes in fair value of scheme

	2020			2019		
	UK schemes £m	Overseas schemes £m	Total £m	UK schemes £m	Overseas schemes £m	Total £m
At 1 January	9,640	845	10,485	12,773	735	13,508
Exchange differences	-	(27)	(27)	-	(17)	(17)
Administrative expenses	(6)	(2)	(8)	(6)	(2)	(8)
Financing	174	27	201	362	30	392
Return on plan assets excluding financing	1,166	92	1,258	456	106	562
Contributions by employer	24	56	80	199	67	266
Contributions by employees	2	3	5	2	3	5
Benefits paid out	(816)	(100)	(916)	(571)	(79)	(650)
Acquisition of businesses	-	-	-	-	2	2
Settlement	(422)	-	(422)	(3,575)	-	(3,575)
At 31 December	9,762	894	10,656	9,640	845	10,485
Total return on scheme assets	1,340	119	1,459	818	136	954

22 Pensions and other post-retirement and long-term employee benefits continued

Fair value of scheme assets at 31 December

	2020			2019		
	UK schemes £m	Overseas schemes £m	Total £m	UK schemes £m	Overseas schemes £m	Total £m
Sovereign debt	7,220	276	7,496	5,799	277	6,076
Corporate debt instruments	2,878	521	3,399	3,135	467	3,602
Interest rate swaps	52	–	52	14	–	14
Inflation swaps	(55)	–	(55)	(18)	–	(18)
Cash and similar instruments ¹	(1,156)	10	(1,146)	(784)	13	(771)
Liability driven investment ('LDI') portfolio ²	8,939	807	9,746	8,146	757	8,903
Listed equities	–	71	71	323	76	399
Unlisted equities	64	–	64	95	–	95
Synthetic equities ³	41	12	53	3	5	8
Sovereign debt	–	–	–	–	–	–
Corporate debt	709	–	709	662	4	666
Cash	–	6	6	–	4	4
Partial buy-in insurance policy	–	–	–	408	–	408
Other	9	(2)	7	3	(1)	2
At 31 December	9,762	894	10,656	9,640	845	10,485

¹ Cash and similar instruments include repurchase agreements on UK Government bonds amounting to £(1,539)m (2019: £(1,308)m). The latest maturity date for these short-term borrowings is September 2022.

² A portfolio of gilt and swap contracts, backed by investment-grade credit instruments and LIBOR-generating assets, that is designed to hedge the majority of the interest rate and inflation risks associated with the schemes' obligations.

³ Portfolios of swap contracts designed to provide investment returns in line with global equity markets. The maximum exposure (notional value and accrued returns) on the portfolios was £727m (2019: £328m).

The investment strategy for the UK scheme is controlled by the Trustee in consultation with the Group. The scheme assets do not directly include any of the Group's own financial instruments, nor any property occupied by, or other assets used by, the Group. At 31 December 2020, there was no indirect holding of the Group's financial instruments (2019: £0.1m).

Future contributions

The Group expects to contribute approximately £160m to its defined benefit schemes in 2021 (2020: £170m): UK: £100m, Overseas: £60m (2019: UK: £100m, Overseas: £70m).

In the UK, the funding is based on a statutory triennial funding valuation process. This includes a negotiation between the Group and the Trustee on actuarial assumptions used to value obligations (Technical Provisions) which may differ from those used for accounting set out above. The assumptions used to value Technical Provisions must be prudent rather than a best estimate of the liability. Most notably, the Technical Provision discount rate is currently based upon UK Government yields plus a margin (0.5% at the 31 March 2017 valuation) rather than being based on yields of AA corporate bonds. Following the triennial valuation process, a Schedule of Contributions (SoC) must be agreed which sets out the agreed rate of cash contributions and any contributions from the employer to eliminate a deficit. The most recent valuation, as at 31 March 2017, agreed by the Trustee in December 2017, showed that the UK scheme was estimated to be 112% funded on the Technical Provisions basis. Following the closure of the scheme to future accrual on 31 December 2020, no contributions will be made in respect of future accrual and there are no deficit reduction contributions. The 2021 contributions included above are in respect of 2020 accrual, payment of some of which were deferred in agreement with the Trustee as a result of the COVID-19 pandemic. The current SoC (amended in 2020) includes an arrangement for potential contributions during 2024 to 2027 (capped at £48.3m a year) if the Technical Provisions funding position is below 107% at 31 March 2023. As at 31 December 2020 discussions on the 31 March 2020 triennial valuation were ongoing and the Technical Provisions funding position cannot be estimated until these discussions are concluded in the first half of 2021.

Sensitivities

The calculations of the defined benefit obligations are sensitive to the assumptions set out above. The following table summarises how the estimated impact of a change in a significant assumption would affect the UK defined benefit obligation at 31 December 2020, while holding all other assumptions constant. This sensitivity analysis may not be representative of the actual change in the defined benefit obligation as it is unlikely that the change in assumptions would occur in isolation of one another as some of the assumptions may be correlated.

For the most significant funded schemes, the investment strategies hedge the risks from interest rates and inflation measured on a proxy solvency basis.

For the UK scheme, the interest rate and inflation hedging is currently based on UK Government bond yields without any adjustment for any credit spread. The sensitivity analysis set out below have been determined based on a method that estimates the impact on the defined benefit obligation as a result of reasonable changes in key assumptions occurring at the end of the reporting period.

22 Pensions and other post-retirement and long-term employee benefits continued

		2020 £m	2019 £m
Reduction in the discount rate of 0.25% ¹	Obligation	(530)	(495)
	Plan assets (LDI portfolio)	602	502
Increase in inflation of 0.25% ¹	Obligation	(290)	(290)
	Plan assets (LDI portfolio)	267	235
Real increase in salaries of 0.25%	Obligations	n/a	(80)
Increase of 1% in transfer value assumption	Obligations	(67)	(64)
Increase of 5% of transfers instead of BPO	Obligations	(45)	n/a
One year increase in life expectancy	Obligations	(455)	(408)

¹ The differences between the sensitivities on obligations and plan assets arise largely due to differences in the methods used to value the obligations for accounting purposes and the adopted proxy solvency basis.

23 Share Capital

	Equity	
	Ordinary shares of 20p each	Nominal value £m
Issued and fully paid		
At 1 January 2019	1,668	334
Shares issued in relation to the acquisition of ITP Aero	23	4
At 31 December 2019	1,691	338
At 31 December 2020	1,691	338

Rights, preferences and restrictions

Each member has one vote for each ordinary share held. Holders of ordinary shares are entitled to receive the Company's Annual Report; attend and speak at general meetings of the Company; to appoint one or more proxies or, if they are corporations, corporate representatives; and to exercise voting rights. The ordinary shares are not listed.

24 Share-based payments

Effect of share-based payment transactions on the Company's results

	2020 £m	2019 £m
Total expense recognised for equity-settled share-based payment transactions	27	30
Total credit recognised for cash-settled share-based payment transactions	(2)	–
Share-based payments recognised in the consolidated income statement	25	30
Liability for cash-settled share-based payment transactions	–	1

Movements in the Group's share-based payment plans during the year

	ShareSave	LTIP	APRA	
	Number Millions	Weighted average exercise price Pence ¹	Number Millions	Number Millions
Outstanding at 1 January 2019	26.1	713	13.9	0.4
Granted	16.6	677	5.3	0.2
Forfeited	(5.1)	814	(0.9)	–
Exercised	(5.7)	627	(5.1)	(0.2)
Outstanding at 1 January 2020	31.9	693	13.2	0.4
Granted	–	–	23.0	0.3
Granted as part of rights issue	33.6	239	37.4	0.9
Forfeited	(15.9)	237	(2.8)	–
Exercised	–	–	(3.2)	(0.2)
Outstanding at 31 December 2020	49.6	239	67.6	1.4
Exercisable at 31 December 2020	–	–	–	–
Exercisable at 31 December 2019	–	–	–	–

¹ The weighted average exercise price for share movements during 2020 has been re-based following the rights issue in November 2020.

The weighted average Rolls-Royce Holdings plc share price at the date share options were exercised was **203p** (2019: 311p). The closing price at 31 December 2020 was **111p** (2019: 234p). The number of shares and, where relevant, the exercise prices have been adjusted to reflect the impact of the rights issue of Rolls-Royce Holdings plc which completed on 12 November 2020.

The weighted average remaining contractual life for the cash settled options as at 31 December 2020 was **two years** (2019: one year).

24 Share-based payments continued

Fair values of share-based payment plans

The weighted average fair values per share of equity-settled share-based payment plans granted during the year, estimated at the date of grant are as follows:

	2020	2019
LTIP	388p	851p
LTIP (ELT and Board)	354p	774p
ShareSave – three-year grant	n/a	165p
ShareSave – five-year grant	n/a	176p
APRA	490p	892p

LTIP

The fair value of shares awarded are calculated using a pricing model that takes account of the non-entitlement to dividends (or equivalent) during the vesting period and the market-based performance condition based on expectations about volatility and the correlation of share price returns in the group of FTSE 100 companies and which incorporates into the valuation the interdependency between share price performance and TSR vesting. This adjustment increases the fair value of the award relative to the share price at the date of grant.

ShareSave

The fair value of the options granted under the ShareSave plan is calculated using a binomial pricing model that assumes that participants will exercise their options at the beginning of the six-month window if the share price is greater than the exercise price. Otherwise it assumes that options are held until the expiration of their contractual term. This results in an expected life that falls somewhere between the start and end of the exercise window.

APRA

The fair value of shares awarded under APRA is calculated as the share price on the date of the award, excluding expected dividends (or equivalent).

25 Contingent liabilities

Contingent liabilities in respect of customer financing commitments are described in note 21.

In January 2017, after full cooperation, the Company concluded deferred prosecution agreements (DPA) with the SFO and the US Department of Justice (DoJ) and a leniency agreement with the MPF, the Brazilian federal prosecutors. Following the expiry of its term the DPA with the DoJ was dismissed by the US District Court on 19 May 2020. Certain authorities are investigating members of the Group for matters relating to misconduct in relation to historical matters. The Group is responding appropriately. Action may be taken by further authorities against the Company or individuals. In addition, the Group could still be affected by actions from customers and customers' financiers. The Directors are not currently aware of any matters that are likely to lead to a material financial loss over and above the penalties imposed to date, but cannot anticipate all the possible actions that may be taken or their potential consequences.

Contingent liabilities exist in respect of guarantees provided by the Group in the ordinary course of business for product delivery, commitments made for future service demand in respect of maintenance, repair and overhaul, and performance and reliability. The Group has, in the normal course of business, entered into arrangements in respect of export finance, performance bonds, countertrade obligations and minor miscellaneous items. Various Group undertakings are parties to legal actions and claims which arise in the ordinary course of business, some of which are for substantial amounts. As a consequence of the insolvency of an insurer as previously reported, the Group is no longer fully insured against known and potential claims from employees who worked for certain of the Group's UK based businesses for a period prior to the acquisition of those businesses by the Group. While the outcome of some of these matters cannot precisely be foreseen, the Directors do not expect any of these arrangements, legal actions or claims, after allowing for provisions already made, to result in significant loss to the Group.

The Group's share of equity accounted entities' contingent liabilities is **nil** (2019: nil).

26 Related party transactions

	2020 £m	2019 £m
Sale of goods and services to joint ventures and associates ¹	3,760	3,776
Purchases of goods and services from joint ventures and associates ¹	(4,288)	(3,685)
Lease payments to joint ventures and associates	(226)	(210)
Guarantees of joint arrangements' and associates' borrowings	3	1
Guarantees of non-wholly owned subsidiaries' borrowings	3	3
Dividends received from joint ventures and associates	60	92
Other income received from joint ventures and associates	3	1

¹ Included at the exchange rate achieved on settled derivative contracts, consistent with note 2. At the average exchange rate, sales were **£3,768m** (2019: £4,485m) and purchases were **£4,292m** (2019: £4,442m).

Included in sales of goods and services to joint ventures and associates are sales of spare engines amounting to **£102m** (2019: £277m).

Profit recognised in the year on such sales amounted to **£91m** (2019: £93m), including profit on current year sales and recognition of profit deferred on sales in previous years. On an underlying basis (at actual achieved rates on settled derivative transactions), the amounts were **£90m** (2019: £78m). Cash receipts relating to the sale of spare engines amounted to **£193m** (2019: £414m).

The aggregated balances with joint ventures and the parent company are shown in notes 14 and 19. Transactions with Group pension schemes are shown in note 22.

26 Related party transactions *continued*

In the course of normal operations, related party transactions entered into by the Group have been contracted on an arms-length basis.

Key management personnel are deemed to be the Directors and the members of the Executive Team (described on page 38).

Remuneration for key management personnel is shown below:

	2020 £m	2019 £m
Salaries and short-term benefits	7	9
Post-retirement schemes	-	-
Share-based payments	1	5
	8	14

More detailed information regarding the Directors' remuneration, shareholdings, pension entitlements, share options and other long-term incentive plans is shown in the Directors' Remuneration Report of Rolls-Royce Holdings plc on pages 81 to 100. The charge for share-based payments above is based on when the award is charged to the income statement in accordance with IFRS 2 *Share-Based Payments*, rather than when the shares vest, which is the basis used in the Directors' Remuneration Report.

27 Acquisitions and disposals

Acquisitions

On 15 January 2020, the Group completed the acquisition of Qinous GmbH (increasing its shareholding from 24% to 100%) for a cash consideration of €15m, of which €10m was paid on completion. A further €2m is payable in September 2021 and €3m in September 2023. Under the sale agreement, the cash consideration may be adjusted up by €3m to €18m based on a revenue target being achieved by 31 December 2023. In accordance with IFRS 3 *Business Combinations* the pre-acquisition shareholding of 24% has been re-measured to fair value of €5m and a revaluation gain of €2m has been recognised in the income statement.

On the 7 March 2020, the Group signed an agreement to acquire 100% of the shares of Kinolt Group S.A., a Belgium company which designs and manufactures uninterruptible power supply systems. The transaction was completed on 1 July 2020 for net proceeds of €115m. The acquisition of Kinolt Group S.A. completes the Group's power supply product offering, accelerates its strategy of offering integrated solutions and enables the Group to strengthen its market position in safety critical applications with a leader in dynamic uninterruptible power supply. Provisional fair values are determined on the basis of an assessment performed by an independent professional expert, using measurement techniques and estimation of future cash flows to assess the values of identifiable assets and liabilities at the date of acquisition. The total fair value of acquired identifiable assets and liabilities was €65m, primarily related technology and customer relationships. Goodwill of €50m was recognised on acquisition in relation to workforce, future products, synergies and access to new customers and markets.

On 18 May 2020, the Group entered into an agreement to increase its shareholding in Reaction Engines Ltd from 2.0% to 10.1% for a cash consideration of £20m. The consideration is payable (and the associated shares acquired) in four instalments that will be made between July 2020 – January 2022. Reaction Engines is accounted for as an investment.

On the 7 December 2020, the Group completed the acquisition of Servowatch Systems Limited (SSL) for a cash consideration of £5m. The acquisition will provide key technology within Power Systems for the Naval and Commercial Marine markets. The Group has performed a final assessment to determine the fair values of the identifiable assets and liabilities acquired in accordance with IFRS 3 and has identified intangible assets amounting to £5m and £(4)m of other assets and liabilities. Goodwill of £4m was recognised on acquisition in relation to workforce and synergies.

27 Acquisitions and disposals continued

	Qinous £m	Kinolt £m	Servowatch £m	Total £m
Recognised amounts of identifiable assets acquired and liabilities assumed				
Intangible assets	14	61	5	80
Property, plant and equipment	–	17	–	17
Right-of-use assets	–	1	–	1
Inventory	3	42	1	46
Trade receivables and other assets	1	17	1	19
Cash and cash equivalents	–	11	–	11
Trade and other payables	(5)	(47)	(5)	(57)
Provisions	–	(4)	–	(4)
Borrowings and lease liabilities	–	(24)	–	(24)
Deferred tax	(3)	(16)	(1)	(20)
Total identifiable assets and liabilities	10	58	1	69
Goodwill arising	7	46	4	57
Total consideration	17	104	5	126
Consideration satisfied by:				
Existing shareholding	4	–	–	4
Cash	8	104	5	117
Deferred consideration	5	–	–	5
	17	104	5	126
Net cash outflow arising on acquisition:				
Cash and cash equivalents	8	104	5	117
Less: cash and cash equivalents acquired	–	(11)	–	(11)
	8	93	5	106
Identifiable intangible assets comprise				
Customer relationships	–	37	4	41
Development expenditure	–	2	1	3
Technology assets	14	22	–	36
	14	61	5	80

The gross contractual value of trade receivables acquired was £15m. At the acquisition dates, it was estimated that contractual cash flows of £1m would not be collected.

The acquisitions of Qinous and Kinolt contributed £5m and £50m to revenue respectively and Qinous contributed £(10)m to loss before tax (including amortisation of the acquisition accounting adjustments) for the period between the date of acquisition and the 31 December 2020. If the acquisitions had been completed on 1 January 2020, the contribution to the Group's revenues and loss before tax due to Qinous would have been £5m and £(10)m respectively and due to Kinolt would have been £68m and £(4)m respectively.

Transaction costs of £3m have been expensed during the year relating to the acquisitions of Qinous, Kinolt and Servowatch.

Disposals

On the 31 January 2020, the Group completed the sale of its North America Civil Nuclear (NACN) business to Westinghouse Electric Company LLC. for \$25m. The business was disclosed as a disposal group held for sale at 31 December 2019. In our 2019 financial statements, the Group reported an impairment charge of £25m as a result of the decision to classify NACN as a business held for sale. Upon the disposal of NACN on 31 January 2020, and in accordance with IAS 21 *The Effects of Changes in Foreign Exchange Rates*, the Group have recycled the cumulative currency translation reserve through the income statement in 2020. This has resulted in a cumulative currency translation loss of £7m.

On the 3 February 2020, the Group sold its Knowledge Management Systems (KMS) business to Valsoft Corp. for a cash consideration of \$3m. Upon the disposal of KMS, and in accordance with IAS 21 the Group have recycled the cumulative currency translation reserve through the income statement in 2020. This has resulted in a cumulative currency translation gain of £3m.

On the 7 May 2020, the Group sold Trigno Energy Srl (Trigno) to Pilkington Italia S.p.A for a cash consideration of €6m. Upon the disposal of Trigno, and in accordance with IAS 21 we have recycled the cumulative currency translation reserve through the income statement in 2020. This has resulted in a cumulative currency translation gain of £1m.

On the 17 May 2020, the Group signed an agreement to sell its 18% shareholding in Exostar LLC for an initial cash consideration of \$23m. The transaction was completed on 6 July 2020. Upon the disposal of Exostar, and in accordance with IAS 21 we have recycled the cumulative currency translation reserve through the income statement in 2020. This has resulted in a cumulative currency translation loss of £3m.

27 Acquisitions and disposals continued

	NACN £m	KMS £m	Trigno £m	Total subsidiaries £m	Exostar £m	Total £m
Proceeds						
Cash consideration	19	2	4	25	18	43
Cash and cash equivalents disposed	(9)	(2)	(4)	(15)	–	(15)
Net cash consideration per cash flow statement¹	10	–	–	10	18	28
Less: (assets)/liabilities disposed	(4)	1	(2)	(5)	(6)	(11)
Profit/(loss) on disposal before disposal costs and continuing obligations	6	1	(2)	5	12	17
Cumulative currency translation gain/(loss)	(7)	3	1	(3)	(3)	(6)
Disposal costs	(1)	–	–	(1)	–	(1)
Profit before tax	(2)	4	(1)	1	9	10

¹ Cash consideration has been adjusted by £5m which has been paid during the year.

Disposal completed in prior periods

On 1 June 2018, the Group sold its L'Orange business, part of Rolls-Royce Power Systems, to Woodward Inc. for €673m. Under the sale agreement, the cash consideration may be adjusted by up to +/-€44m, based on L'Orange aftermarket sales over the five-year period to 31 May 2023. This is reviewed at each reporting date over the adjustment period, based on actual sales. During the year, a liability of €29m has been recognised for amounts that are now expected to be payable in relation to the years 2020 - 2023 as a result of a reduction in aftermarket sales as a consequence of the impact of COVID-19. This €29m liability has been reflected as an adjustment to sales proceeds.

Reconciliation of profit/(loss) to the income statement:

	Total £m
Profit on disposal of businesses	10
Gain on revaluation of Qinous	1
Adjustment to L'Orange sales proceeds	(25)
Loss on acquisition & disposal of businesses (income statement – non-underlying)	(14)

Businesses held for sale

On 28 February 2020 the Group announced the decision to carry out a strategic review of Bergen, our medium-speed gas and diesel engine business. Bergen formed part of the Power Systems business and from 2020 it has been reclassified as non-core following the announcement of the strategic review. On 1 February 2021, the Group signed an agreement for the sale of Bergen to TMH Group for a cash consideration of approximately €150m, subject to closing adjustments, which is expected to complete in the second half of 2021. Consequently, in accordance with IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations*, Bergen has been classified as held for sale at 31 December 2020. As at 31 December 2020, Bergen had an additional £25m of cash which, as part of bank pooling arrangements, was held by another Group company and consequently is not included in the disposal group as the resulting intra-group balances are eliminated on consolidation. On completion, such cash will be included in the disposal group.

On 7 December 2020 the Group signed an agreement for the sale of Civil Nuclear Instrumentation & Control business to Framatome. Consequently, in accordance with IFRS 5, the business has been classified as held for sale at 31 December 2020 and its carrying value assessed against the anticipated proceeds and disposal costs.

The table below summarises the categories of assets and liabilities classified as held for sale.

	Bergen £m	Civil Nuclear £m	Total £m
Intangible assets	–	16	16
Property, plant and equipment	3	4	7
Right-of-use assets	2	7	9
Deferred tax assets	2	4	6
Cash and cash equivalents	25	26	51
Inventory	97	14	111
Trade receivables and other assets	50	38	88
Assets held for sale	179	109	288
Trade payables and other liabilities	(100)	(84)	(184)
Provisions for liabilities and charges	(11)	(7)	(18)
Borrowings and lease liabilities	(4)	(7)	(11)
Deferred tax liabilities	(2)	–	(2)
Post-retirement scheme deficits	–	(13)	(13)
Liabilities associated with assets held for sale	(117)	(111)	(228)
Net assets held for sale	62	(2)	60

During the year, the Group announced its intention to sell ITP Aero. At 31 December 2020, ITP Aero was not available for immediate sale in its present condition and therefore, in line with IFRS 5 has not been classified as a disposal group. The assets of ITP Aero have been assessed for impairment in accordance with IAS 36 Impairment of Assets on a value in use basis which assumes the value will be realised over the long-term.

28 Derivation of summary funds flow statement

	2020		2019		Source
	£m	£m	£m	£m	
Underlying operating (loss)/profit (see note 2)		(1,972)		808	Note 2
Amortisation and impairment of intangible assets	902		372		Cash flow statement (CFS)
Depreciation and impairment of property, plant and equipment	821		532		CFS
Depreciation and impairment of right-of-use assets	732		411		CFS
Adjustment to residual value guarantees in lease liabilities	(102)		–		CFS
Impairment of joint ventures	24		–		Note 13
Reversal of non-underlying impairments of non-current assets	(1,293)		(84)		Reversal of underlying adjustment (note 2)
Acquisition accounting	(133)		(163)		Reversal of underlying adjustment (note 2)
Depreciation and amortisation		951		1,068	
Additions of intangible assets		(316)		(591)	CFS less exceptional restructuring (see below)
Purchases of property, plant and equipment		(579)		(747)	CFS
Lease payments (capital plus interest)		(379)		(319)	CFS (capital and interest payments adjusted for foreign exchange (FX))
Decrease/(increase) in inventories		588		(43)	CFS
	(2,330)		21		CFS adjusted for the impact of exceptional programme charges and exceptional restructuring shown on the basis of the FX rate achieved on settled derivative contracts
Movement in receivables/payables	(276)		467		CFS adjusted for the impact of exceptional programme charges and FX and excluding Civil LTSA (shown separately below)
Movement in contract balances (excluding Civil LTSA)	479		754		Movement in Civil LTSA balances within movement of contract balances in CFS less impact of FX
Underlying movement in Civil Aerospace LTSA contract balances					
Revaluation of trading assets (excluding exceptional items)	(299)		163		Adjustment to reflect the impact of the FX contracts held on receivables/payables
	700		(266)		Realised cash flows on FX contracts not included in underlying operating profit less cash flows on settlement of excess derivative contracts
Realised derivatives in financing					
Movement on receivables/payables/contract balances	(1,726)		1,139		
	(195)		(508)		CFS adjusted for the impact of exceptional programme charges and anticipated recoveries, exceptional restructuring and FX contracts held
Movement on provisions					
Net interest received and paid		(75)		(73)	CFS
Fees paid on undrawn facilities	(97)		–		CFS
Cash flows on settlement of excess derivative contracts		(202)		–	CFS
Cash flows on financial instruments net of realised losses included in operating profit		(8)		96	Cash flows on other financial instruments (CFS) not allocated to lease payments or exceptional programme expenditure adjusted for the impact of FX not held for trading
Trent 1000 insurance		–		173	Included in movements in payables and provisions in CFS
	(101)			46	Principally disposals of non-current assets, joint venture trading and the effect of share-based payments
Other					
Trading cash flow		(4,111)		1,049	
Underlying operating profit charge in excess of contributions to defined benefit schemes		160		(9)	CFS excluding additional contribution of £35m shown below
Tax	(231)		(175)		CFS
Free cash flow		(4,182)		865	
Acquisition of businesses		(130)		(43)	CFS
Movement on balances with parent company		1,887		(221)	
Dividends to NCI	(1)		(4)		CFS (includes dividends to NCI)
Disposal of businesses		23		453	CFS
Exceptional restructuring costs	(323)		(216)		£268m related to severance costs and £55m capital expenditure (2019: £167m and £49m respectively)
DPA payments	(135)		(102)		CFS
Pension fund contribution	–		(35)		CFS
Difference in fair values of derivative contracts held for financing	(26)		–		CFS
Payments of lease principal less new leases and other non-cash adjustments to lease liabilities		311		123	CFS adjusted for the impact of FX
Foreign exchange	51		(98)		CFS less allocation to leases above
Other	(49)		(8)		Cash outflow on M&A spend and timing of cash flows on a prior period disposal. See below.
Change in net (debt)/funds		(2,574)		714	
Change in net (debt)/funds		(2,574)		714	
Non-cash lease impact		(311)		(123)	
Reclassification of other financial liabilities to borrowings		–		(79)	
Change in net (debt)/funds excluding lease liabilities		(2,885)		512	

28 Derivation of summary funds flow statement continued

The comparative information for the year ended 31 December 2019 has been re-presented to be on a comparable basis with the presentation adopted for the year ended 31 December 2020. There is no change to trading or group free cash flow. In summary: (i) cash flows on financial instruments net of realised losses included in operating profit previously included in other within trading cash flow, have been shown separately; (ii) differences in fair values of derivative contracts held for financing previously included in other below free cash flow have been shown separately; and (iii) foreign exchange transactions have been re-presented within line items to be consistent with presentation throughout the financial statements.

Free cash flow is a measure of financial performance of the business' cash flow to see what is available for distribution among those stakeholders funding the business (including debt holders and shareholders). Free cash flow is the movement in net debt from cash flows excluding: transactions with ordinary shareholders; M&A activity; financial penalties paid; exceptional restructuring payments; and the capital element of lease payments. The Board considers that free cash flow reflects cash generated from the Group's underlying trading.

The table below shows a reconciliation of free cash flow to the change in cash and cash equivalents presented in the condensed consolidated cash flow statement on page 51.

	2020		2019		Source
	£m	£m	£m	£m	
Change in cash and cash equivalents	(986)		(422)		CFS
Movement on balances with parent company	(1,887)		221		
Net cash flow from changes in borrowings and lease liabilities	(1,630)		1,385		CFS excluding repayment of debt acquired. See below.
(Decrease)/increase in short-term investments	(6)		–		CFS
Movement in net (debt)/funds from cash flows	(4,509)		1,184		
Exclude: Capital element of lease repayments	(284)		(271)		CFS
Movement in net (debt)/funds from cash flows (excluding lease liabilities)	(4,793)		913		
Dividend to NCI	1		4		CFS
Acquisition of businesses	130		43		CFS including repayment of debt acquired
Disposal of businesses	(23)		(453)		CFS
Other acquisitions and disposals	12		1		£12m related to costs incurred on central M&A activity
Changes in group structure	119		(409)		
Payments of financial penalties	135		102		CFS
	323		216		£268m related to severance costs and £55m capital expenditure (2019: £167m and £49m respectively)
Exceptional restructuring costs					
Pension fund contribution			35		Additional contribution in connection with the pensioner buy-out (note 22)
			33	4	Timing of cash flows on a prior period disposal where the Group retains the responsibility for collecting cash before passing it on to the acquirer
Other					
Free cash flow	(4,182)		865		

COMPANY BALANCE SHEET

For the year ended 31 December 2020

	Notes	2020 £m	2019 £m
ASSETS			
Intangible assets	3	2,159	2,169
Property, plant and equipment	4	1,896	2,067
Right-of-use assets	5	160	206
Investments - subsidiary undertakings	7	2,040	2,045
- joint ventures and associates	7	73	61
- other	7	16	12
Loan receivable from subsidiary undertaking	7	1,857	1,941
Other financial assets	12	643	440
Deferred tax assets	17	1,077	1,472
Post-retirement schemes surpluses	18	883	1,141
Non-current assets		10,804	11,554
Inventories	8	1,690	2,242
Trade receivables and other assets	9	7,102	6,376
Contract assets	10	879	886
Taxation recoverable		2	-
Other financial assets	12	98	127
Cash and cash equivalents	11	2,812	3,847
Current assets		12,583	13,478
TOTAL ASSETS		23,387	25,032
LIABILITIES			
Borrowings and lease liabilities	13	(1,016)	(415)
Other financial liabilities	12	(586)	(463)
Trade payables and other liabilities	15	(10,682)	(10,837)
Contract liabilities	10	(2,580)	(2,549)
Current tax liabilities		(7)	(8)
Provisions for liabilities and charges	16	(506)	(667)
Current liabilities		(15,377)	(14,939)
Borrowings and lease liabilities	13	(4,386)	(3,025)
Other financial liabilities	12	(2,990)	(3,061)
Trade payables and other liabilities	15	(1,637)	(1,767)
Contract liabilities	10	(4,381)	(4,345)
Deferred tax liabilities	17	(309)	(399)
Provisions for liabilities and charges	16	(906)	(1,623)
Non-current liabilities		(14,609)	(14,220)
TOTAL LIABILITIES		(29,986)	(29,159)
NET LIABILITIES		(6,599)	(4,127)
EQUITY			
Called-up shared capital	19	338	338
Share premium		631	631
Merger reserve		650	650
Other reserves		158	173
Accumulated losses		(8,376)	(5,919)
TOTAL EQUITY		(6,599)	(4,127)
Loss for the year		(2,184)	(1,355)

The Company has elected to take the exemption under section 408 of the Companies Act 2006 from presenting the parent company income statement. The loss for the Company for the year was £2,184m (2019: £1,355m).

The Financial Statements on pages 119 to 148 were approved by the Board on 12 March 2021 and signed on its behalf by:

Warren East *Steve* *Sam*
Warren East **Stephen Daintith**
Chief Executive Officer Chief Financial Officer

Company's registered number: 1003143

COMPANY STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2020

	Notes	2020 £m	2019 £m
Loss for the year		(2,184)	(1,355)
Other comprehensive income (OCI)			
Actuarial movement in post-retirement schemes ¹	18	(463)	(879)
Related tax movements		162	308
Items that will not be reclassified to profit or loss		(301)	(571)
Foreign exchange differences on foreign operations		—	(1)
Cash flow hedge reserve movement		(18)	—
Related tax movements		3	—
Items that may be reclassified to profit or loss		(15)	(1)
Total other comprehensive expense		(316)	(572)
Total comprehensive expense for the year		(2,500)	(1,927)

¹ Included in actuarial movements in post-retirement schemes is an experience loss of £188m which includes the impact of updated membership data and members leaving on voluntary severance. Includes an asset re-measurement net loss estimated at £600m following the agreement to transfer the future pension obligations of circa 33,000 pensions in the UK scheme to Legal & General Assurance Society Limited. See note 18 for more details.

COMPANY STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2020

	Non-distributable reserves					Total equity
	Share capital	Share premium	Merger reserves	Other reserves	Accumulated losses	
At 1 January 2019	334	631	405	174	(4,012)	(2,468)
Loss for the year	—	—	—	—	(1,355)	(1,355)
Movement on post-retirement schemes	—	—	—	—	(879)	(879)
Related tax movements	—	—	—	—	308	308
Foreign exchange translation differences on foreign operations	—	—	—	(1)	—	(1)
Total comprehensive expense for the year	—	—	—	(1)	(1,926)	(1,927)
Shares issued in respect of acquisition of ITP Aero ²	4	—	245	—	—	249
Share-based payments – direct to equity ³	—	—	—	—	18	18
Related tax movements	—	—	—	—	1	1
Other changes in equity in the year	4	—	245	—	19	268
At 31 December 2019	338	631	650	173	(5,919)	(4,127)
At 1 January 2020	338	631	650	173	(5,919)	(4,127)
Loss for the year	—	—	—	—	(2,184)	(2,184)
Movement on post-retirement schemes	—	—	—	—	(463)	(463)
Related tax movements	—	—	—	3	162	165
Movement on fair values credited/(debited) to cash flow hedge reserve	—	—	—	(43)	—	(43)
Reclassified to income statement from cash flow hedge reserve	—	—	—	25	—	25
Total comprehensive expense before tax movements for the year	—	—	—	(15)	(2,485)	(2,500)
Share-based payments – direct to equity ³	—	—	—	—	23	23
Related tax movements	—	—	—	—	5	5
Other changes in equity in the year	—	—	—	—	28	28
At 31 December 2020	338	631	650	158	(8,376)	(6,599)

¹ Other reserves includes a translational reserve of £4m (2019: £6m).

² During 2019, the Company issued 28,973,262 new ordinary shares relating to the final three (of eight) instalments for the acquisition of ITP Aero.

³ Share-based payments – direct to equity is the share-based payment charge for the year less the actual cost of vesting excluding those vesting own shares and cash received on share-based schemes vesting.

NOTES TO THE COMPANY FINANCIAL STATEMENTS

1 Accounting policies

The Company

Rolls-Royce plc (the 'Company') is a public company limited by shares incorporated under the Companies Act 2006 and domiciled in England in the United Kingdom. The Company's registered number is 1003142 and its registered address is at Kings Place, 90 York Way, London, N1 9FX, United Kingdom.

Basis of preparation

In accordance with the Companies Act 2006 and EU regulations, the Financial Statements have been prepared in accordance with the international accounting standards in conformity with the requirements of the Companies Act 2006 and international financial reporting standards adopted pursuant to Regulation (EC) No 1606/2002 as it applies in the EU.

In these Financial Statements the Company has applied the exemptions available under FRS 101 *Reduced Disclosure Framework* on the historical cost basis in respect of the following disclosures:

- a cash flow statement and related notes;
- IFRS 2 *Share Based Payments* in respect of group settled share-based payments;
- disclosures in respect of transactions with wholly owned subsidiaries;
- comparative period reconciliations for share capital, tangible fixed assets and intangible assets;
- disclosures in respect of the compensation of key management personnel;
- the effects of new but not yet effective IFRSs; and
- a third statement of financial position as at the beginning of the proceeding period for retrospective restatement of items.

The accounting policies set out below have, unless otherwise stated, been applied consistently to all periods presented in these Financial Statements.

There were no changes to accounting standards that had a material impact on these Financial Statements.

The Financial Statements are presented in sterling, which is the Company's functional currency.

As permitted by Section 408 of the Companies Act 2006, a separate income statement for the Company has not been included in these Financial Statements. As permitted by the audit fee disclosure regulations, the disclosure of non-audit fees information is not included in respect of the Company.

These financial statements have been prepared on a going concern basis. Further details are given in the Going Concern Statement on page 43. After due consideration the Directors consider that the Group has sufficient liquidity headroom to continue in operational existence for a period of at least eighteen months from the date of this report and there are no material uncertainties that may cast doubt on the Company's going concern status, accordingly they are satisfied that it is appropriate to adopt the going concern basis of accounting in preparing the Company Financial Statements.

Revisions to IFRS in 2020

No new standards and interpretations issued by the IASB had a significant impact on the Financial Statements.

Significant accounting policies

The Company's significant accounting policies are set out below. These accounting policies have been applied consistently to all periods presented in these Financial Statements.

Revenue recognition

Revenue recognised comprises sales to the Company's customers after discounts and amounts payable to customers. Revenue excludes value added taxes. The transaction price of a contract is typically clearly stated within the contract, although the absolute amount may be dependent on escalation indices and long-term contracts require the key estimates highlighted above. Refund liabilities where sales are made with a right of return are not typical in the Company's contracts. Where they do exist, and consideration has been received, a portion, based on an assessment of the expected refund liability is recognised within other payables. The Company has elected to use the practical expedient not to adjust revenue for the effect of financing components, where the expectation is that the period between the transfer of goods and services to customers and the receipt of payment is less than a year.

Sales of standard OE, spare parts and time and material overhaul services are generally recognised on transfer of control to the customer. This is generally on delivery to the customer, unless the specific contractual terms indicate a different point. The Directors consider whether there is a need to constrain the amount of revenue to be recognised on delivery based on the contractual position and any relevant facts, however, this is not typically required.

Sales of OE and services that are specifically designed for the contract (most significantly in the Defence business) are recognised by reference to the progress towards completion of the performance obligation, using the cost method described in the key judgements, provided the outcome of contracts can be assessed with reasonable certainty.

The Company generates a significant portion of its revenue and profit on aftermarket arrangements arising from the installed OE fleet. As a consequence, in particular in the Civil Aerospace large engine business, the Company will often agree contractual prices for OE deliveries that take into account the anticipated aftermarket arrangements. Sometimes this may result in losses being incurred on OE. As described in the key judgements, these contracts are not combined. The consideration in the OE contract is therefore allocated to OE performance obligations and the consideration in the aftermarket contract to aftermarket performance obligations.

1 Accounting policies continued

Key areas of accounting policy are:

- Future variable revenue from long-term contracts is constrained to take account of the risk of non-recovery of resulting contract balances from reduced utilisation e.g. engine flying hours (EFHs), based on historical forecasting experience and the risk of aircraft being parked by the customer.
- A significant amount of revenue and cost related to long-term contract accounting is denominated in currencies other than that of the Company, most significantly US dollar transactions in sterling and euro denominated undertakings. These are translated at estimated long-term exchange rates.
- A contract asset/liability is recognised where payment is received in arrears/advance of the costs incurred to meet performance obligations. If the expected costs to fulfil a contract exceed the expected revenue, a contract loss provision is recognised for the excess costs. The Company pays participation fees to airframe manufacturers, its customers for OE, on certain programmes. Amounts paid are initially treated as contract assets and subsequently charged as a reduction to the OE revenue when the engine is transferred to the customer.
- Where material, wastage costs (see key judgements below) are recorded as an exceptional expense.

If the expected costs to fulfil a contract exceed the expected revenue, a contract loss provision is recognised in the excess costs.

The Company pays participation fees to airframe manufacturers, its customers for OE, on certain programmes. Amounts paid are initially treated as contract assets and subsequently charged as a reduction to the OE revenue when the engines are transferred to the customer.

The Company has elected to use the practical expedient to expense as incurred any incremental costs of obtaining or fulfilling a contract if the amortisation period of an asset created would have been one year or less. Where costs to obtain a contract are recognised in the balance sheet, they are amortised over the performance of the related contract (average of three years).

1 Accounting policies continued

Key judgement – Whether Civil Aerospace OE and aftermarket contracts should be combined

In the Civil Aerospace business, OE contracts for the sale of engines to be installed on new aircraft are with the airframers, while the contracts to provide spare engines and aftermarket goods and services are with the aircraft operators, although there may be interdependencies between them. IFRS 15 *Revenue from Contracts with Customers* includes guidance on the combination of contracts, in particular that contracts with unrelated parties should not be combined. Notwithstanding the interdependencies, the Directors consider that the engine contract should be considered separately from the aftermarket contract. In making this judgement, they also took account of industry practice.

Key judgement – How performance on long-term aftermarket contracts should be measured

The Company generates a significant proportion of its revenue from aftermarket arrangements. These aftermarket contracts, such as TotalCare and CorporateCare agreements in the Civil Aerospace business, cover a range of services and generally have contractual terms covering more than one year. Under these contracts, the Company's primary obligation is to maintain customers' engines in an operational condition, and this is achieved by undertaking various activities, such as maintenance, repair and overhaul, and engine monitoring over the period of the contract. Revenue on these contracts is recognised over the period of the contract and the basis for measuring progress is a matter of judgement. The Directors consider that the stage of completion of the contract is best measured by using the actual costs incurred to date compared to the estimated costs to complete the performance obligations, as this reflects the extent of completion of the activities performed.

Key judgement – Whether any costs should be treated as wastage

In rare circumstances, the Company may incur costs of wasted material, labour or other resources to fulfil a contract where the level of cost was not reflected in the contract price. The identification of such costs is a matter of judgement and would only be expected to arise where there has been a series of abnormal events which give rise to a significant level of cost of a nature that the Company would not expect to incur and hence is not reflected in the contract price. Examples include technical issues that: require resolution to meet regulatory requirements; have a wide-ranging impact across a product type; and cause significant operational disruption to customers. Similarly, in these rare circumstances, significant disruption costs to support customers resulting from the actual performance of a delivered good or service may be treated as a cost in the period. Provision is made for any costs identified as wastage when the obligation to incur them arises – see note 16.

Key estimate – Estimates of future revenues and costs on long-term contractual arrangements

The Company has long-term contracts that fall into different accounting periods and which can extend over significant periods (generally up to 25 years), the most significant of these are long-term service arrangements (LTSA) in the Civil Aerospace business. The estimated revenue and costs are inherently imprecise and significant estimates are required to assess: EFHs, time-on-wing and other operating parameters; the pattern of future maintenance activity and the costs to be incurred; lifecycle cost improvements over the term of the contracts; and escalation of revenue and costs. The estimates take account of the inherent uncertainties, constraining the expected level of revenue as appropriate. In addition, many of the revenues and costs are denominated in currencies other than that of the Company. These are translated at an estimated long-term exchange rates, based on historical trends and economic forecasts. During the year, changes to the estimate resulted in catch-up adjustments to revenue of £1.0bn.

Key estimate – Determination of the time period and profile over which the aerospace industry will recover

The COVID-19 pandemic has resulted in significant uncertainty across the aerospace industry. Airline customers have grounded a significant number of their aircraft in response to COVID-19 which has resulted in a reduction to EFHs in Civil Aerospace during 2020. Further details have been included in the going concern disclosure on page 43. Estimates of future LTSA revenue within Civil Aerospace are based upon future EFH forecasts, influenced by assumptions over the recovery of the aerospace industry.

Based upon the stage of completion of all widebody LTSA contracts within Civil Aerospace as at 31 December 2020, the following changes in estimates would result in catch-up adjustments being recognised in the period in which the estimates change (at underlying rates):

- A further reduction in forecast EFHs of 15% over the remaining term of the contracts would decrease LTSA income and to a lesser extent costs, resulting in a catch-up adjustment of £100m - £130m. An estimated 90% of this would be expected to be a reduction in revenue with the remainder relating to onerous contracts which would be an increase in cost of sales.
- A 2% increase or decrease in revenue over the life of the contracts would lead to a catch-up adjustment of £200m.
- A 5% increase or decrease in shop visit costs over the life of the contracts would lead to a catch-up adjustment of £150m.

Risk and revenue sharing arrangements (RRSAs)

Cash entry fees received are initially deferred on the balance sheet within trade payables and other liabilities. They are then recognised as a reduction in cost of sales incurred. Individual programme amounts are allocated pro rata to the estimated number of units to be produced. Amortisation commences as each unit is delivered and then charged on a 15-year straight-line basis.

The payments to suppliers of their shares of the programme cash flows for their production components are charged to cost of sales when OE sales are recognised or as LTSA costs are incurred.

The Company also has arrangements with third parties who invest in a programme and receive a return based on its performance, but do not undertake development work or supply parts. Such arrangements (financial RRSAs) are financial instruments as defined by IAS 32 *Financial Instruments: Presentation* and are accounted for using the amortised cost method.

1 Accounting policies continued

Key judgement – Determination of the nature of entry fees received

RRSAs with key suppliers (workshare partners) are a feature of the Civil Aerospace business. Under these contractual arrangements, the key commercial objectives are that: (i) during the development phase the workshare partner shares in the risks of developing an engine by performing its own development work, providing development parts and paying a non-refundable cash entry fee; and (ii) during the production phase it supplies components in return for a share of the programme cash flows as a 'life of type' supplier (i.e. as long as the engine remains in service).

The non-refundable cash entry fee is judged by the Company to be a contribution towards the development expenditure incurred. These receipts are deferred on the balance sheet and recognised against the cost of sales over the estimated number of units to be delivered on a similar basis to the amortisations of development costs – see 126.

Royalty payments

Where a government or similar body has previously acquired an interest in the intellectual property of a programme, royalty payments are matched to the related sales.

Government grants

Government grants received are varied in nature and are recognised in the income statement so as to match them with the related expenses that they are intended to compensate. Where grants are received in advance of the related expenses, they are initially recognised as liabilities within 'Trade payables and other liabilities' and released to match the related expenditure. Non-monetary grants are recognised at fair value.

Interest

Interest receivable/payable is credited/charged to the income statement using the effective interest method. Where borrowing costs are attributable to the acquisition, construction or production of a qualifying asset, such costs are capitalised as part of the specific asset.

Taxation

The tax charge/credit on the profit or loss for the year comprises current and deferred tax:

- Current tax is the expected tax payable for the year, using tax rates enacted or substantively enacted at the balance sheet date, and any adjustment to tax payable in respect of previous years.
- Deferred tax is provided using the balance sheet liability method, providing for temporary differences between the carrying amounts of the assets and liabilities for financial reporting purposes and the amounts used for tax purposes and is calculated using the enacted or substantively enacted rates that are expected to apply when the asset or liability is settled. The deferred tax liability on the pension scheme surplus is recognised consistently with the basis for recognising the rate applicable to refunds from a trust.

Tax is charged or credited in the income statement or OCI as appropriate, except when it relates to items credited or charged directly to equity in which case the tax is also dealt with in equity.

Deferred tax liabilities are recognised for taxable temporary differences arising on investments in subsidiaries and joint arrangements, except where the Company is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax is not recognised on taxable temporary differences arising on the initial recognition of goodwill or for temporary differences arising from the initial recognition of assets and liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit.

Deferred tax assets are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised. Further details on the Company's tax position can be found on pages 141 to 142.

Key estimate – Estimates necessary to assess whether it is probable that sufficient suitable taxable profits will arise in the UK to utilise the deferred tax assets

Deferred tax assets are recognised to the extent it is probable that future taxable profits will be available, against which the deductible temporary difference can be utilised, based on management's assumptions relating to the quantum of future taxable profits. Future taxable profits require significant estimates to be made, including the pattern of future maintenance activity and the costs to be incurred; lifecycle cost improvements over the term of the contracts; and escalation of revenue and costs. The estimates take account of the inherent uncertainties, constraining the expected level of profit as appropriate. Changes in these estimates will affect future profits and therefore the recoverability of the deferred tax assets.

A 5% change in margin in the main Civil Aerospace widebody programmes or a 5% change in the number of shop visits (driven by EFHs which are influenced by a number of factors including climate change) over the remaining life of the programmes, would result in an increase/decrease in the deferred tax asset by around £100m.

Foreign currency translation

Transactions denominated in currencies other than the function currency of the Company are translated into the functional currency at the average monthly exchange rate when the transaction occurs. Monetary assets and liabilities denominated in foreign currencies are translated into sterling at the rate prevailing at the year end. Exchange differences arising on foreign exchange transactions and the retranslation of assets and liabilities into sterling at the rate prevailing at the year-end are included in profit/(loss) before taxation.

1 Accounting policies continued

Financial instruments – Classification and measurement

Financial assets primarily include trade receivables, cash and cash equivalents, short-term investments, derivatives (foreign exchange, commodity and interest rate contracts), and unlisted investments.

- Trade receivables are classified either as held to collect and measured at amortised cost or as held to collect and sell and measured at fair value, with movements in fair value recognised through other comprehensive income (FVOCI). The Company may sell trade receivables due from certain customers before the due date. Any trade receivables from such customers that are not sold at the reporting date are classified as 'held to collect and sell'.
- Cash and cash equivalents (consisting of balances with banks and other financial institutions, money-market funds, short-term deposits) and short-term investments are subject to low market risk. Cash balances and short-term investments are measured at fair value through profit and loss (FVPL). Money market funds and short-term deposits are measured at FVOCI.
- Derivatives and unlisted investments are measured at FVPL.

Financial liabilities primarily consist of trade payables, borrowings, derivatives, and financial RRSAs.

- Derivatives are classified and measured at FVPL.
- All other financial liabilities are classified and measured at amortised cost.

Financial instruments – Impairment of financial assets and contract assets

IFRS 9 *Financial Instruments* sets out the basis for the accounting of expected credit losses (ECLs) on financial assets and contract assets resulting from transactions within the scope of IFRS 15 *Revenue from Contracts with Customers*. The Company has adopted the simplified approach to provide for ECLs, measuring the loss allowance at a probability weighted amount that considers reasonable and supportable information about past events, current conditions and forecasts of future economic conditions of customers. These are incorporated in the simplified model adopted by using credit ratings which are publicly available or through internal risk assessments derived using customer's latest available financial information. The ECLs are updated at each reporting date to reflect changes in credit risk since initial recognition. ECLs are calculated for all financial assets in scope, regardless of whether or not they are overdue.

Financial instruments – Hedge accounting

Forward foreign exchange contracts and commodity swaps (derivative financial instruments) are held to manage the cash flow exposures of forecast transactions denominated in foreign currencies or in commodities respectively. Derivative financial instruments qualify for hedge accounting when: (i) there is a formal designation and documentation of the hedging relationship and the Company's risk management objective and strategy for undertaking the hedge at the inception of the hedge; and (ii) the hedge is expected to be effective.

In general, the Company has chosen to not apply hedge accounting in respect of these exposures.

The Company economically hedges the fair value and cash flow exposures of its borrowings. Cross-currency interest rate swaps are held to manage the FX or cash flow exposures of borrowings denominated in foreign currencies and are designated as fair value hedges or cash flow hedges as appropriate. Interest rate swaps are held to manage the interest rate exposures of fixed and floating rate borrowings and may be designated as fair value hedges, cash flow hedges or FVPL as appropriate.

Changes in the fair values of derivatives that are designated as fair value hedges are recognised directly in the income statement. The fair value changes of effective cash flow hedge derivatives are recognised in OCI and subsequently recycled in the income statement in the same period or periods during which the hedge expected future cash flows affect profit or loss. Any ineffectiveness in the hedging relationships is included in the income statement.

Hedge accounting is discontinued when the hedging instrument expires or is sold, terminated, exercised, or no longer qualifies for hedge accounting. At that time, for cash flow hedges and, if the forecast transaction remains probable, any cumulative gain or loss on the hedging instrument recognised in OCI is retained until the forecast transaction occurs. If a hedged transaction is no longer expected to occur, the net cumulative gain or loss is recycled to the income statement.

Financial instruments – Replacement of benchmark interest rates

Following the financial crisis, the reform and replacement of benchmark interest rates such as GBP LIBOR and other interbank offered rates (IBORs) has become a priority for global regulators. There is currently uncertainty around the timing and precise nature of these changes. The Company's risk exposure that is directly affected by the interest rate benchmark reform is its portfolio of long-term borrowings of £4.1bn. These borrowings are hedged, using interest rate swaps and cross-currency interest rate swaps, for changes in fair value and cash flows attributable to the relevant benchmark interest rate. However, as part of the reforms noted above, the UK Financial Conduct Authority has decided to no longer compel panel banks to participate in the IBOR submission process after the end of 2021 and to cease oversight of these benchmark interest rates. Regulatory authorities and private sector working groups have been discussing alternative benchmark rates for IBOR. It is currently anticipated that IBOR rates will be replaced with a backward-looking risk-free rate based on actual transactions.

Management is continuing to monitor developments. When the future position is clearer, a transition project to assess and implement changes to systems, processes, risk and valuation models, as well as managing related tax and accounting implications will be initiated. The Company currently anticipates that the areas of greatest change will be amendments to the contractual terms of IBOR-referenced floating-rate debt and swaps and updating hedge designations.

Due to the uncertainty around these changes the Company has elected to early adopt the Amendments to IFRS 9 *Financial Instruments*, IAS 39 *Provisions and IFRS 7 Interest Rate Benchmark Reform* issued in September 2019. In accordance with the transition provisions, the amendments have been adopted retrospectively to hedging relationships that existed at the start of the reporting period or were designated thereafter. The amendments provide temporary relief from applying specific hedge accounting requirements to hedging relationships directly affected by IBOR reform.

1 Accounting policies continued

The reliefs have the effect that IBOR reform should not generally cause hedge accounting to terminate. However, any hedge ineffectiveness should continue to be recorded in the income statement. Furthermore, the amendments set out triggers for when the reliefs will end, which include the uncertainty arising from interest rate benchmark reform no longer being present.

In summary, the reliefs provided by the amendments that apply to the Company are:

- In assessing whether the hedge is expected to be highly effective on a forward-looking basis, the Company has assumed that the relevant IBOR interest rate on which the cash flows of the interest rate swap that hedges fixed-rate borrowings is not altered by IBOR reform.
- The Company has assessed whether the hedged IBOR risk component is a separately identifiable risk only when it first designates a borrowing as included in a hedging relationship and not on an ongoing basis. Any hedge ineffectiveness relating to fair value hedges is recognised immediately in the income statement.

Certification costs

Costs incurred in respect of meeting regulatory certification requirements for new Civil Aerospace aero-engine/aircraft combinations including payments made to airframe manufacturers for this are recognised as intangible assets to the extent that they can be recovered out of future sales. They are charged to the income statement over the programme life. Individual programme assets are allocated pro rata to the estimated number of units to be produced. Amortisation commences as each unit is delivered and then charged on a 15-year straight-line basis.

Research and development

Expenditure incurred on research and development is distinguished as relating either to a research phase or to a development phase. All research phase expenditure is charged to the income statement. Development expenditure is recognised as an internally generated intangible asset (programme asset) only if it meets strict criteria, relating in particular to technical feasibility and generation of future economic benefits.

More specifically, development costs are capitalised from the point at which the following conditions have been met:

- the technical feasibility of completing the programme and the intention and ability (availability of technical, financial and other resources) to complete the programme asset and use or sell it;
- the probability that future economic benefits will flow from the programme asset; and
- the ability to measure reliably the expenditure attributable to the programme asset during its development.

Capitalisation continues until the point at which the programme asset meets its originally contracted technical specification (defined internally as the point at which the asset is capable of operating in the manner intended by management).

Subsequent expenditure is capitalised where it enhances the functionality of the programme asset and demonstrably generates an enhanced economic benefit to the Company. All other subsequent expenditure on programme assets is expensed as incurred.

Individual programme assets are allocated pro rata to the estimated number of units to be produced. Amortisation commences as each unit is delivered and then charged on a 15-year straight-line basis. In accordance with IAS 38 *Intangible Assets*, the basis on which programme assets are amortised is assessed annually.

Key judgement – Determination of the point in time where costs incurred on an internal programme development meet the criteria for capitalisation or ceasing capitalisation

The Company incurs significant research and development expenditure in respect of various development programmes. Determining when capitalisation should commence and cease is a critical judgement, as is the determination of when subsequent expenditure on the programme assets should be capitalised. £110m of development expenditure was capitalised during the year.

Within the Company there is an established Product Introduction and Lifecycle Management process (PILM) in place. Within this process, the technical feasibility, the commercial viability and financial assessment of the programme is assessed at certain milestones. When these are met, development expenditure is capitalised. Prior to this, expenditure is expensed as incurred.

Subsequent expenditure after entry into service, which enhances the performance of the engine and the economic benefits to the Company is capitalised. This expenditure is referred to as enhanced performance and is governed by the PILM process referred to above. All other development costs are expensed as incurred.

Key judgement – Determination of the basis for amortising capitalised development costs

The economic benefits of the development costs are primarily those cash inflows arising from long-term service agreements, which are expected to be relatively consistent for each engine within a programme. Amortisation of development costs is recognised on a straight-line basis over the period of operation of the engine by its initial operator.

Software and other intangibles

Software that is not specific to an item of property, plant and equipment is classified as an intangible asset, recognised at its acquisition cost and amortised on a straight-line basis over its useful economic life, up to a maximum of five years. The cost of internally developed software includes direct labour and an appropriate proportion of overheads. Other intangibles largely relate to fleet leader engines used for testing in Civil Aerospace.

1 Accounting policies continued

Property, plant and equipment

Property, plant and equipment are stated at acquisition cost less accumulated depreciation and any provision for impairment in value. The cost of self-constructed assets includes the cost of materials, direct labour and an appropriate proportion of overheads and, where appropriate, interest.

Depreciation is provided on a straight-line basis to write off the cost, less the estimated residual value, of property, plant and equipment over their estimated useful lives. No depreciation is recorded on assets in the course of construction. Estimated useful lives are reassessed annually and are as follows:

- Land and buildings, as advised by the Company's professional advisors:
 - freehold buildings – five to 40 years (average 28 years);
 - no depreciation is provided on freehold land.
- Plant and equipment – five to 25 years (average 11 years).
- Aircraft and engines – five to 20 years (average 11 years).

Leases

Assets and liabilities arising from a lease are initially measured on a present value basis.

Lease liabilities include the net present value of the following lease payments:

- fixed payments less any lease incentive receivable;
- variable lease payments that are based on an index or a rate;
- amounts expected to be payable by the Company under residual value guarantees;
- the exercise price of a purchase option if the Company is reasonably certain to exercise that option; and
- payments of penalties for termination of the lease, if the lease term reflects the Company exercising that option.

Where leases commence after the initial transition date, the lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the Company's incremental borrowing rate is used, being the rate that the Company would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions. Lease liabilities are revalued at each reporting date using the spot exchange rate.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability or a revaluation of the liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- restoration costs.

Each right-of-use asset is depreciated over the shorter of its useful economic life and the lease term on a straight-line basis unless the lease is expected to transfer ownership of the underlying asset to the Company, in which case the asset is depreciated to the end of the useful life of the asset.

Short-term leases are leases with a lease term of 12 months or less. Payments associated with short-term leases and low value leases are recognised on a straight-line basis as an expense in the income statement.

Key judgement – Determining the lease term

In determining the lease term, the Company considers all facts and circumstances that create an economic incentive to exercise an extension option, or not exercise a termination option. Extension options (or periods after termination) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated). Certain land and building leases have renewal options with renewal dates for the most significant property leases in 2025 and 2028. The Company reviews its judgements on lease terms annually, including the operational significance of the site, especially where utilised for manufacturing activities.

Impairment of non-current assets

Impairment of non-current assets is considered in accordance with IAS 36 *Impairment of Assets*. Where the asset does not generate cash flows that are independent of other assets, impairment is considered for the cash-generating unit (CGU) to which the asset belongs. Intangible assets not yet available for use are tested for impairment annually. Other intangible assets, property, plant and equipment and investments are assessed for any indications of impairment annually. If any indication of impairment is identified, an impairment test is performed to estimate the recoverable amount.

If the recoverable amount of an asset (or CGU) is estimated to be below the carrying value, the carrying value is reduced to the recoverable amount and the impairment loss recognised as an expense. The recoverable amount is the higher of value in use or fair value less costs to dispose, if this is readily available. The value in use is the present value of future cash flows using a pre-tax discount rate that reflects the time value of money and the risk specific to the asset.

1 Accounting policies continued

Key estimate – Estimates of cash flow forecasts and discount rates to support the carrying value of intangible assets (including programme-related intangible assets)

In accordance with IAS 36, COVID-19 is considered to be a trigger event to reassess whether an asset is impaired. The carrying value of intangible assets (including programme-related intangible assets) is dependent on the estimates of future cash flows which are influenced by assumptions over the recovery of the industries in which we operate and the discount rates applied. Details of the review performed are set out in note 6.

The carrying value of intangible assets on the balance sheet is dependent on the estimates of future cash flows arising from the Company's operations, in particular:

- The assessment of the recoverable value of development expenditure and certification costs recognised as intangible assets (31 December 2020: £1,715m, 2019: £1,712m) is dependent on estimates of cash flows generated by the relevant programme, the discount rate used to calculate a present value and assumptions on foreign exchange rates.
- In addition, in relation to programme intangible assets, estimates comprise: product performance related estimates (including EFHs and time-on-wing); and estimates for future market share, pricing and cost for uncontracted business.

It remains possible that a weaker than expected recovery could result in a deterioration in the future cash flow forecasts that support Civil Aerospace programme intangible assets. For intangible assets where there is existing headroom in the impairment test (and thus no impairment) but where deteriorations in key assumptions over the next 12 months could lead to an impairment, any of the following individual changes in assumptions would cause the recoverable amount of the programme assets to equal the carrying value:

- A reduction in engine sales that are forecast but not contracted by 14%
- An increase in costs of 2%
- An increase in discount rates of 1%

Inventories

Inventories are valued on a first-in, first-out basis, at the lower of cost and net realisable value. Cost comprises direct materials and, where applicable, direct labour costs and those overheads, including depreciation of property, plant and equipment, that have been incurred in bringing the inventories to their present location and condition. Net realisable value represents the estimated selling prices less all estimated costs of completion and costs to be incurred in marketing, selling and distribution. All inventories are classified as current as it is expected that they will be used in the Company's operating cycle, regardless of whether this is expected to be within 12 months of the balance sheet date.

Cash and cash equivalents

Cash and cash equivalents include cash at bank and in hand, investments in money-market funds and short-term deposits with a maturity of three months or less on inception. Where the Company operates pooled banking arrangements across multiple accounts, these are presented on a net basis when it has both a legal right and intention to settle the balances on a net basis.

On a periodic basis the Company undertakes the sale of certain trade receivables to banks. These trade receivables are factored on a nonrecourse basis (invoice discounting) and therefore are derecognised from the Company's balance sheet at the point of sale to the bank. Further details are disclosed in note 9.

The Company offers a supply chain financing (SCF) programme in partnership with banks to enable suppliers, including joint ventures, who are on our standard 75 day or more payment terms to receive their payment sooner. As the Company continues to have a contractual obligation to pay its suppliers and it does not retain any ongoing involvement in the SCF, the related payables are retained on the Company's balance sheet and classified as trade payables. Further details are disclosed in note 15.

Provisions

Provisions are recognised when the Company has a present obligation as a result of a past event, and it is probable that the Company will be required to settle that obligation and are discounted to present value where the effect is material.

The principal provisions are recognised as follows:

- Trent 1000 in-service issues when wastage costs are identified as described on page 140;
- contract losses based on an assessment of whether the direct costs to fulfil a contract are greater than the expected revenue;
- warranties and guarantees based on an assessment of future claims with reference to past experience and recognised at the earlier of when the underlying products and services are sold and when the likelihood of a future cost is identified; and
- restructuring when the Company has approved a detailed and formal restructuring plan, and the restructuring has either commenced or has created a valid expectation to those affected.

1 Accounting policies continued

Key judgement – Whether any costs should be treated as wastage

As described further on page 140, in rare circumstances, the Company may incur costs of wasted material, labour or other resources to fulfil a contract where the level of cost was not reflected in the contract price. The identification of such costs is a matter of judgement and would only be expected to arise where there has been a series of abnormal events which give rise to a significant level of cost of a nature that the Company would not expect to incur and hence is not reflected in the contract price. Provision is made for any costs identified as wastage when the obligation to incur them arises.

Specifically for the Trent 1000 wastage costs, provision has been made as the Company is an owner of an engine Type Certificate under which it has a present obligation to develop appropriate design changes to address certain engine conditions that have been noted in issued Airworthiness Directives. The Company is also required to ensure engine operators can continue to safely operate engines within the terms of their LTSA agreements with the Company, and this requires the engines to be compliant with the requirements of those issued Airworthiness Directives. These requirements cannot be met without the Company incurring significant costs in the form of replacement parts and customer claims. Given the significant activities of the Company in designing and overhauling aero engines it is very experienced in making the required estimates in relation to the number and timing of shop visits, parts costs, overhaul labour costs and customer claims.

Key estimates – Estimates of the time to resolve the technical issues on the Trent 1000, including the development of the modified HPT blade and estimates of the expenditure required to settle the obligation relating to Trent 1000 claims and to settle Trent 1000 long-term contracts assessed as onerous

The Company has provisions for Trent 1000 exception costs at 31 December 2020 of £321m (2019: £1,382m). These represent the Directors' best estimate of the expenditure required to settle the obligations at the balance sheet date. These estimates take account of information available and different possible outcomes.

The Company considers that at 31 December 2020 the Trent 1000 contract loss provisions and the Trent 1000 exceptional cost provision are most sensitive to changes in estimates. A 12-month delay in the availability of the modified HPT blade could lead to a £60 - 100m increase in the Trent 1000 exceptional costs provision.

Key estimates – Estimates of the future revenues and costs to fulfil onerous contracts

The Company has provisions for onerous contracts at 31 December 2020 of £791m (2019: £773m). A reduction in Civil Aerospace widebody flying hours of 15% over the remaining term of the contracts and the associated decrease in revenues and costs impact could lead to a £10m - £15m increase in the provision for contract losses across all programmes. Further details have been included in the going concern disclosure on page 43.

Post-retirement benefits

Pensions and similar benefits are accounted for under IAS 19 *Employee Benefits*.

For defined benefit plans, obligations are measured at discounted present value whilst plan assets are recorded at fair value. Surpluses in schemes are recognised as assets only if they represent economic benefits available to the Company in the future. Surpluses in schemes are recognised as assets only if they represent economic benefits available to the Company in the future. Actuarial gains and losses are recognised immediately in OCI. The service and financing costs of such plans are recognised separately in the income statement.

- current service costs are spread systematically over the lives of employees;
- past-service costs and settlements are recognised immediately; and
- financing costs are recognised in the periods in which they arise.

In 2018 and 2020, following clarification provided by the UK High Court judgements on the Lloyds Banking Group on 26 October 2018 and 23 November 2020, the Company recognised the estimated impact of the obligation to equalise defined benefit pensions and transfer values respectively for men and women as a past-service cost – see note 18.

Payments to defined contribution schemes are charged as an expense as they fall due.

1 Accounting policies continued

Key estimate – Estimates of the assumptions for valuing the defined benefit obligation

The Company's defined benefit pension scheme is assessed annually in accordance with IAS 19 *Employee Benefits*. The valuation, which is based on assumptions determined with independent actuarial advice, resulted in a net surplus of £883m before deferred taxation being recognised on the balance sheet at 31 December 2020 (2019: £1,141m). The size of the post-retirement scheme surplus/deficit is sensitive to the actuarial assumptions, which include the discount rate, price inflation, pension and salary increases, longevity and the number of plan members who take the option to transfer their pension to a lump sum on retirement or who choose to take the newly implemented Bridging Pension Option (BPO). Following consultation, the UK scheme closed to future accrual on 31 December 2020. The Company is in discussions with the employees' representatives and the Trustee regarding possible additional transitional protections that could be granted from the scheme. Based on the progress of the talks up to 31 December 2020, the Company has allowed for some reductions in the change to the obligation recognised at 31 December. The final details are expected to be agreed in 2021 when any differences will be recognised.

A reduction in the discount rate from 1.45% by 0.25% could lead to an increase in the defined benefit obligations of the RR UK Pension Fund of approximately £530m. This would be expected to be broadly offset by changes in the value of scheme assets, as the scheme's investment policies are designed to mitigate this risk.

A one-year increase in life expectancy from 21.8 years (male aged 65) and from 23.2 years (male aged 45) would increase the defined benefit obligations by approximately £455m.

It is assumed that 40% (2019: 45%) of members will transfer out of the fund on retirement. The reduction in this assumption is a result of the introduction of the BPO. An increase of 5% in this assumption would increase the defined benefit obligation by £45m.

Further details and sensitivities are included in note 18.

Share-based payments

The Company provides share-based payment arrangements to certain employees, which are settled in Rolls-Royce Holdings plc shares. These are principally equity-settled arrangements and are measured at fair value (excluding the effect of non-market based vesting conditions) at the date of grant. The fair value is expensed on a straight-line basis over the vesting period. The amount recognised as an expense is adjusted to reflect the actual number of shares or options that will vest, except where additional shares vest as a result of the total shareholder return (TSR) performance condition in the long-term incentive plan (LTIP), where no adjustment is required as allowance for this is included in the initial fair value.

Customer financing support

In connection with the sale of its products, the Company will, on occasion, provide financing support for its customers. These arrangements fall into two categories: credit-based guarantees and asset-value guarantees. In accordance with the requirements of IFRS 9 *Financial Instruments* and IFRS 4 *Insurance Contracts*, credit-based guarantees are treated as insurance contracts. The Company considers asset-value guarantees to be non-financial liabilities and accordingly these are also treated as insurance contracts. As described on page 140, the Directors consider the likelihood of crystallisation in assessing whether provision is required for any contingent liabilities.

The Company's contingent liabilities relating to financing arrangements are spread over many years and relate to a number of customers and a broad product portfolio and are reported on a discounted basis.

Joint arrangements

The Company accounts for joint operations by consolidating their results on a proportional basis, rather than holding them at their investment value.

Revisions to IFRS not applicable to 2020

Standards and interpretations issued by the IASB are only applicable if endorsed by the UK. Other than IFRS 17 *Insurance Contracts* described below, the Company does not consider that any standards, amendments or interpretations issued by the IASB, but not yet applicable will have a significant impact on the Financial Statements. The Company is not expecting to adopt the amendment to IFRS 16 *Leases*, effective in 2021, which provides a practical expedient to not treat COVID-19 rent concessions as lease modifications. The Company did not adopt the equivalent practical expedient during 2020.

IFRS 17 *Insurance Contracts*

IFRS 17 is effective from 1 January 2023. The new Standard establishes the principles for the recognition, measurement, presentation and disclosure of insurance contracts within the scope of the Standard. The objective of IFRS 17 is to ensure that an entity provides relevant information that faithfully represents those contracts. The Company is in the process of assessing whether the new standard will impact on the Financial Statements.

Post balance sheet events

We have taken the latest legal position in relation to ongoing legal proceedings and post balance events and reflected these in the 2020 results as appropriate. The Spring Budget 2021 announced that the UK corporation tax rate will increase to 25% from 1 April 2023. Further details are included in note 5.

2 Emoluments of Directors

	2020			2019		
	Highest paid Director £000	Other Directors £000	Total £000	Highest paid Director £000	Other Directors £000	Total £000
Remuneration	1,110	1,946	3,056	2,080	2,754	4,834
Gains made on share options	530	318	848	1,079	714	1,793
	1,640	2,264	3,904	3,159	3,468	6,627
	2020 Number			2019 Number		
Number of Directors exercising share options				2		1
Number of Directors receiving shares as part of long-term incentive schemes				2		2

No Director accrued any retirement benefits in the year (2019: none).

3 Intangible assets

	Development costs £m	Certification costs £m	Software and other ³ £m	Total £m
Cost				
At 1 January 2020	1,758	925	1,055	3,738
Additions	110	1	76	187
Disposals	–	–	(74)	(74)
Reclassifications	(8)	(4)	8	(4)
At 31 December 2020	1,860	922	1,065	3,847
Accumulated amortisation and impairment				
At 1 January 2020	588	383	598	1,569
Charge for the year ¹	43	19	72	134
Impairment ²	25	11	8	44
Disposals	–	–	(59)	(59)
Reclassifications	(2)	–	2	–
At 31 December 2020	654	413	621	1,688
Net book value				
At 31 December 2020	1,206	509	444	2,159
At 31 December 2019	1,170	542	457	2,169

¹ Charged to cost of sales and commercial and administrative costs except development costs, which are charged to research and development.

² As a result of the financial and operational impact of COVID-19 the Company has assessed the carrying value of its intangible assets. Consequently, impairments have been recorded at 31 December 2020. The impairment of development expenditure has arisen as a result of the anticipated reduction in OE volumes and future engine flying hours, and the consequential recoverability of these assets. See note 6 for further details.

³ Includes £110m (2019: £129m) of software under course of construction of which is not amortised.

The carrying amount and the residual life of the material intangible assets for the Company is as follows:

	Residual life	Net book value	
	2020 £m	2019 £m	
Trent programme intangible assets ¹	7-15 years	1,770	1,720

¹ Included within the Trent programmes are the Trent 1000, Trent 7000 and Trent XWB.

At 31 December, the Company had expenditure commitments for software of £25m (2019: £20m). In 2019, committed spend for software was presented in note 4.

4 Property, plant and equipment

	Land and buildings £m	Plant and equipment £m	Aircraft and engines £m	In course of construction £m	Total £m
Cost or valuation					
At 1 January 2020	911	2,667	268	160	4,006
Additions	8	76	6	70	160
Reclassifications	(28)	22	2	4	–
Disposals	(47)	(166)	(2)	(4)	(219)
At 31 December 2020	844	2,599	274	230	3,947
Accumulated depreciation					
At 1 January 2020	252	1,608	79	–	1,939
Charge for the year ¹	32	163	14	–	209
Impairment ²	27	51	–	7	85
Reclassifications ³	2	(2)	–	–	–
Disposals	(28)	(154)	–	–	(182)
At 31 December 2020	285	1,666	93	7	2,051
Net book value					
At 31 December 2020	559	933	181	223	1,896
At 31 December 2019	659	1,059	189	160	2,067

¹ Depreciation charged during the year is presented in the income statement or included in the cost of inventory as appropriate.

² As a result of the financial and operational impact of COVID-19 the Company has assessed the carrying value of its property, plant and equipment. In addition, following the announcement on 20 May 2020 to reshape and resize the Company due to the financial and operational impact of COVID-19, certain assets have been impaired to their recoverable amount where the Company expects to exit the site. See note 6 for further details.

³ Includes reclassifications of assets under construction to the relevant classification in property, plant and equipment or intangible assets when available for use.

Property, plant and equipment includes:

	2020 £m	2019 £m
Assets held for use in leases where the Company is the lessor:		
Cost	3	4
Depreciation	(3)	(4)
Net book value	–	–
Capital expenditure commitments ¹	84	207
Cost of fully depreciated assets	883	834

¹ Total committed spend in 2019 was £207m comprising £187m for property, plant and equipment and £20m for software. In 2020, expenditure commitment for software has been presented in note 3.

5 Right-of-use assets

	Land and buildings £m	Plant and equipment £m	Aircraft and engines £m	Total £m
Cost				
At 1 January 2020	156	78	6	240
Additions/modifications of leases	(1)	19	–	18
Disposals	(10)	(5)	–	(15)
At 31 December 2020	145	92	6	243
Accumulated depreciation and impairment				
At 1 January 2020	15	15	4	34
Charge for the year	15	18	1	34
Impairment ¹	14	9	–	23
Disposals	(2)	(6)	–	(8)
At 31 December 2020	42	36	5	83
Net book value				
At 31 December 2020	103	56	1	160
At 31 December 2019	141	63	2	206
Right-of-use assets held for use in operating leases				
Cost	2	1	6	9
Depreciation	(1)	(1)	(5)	(7)
Net book value at 31 December 2020	1	–	1	2

¹ The impairment of £23m is a result of the impact of COVID-19. See note 6 for further details.

6 Impairment of intangible assets, property, plant and equipment and right-of-use assets

Summary

An impairment charge of **£152m** (2019: £3m) due to the impact of COVID-19 and other market driven events was identified, reducing the carrying amount of certain intangible assets, property, plant and equipment and right-of-use assets. These impairments result from reductions in the estimated OE and aftermarket volumes (e.g. from lower EFHs) within the forecasts of future cash flows of each programme or cash generating unit (CGU). These cash flow forecasts are discounted to generate the value in use of the programme intangible assets, lease engines (within property, plant and equipment) and right-of-use assets. The recoverable amount of other property, plant and equipment has been measured on a fair value less cost of disposal basis.

The impairment charges recognised in the year are as follows:

	Impairment charge in the year					Discount rate at 31 December 2020 (31 December 2019) ¹ £m
	Intangible assets £m	Property, plant and equipment £m	Right-of-use assets £m	Total £m	Recoverable amount £m	
Civil Aerospace – Trent programme assets (where impairment recognised)	39	–	–	39	–	11% (12%)
Civil Aerospace – Specific assets ²	–	81	23	104	114	n/a (n/a)
Other	5	4	–	9	–	Various
Total	44	85	23	152		

¹ Discount rate for 31 December 2019 disclosed where an impairment test was performed.

² The impairment charge for Civil Aerospace specific assets has been calculated on a fair value less cost of disposal basis.

Intangible assets (see note 3)

As a result of the impact of COVID-19 on expected OE and aftermarket volumes, intangible assets have been reviewed for impairment in accordance with the requirements of IAS 36. Where an impairment test was considered necessary, it has been performed on the following basis:

- The carrying values have been assessed by reference to value in use as this represents the highest value to the Company in terms of the future cash flows that it can generate. Values in use have been estimated using the expected cash flow approach allowable under IAS 36. Cash flow forecast scenarios have been prepared by management using the most recent forecasts, which are consistent with external sources of information on market conditions over the lives of the respective programmes and incorporate management's best estimate of key assumptions utilising a stochastic analysis to allow for variation in the actual outcome where appropriate. A severe but plausible scenario was also modelled and, in order to risk adjust the cash flows, a weighting (25% downside) was taken between the two scenarios based on management judgement.
- These forecasts include contracted business and management's expectation of speculative business over the life of the programme, together with the cash outflows that are necessary to maintain the current level of economic benefit expected to arise from the asset in its current condition.
- The key programme assumptions underlying the cash flow projections are forecast market share and pricing, programme timings, unit cost assumptions, EFHs, number of shop visits, cost of each shop visit, R&D, capital investment, discount rates and foreign exchange rates.
- The pre-tax cash flow projections have been discounted at 11% (2019: 12%), based on the weighted average cost of capital of the relevant business.

An impairment charge of £44m (2019: £nil) was identified.

For programmes where there is existing headroom in the impairment test (and thus no impairment) but where significant deterioration in key assumptions over the next 12 months could lead to an impairment, any of the following individual changes in assumptions would cause the recoverable amount of the programme assets to equal the carrying value:

- A reduction in engines sales that are forecast but not contracted by 14%; or
- An increase in costs of 2%; or
- An increase in discount rates of 1%.

Property, plant and equipment (see note 4)

Property, plant and equipment has been reviewed for impairment in accordance with the requirements of IAS 36. Following the announcement on the 20 May 2020 to reshape and resize the Group given the financial and operational impact of COVID-19, a strategic review of the Group's sites has been performed. Where the Group expects to exit a Civil Aerospace site, the carrying value of the land and buildings and related plant and equipment have been impaired to their recoverable amount by reference to their fair value (based on professional advice - Level 3 in the IFRS 13 hierarchy) less cost of disposal. The Group has also reviewed whether assets under construction relating to these locations can be relocated to other parts of the Group for future use. Where no alternative use has been identified, the carrying values of these assets have been impaired to their recoverable amount by reference to their scrap values. An impairment charge of £85m has been recognised. Of this, £81m relates to site rationalisation.

Right-of-use assets (see note 5)

Right-of-use (RoU) assets have been reviewed for impairment in accordance with the requirements of IAS 36. RoU assets have typically been assessed together with other assets as part of a larger cash generating unit. Other than the items referred to below, there have been no impairments of RoU assets. The RoU land and buildings and plant and equipment impairments in the period of £23m (2019: £3m) are a consequence of the impact of COVID-19 on manufacturing and overhaul workload, relating to the Civil Aerospace business described above. Assets have been written down to reflect the higher of their revised value in use (11% discount rate) or fair value less cost of disposal.

7 Investments

	Subsidiary undertakings ¹		Joint ventures and associates			Other investments ⁴
	Shares at cost ² £m	Loans ^{3,6} £m	Shares at cost £m	Loans ³ £m	Total £m	
At 1 January 2020	2,045	1,941	12	49	61	12
Additions	-	-	12	4	16	4
Disposal ⁵	(5)	-	-	-	-	-
Repayment of loan and interest	-	(84)	-	(4)	(4)	-
Reclassification to trade and other receivables	-	-	-	-	-	-
Exchange differences	-	-	-	-	-	-
At 31 December 2020	2,040	1,857	24	49	73	16

¹ Subsidiary and joint venture undertakings are listed on pages 149 to 155.

² The Company has uncalled share capital in Nightingale Insurance Limited, one of its subsidiaries at 31 December 2020 of £30m (2019: £30m).

³ The Company has made an interest-bearing loan to Vinters International Limited, one of its subsidiaries. The loan is classified as a loan receivable from subsidiary undertakings within non-current assets as the loan is considered to be part of the capital funding of the subsidiary undertaking (an intermediate holding company) to fund its investment in Power Systems. During the year, Vinters International Limited made a part repayment of the loan and interest of £84m following receipt of dividends, and has no ability to repay the loan other than the receipt of dividends in the future. Interest accruing during the year of £3m (2019: £20m) has been capitalised and is shown net within repayment of loan and interest for the year.

⁴ On 18 May 2020, the Group entered into an agreement to increase its shareholding in Reaction Engines Ltd by 8.1% to 10.1% for a cash consideration of £20m. The consideration is payable (and the associated shares acquired) in four instalments that will be made between July 2020 – January 2022. Reaction Engines is accounted for as an investment.

⁵ On the 7 May 2020, the Company sold Trigno Energy Srl (Trigno) to Pilkington Italia S.p.A for a cash consideration of €6m.

⁶ Loan interest is added to the loan balance when it is not expected to be repaid in the short-term.

Investments in subsidiaries are recorded at cost, which is the fair value of the consideration paid.

8 Inventories

	2020 £m	2019 £m
Raw materials	29	71
Work in progress	398	789
Finished goods	1,246	1,382
Payments on account	17	-
	1,690	2,242
Inventories stated at net realisable value	238	161
Amount of inventory write-down	2	1
Reversal of inventory write-down	11	6

Inventories are stated after provisions for impairment of £231m (2019: £214m).

9 Trade receivables and other assets

	Current		Non-current		Total	
	2020 £m	2019 ⁴ £m	2020 £m	2019 ⁴ £m	2020 £m	2019 ⁴ £m
Trade receivables ¹	1,430	1,046	-	-	1,430	1,046
Receivables due on RRSAs	607	718	82	148	689	866
Amounts owed by:						
Subsidiary undertakings	2,893	825	-	-	2,893	825
Joint ventures ¹	413	105	-	-	413	105
Parent undertaking	331	2,228	-	-	331	2,228
Costs to obtain contracts with customers ²	5	8	4	6	9	14
Prepayments	338	329	425	239	763	568
Other taxation and social security receivable	123	87	-	-	123	87
Other receivables ³	432	637	19	-	451	637
	6,572	5,893	530	393	7,102	6,376

¹ Includes £483m (2019: £120m) of trade receivables held to collect or sell and £361m (2019: £76m) receivables from joint ventures and associates held to collect or sell.

² These are amortised over the term of the related contract, resulting in amortisation of £3m (2019: £4m) in the year. There were no impairment losses.

³ Includes £2m of amounts owed by the UK Government at 31 December 2020 for amounts claimed by the Group under furlough arrangements. In addition, other receivables includes unbilled recoveries relating to overhaul activity.

⁴ During the year the presentation of trade receivables and other assets has been analysed in greater detail, without changing the total amount previously reported. As a consequence some comparative balances and currency movements have been represented in additional and more appropriate line items. Trade receivables have decreased by £184m, costs to obtain contracts with customers have increased by £2m and other receivables have decreased by £771m. Receivables due on RRSAs and other taxation & social security receivable totalling £953m are now presented as separate lines. The total amount of trade receivables and other assets from 2019 remains unchanged.

Amounts owed by group undertakings are unsecured, interest free, have no fixed date of repayment and are repayable on demand.

The Company has historically undertaken the sale of trade receivables, without recourse, to banks (commonly known as invoice discounting or factoring). This activity has previously been used to normalise customer receipts as certain aerospace customers have extended their payment terms. This in turn has helped normalise Company cash flows in line with physical delivery volumes. During the year to 31 December 2020, invoice discounting has substantially reduced. At 31 December 2020, £54m was drawn under factoring facilities, a decrease of £1,063m compared to December 2019, representing cash collected before it was contractually due from the customer. Trade receivables factored are generally due within the following quarter.

9 Trade receivables and other assets continued

The expected credit losses on parent undertakings amounts to **nil** (2019: £0.1m). The assumptions and inputs used for the estimation of the allowance takes into account the market credit ratings. The allowance is estimated between 0% and 0.1% of the gross amount receivable and is unchanged in respect to prior year.

The expected credit losses for trade receivables and other assets has increased by £81m to £153m (31 December 2019: £72m). This increase is mainly driven by the impact of COVID-19 on the Civil Aerospace business of £78m, of which £27m relates to the deterioration of the market credit ratings of our customers and £51m relates to updates to the recoverability of other receivables.

The assumptions and inputs used for the estimation of the expected credit losses are disclosed in the table below:

	2020			2019		
	Trade receivables and other financial assets	Loss allowance	Average expected credit loss rate %	Trade receivables and other financial assets	Loss allowance	Average expected credit loss rate %
	£m	£m	%	£m	£m	%
Investment grade	925	(9)	1%	885	(13)	1%
Non-investment grade	141	(7)	5%	184	(2)	1%
Without credit rating	2,081	(137)	7%	1,579	(57)	4%
	3,147	(153)	5%	2,648	(72)	3%

The movements of the Company expected credit losses provision are as follows:

	2020	2019
	£m	£m
At 1 January	(72)	(35)
Increases in loss allowance recognised in the income statement during the year	(71)	(38)
Loss allowance utilised	4	–
Releases of loss allowance previously provided	1	1
Other net movements	(15)	–
Net book value	(153)	(72)

10 Contract assets and liabilities

	Current		Non-current		Total	
	2020	2019	2020	2019	2020	2019
Contract assets						
Contract assets with customers	181	80	517	597	698	677
Participation fee contract assets	27	23	154	186	181	209
	208	103	671	783	879	886

¹ Contract assets and contract liabilities have been presented on the face of the balance sheet in line with the operating cycle of the business. Contract liabilities is further split according to when the related performance obligation is expected to be satisfied and therefore when revenue is estimated to be recognised in the income statement. Further disclosure of contract assets is provided in the table above, which shows within current the element of consideration that will become unconditional in the next year.

² Contract assets are classified as non-financial instruments.

Contract assets mainly consist of LTSA assets. The main driver of the decrease in the Company balance is due to: timing differences between revenue being recognised on a stage of completion basis and when customers are billed; and £589m (2019: £163m) of revenue recognised in the year relating to performance obligations satisfied in previous years.

Participation fee contract assets have reduced as balances are amortised. No impairment losses of contract assets (2019: none) have arisen during the year to 31 December 2020.

There has been no movement in the absolute value of expected credit losses for contract assets of £13m (2019: £13m).

	Current		Non-current		Total	
	2020	2019	2020	2019	2020	2019
	£m	£m	£m	£m	£m	£m
Contract liabilities	2,580	2,549	4,381	4,345	6,961	6,894

During the year £1,265m (2019: £1,951m) of the opening contract liability was recognised as revenue. Contract liabilities have increased by £67m. The increase is mainly due to higher Defence deposits and is partly offset by a reduction in deposits held in Civil Aerospace, reflecting utilisation of amounts received in previous years as engines and aftermarket services were delivered in 2020. As a result of COVID-19 the level of new deposits received were at lower than normal levels.

10 Contract assets and liabilities continued

The Civil Aerospace LTSA revenue recognised as the performance obligations have been completed has exceeded cash receipts in the year due to the lower level of flying hours that drive cash receipts, decreasing the contract liability. This has been offset due to the 54% decrease in current year Civil Aerospace engine flying hours, together with a phased recovery, resulting in revenue relating to performance obligations satisfied in previous years being adjusted downwards by £466m which increases the contract liability.

11 Cash and cash equivalents

	2020 £m	2019 £m
Cash at bank and in hand	339	253
Money-market funds	660	1,090
Short-term deposits	1,813	2,504
Cash and cash equivalents	2,812	3,847
Overdrafts (note 13)	(2)	(5)

Balances are presented on a net basis when the Company has both a legal right of offset and the intention to either settle on a net basis or realise the asset and settle the liability simultaneously.

12 Other financial assets and liabilities

Details of the Company's policies on the use of financial instruments are given in the accounting policies on pages 125 and 126.

The fair values of other financial instruments held by the Company are as follows:

	Foreign exchange contracts £m	Commodity contracts £m	Interest rate contracts £m	Derivative financial instruments £m	Financial RRSAs £m	Other £m	Total £m
2020							
Current assets	51	4	43	98	-	-	98
Non-current assets	377	9	257	643	-	-	643
Current liabilities	(532)	(17)	(11)	(560)	(10)	(16)	(586)
Non-current liabilities	(2,794)	(19)	(113)	(2,926)	(64)	-	(2,990)
	(2,898)	(23)	176	(2,745)	(74)	(16)	(2,835)
2019							
Current assets	70	8	49	127	-	-	127
Non-current assets	229	7	204	440	-	-	440
Current liabilities	(392)	(4)	-	(396)	(41)	(26)	(463)
Non-current liabilities	(2,957)	(5)	(10)	(2,972)	(73)	(16)	(3,061)
	(3,050)	6	243	(2,801)	(114)	(42)	(2,957)

Derivative financial instruments

The Company uses various financial instruments to manage its exposure to movements in foreign exchange rates. The Company uses commodity swaps to manage its exposure to movements in the price of commodities (jet fuel and base metals). To hedge the currency risk associated with a foreign currency borrowing, the Company has currency derivatives designated as part of a fair value hedge. The Company uses interest rate swaps to manage its exposure to movements in interest rates.

Movements in the fair values of derivative financial instruments were as follows:

	Foreign exchange instruments £m	Commodity instruments £m	Hedge accounted interest rate instruments £m	Non-hedge accounted interest rate instruments £m	Total £m
At 1 January 2019	(3,682)	(27)	293	-	(3,416)
Movements in fair value hedges	-	-	(28)	-	(28)
Movements in other derivative contracts	(26)	37	-	14	25
Contracts settled	658	(4)	(36)	-	618
At 1 January 2020	(3,050)	6	229	14	(2,801)
Movements in fair value hedges	-	-	139	-	139
Movements in cash flow hedges	-	-	(60)	-	(60)
Movements in other derivative contracts	(14)	(62)	-	(75)	(151)
Contracts settled	166	33	(75)	4	128
At 31 December 2020	(2,898)	(23)	233	(57)	(2,745)

Where applicable, market values have been used to determine fair values. Where market values are not available, fair values have been calculated by discounting expected future cash flows at prevailing interest rates and translating at prevailing exchange rates.

Financial risk and revenue sharing arrangements (RRSAs)

The Company has financial liabilities arising from financial RRSAs. These financial liabilities are valued at each reporting date using the amortised cost method. This involves calculating the present value of the forecast cash flows of the arrangements using the internal rate of return at the inception of the arrangements as the discount rate.

12 Other financial assets and liabilities continued

The amortised cost values of financial RRSAs were as follows:

	Financial RRSAs	Other	Financial RRSAs	Other
	2020 £m	2020 £m	2019 £m	2019 £m
At 1 January	(114)	(42)	(150)	(41)
Cash paid	32	8	34	24
Additions	-	8	-	(26)
Changes in forecast payments	17	-	10	-
Financing charge	(8)	-	(11)	-
Exchange adjustments	(1)	-	2	1
Other	-	10	1	-
At 31 December	(74)	(16)	(114)	(42)

13 Borrowings and lease liabilities

	Current		Non-current	
	2020 £m	2019 £m	2020 £m	2019 £m
Unsecured				
Overdrafts	2	5	-	-
Bank loans	-	-	-	-
Commercial paper ¹	300	-	-	-
2.375% Notes 2020 US\$500m ²	-	378	-	-
2.125% Notes 2021 €750m ²	680	-	-	655
0.875% Notes 2024 €550m ³	-	-	511	481
3.625% Notes 2025 US\$1,000m ³	-	-	800	781
3.375% Notes 2026 £375m ⁴	-	-	420	410
4.625% Notes 2026 €750m ⁵	-	-	667	-
5.75% Notes 2027 US\$1,000m ⁵	-	-	724	-
5.75% Notes 2027 £545m	-	-	539	-
1.625% Notes 2028 €550m ³	-	-	545	501
	982	383	4,206	2,828
Lease liability – Land and buildings	15	15	128	145
Lease liability – Aircraft and engines	1	1	5	6
Lease liability – Plant and equipment	18	16	47	46
Total lease liabilities	34	32	180	197
Total borrowings and lease liabilities	1,016	415	4,386	3,025
Repayable – other than by instalments:				
	Less than one year £m	Between two and five years £m	After five years £m	Total £m
At 31 December 2020				
Unsecured borrowings	982	1,311	2,895	5,188
Lease liabilities	34	116	64	214
	1,016	1,427	2,959	5,402
At 31 December 2019				
Unsecured borrowings	383	1,136	1,692	3,211
Lease liabilities	32	105	92	229
	415	1,241	1,784	3,440

All outstanding items described as notes above are listed on the London Stock Exchange.

¹ On the 27 April 2020, the Company issued Commercial paper of £300m to the Covid Corporate Financing Facility (CCFF), a fund operated by the Bank of England on behalf of HM Treasury. The borrowings are repayable on 17 March 2021 and are held on the balance sheet at amortised cost.

² These notes are the subject of cross-currency interest rate swap agreements under which the Company has undertaken to pay floating rates of GBP interest, which form a fair value hedge.

³ These notes are the subject of cross-currency interest rate swap agreements under which the Company has undertaken to pay floating rates of GBP interest, which form a fair value hedge. They are also subject to interest rate swap agreements under which the Company has undertaken to pay fixed rates of interest, which are classified as fair value through profit and loss.

⁴ These notes are the subject of interest rate swap agreements under which the Company has undertaken to pay floating rates of interest, which form a fair value hedge. They are also subject to interest rate swap agreements under which the Company has undertaken to pay fixed rates of interest, which are classified as fair value through profit and loss.

⁵ These notes are the subject of cross-currency interest rate swap agreements under which the Company has undertaken to pay fixed rates of GBP interest, which form a cash flow hedge.

During the year, the Company issued \$1,000m, €750m and £545m of bond notes, €750m of which matures in 2026 and \$1,000m and £545m in 2027. The Company also repaid a \$500m bond during the year. The Company issued £300m of commercial paper under the Covid Corporate Finance Facility made available by the Bank of England in response to COVID-19.

The Company also entered into a new committed £2,000m loan maturing 2025 (supported by an 80% guarantee from UK Export Finance and available to draw until June 2021) and a new £1,000m bank loan maturing 2022. Also during 2020 the Company extended the maturity of the £2,500m committed revolving credit facility from 2024 to 2025. These facilities were undrawn at the year end. None of these facilities are subject to any financial covenant.

14 Leases

Leases as lessee

The net book value of lease right-of-use assets at 31 December 2020 was £160m (2019: £206m) (as per note 5), with a lease liability of £214m (2019: £229m) (as per note 13). There are no leases that have not yet commenced to which the Company is committed. The financial statements include the following amounts relating to leases:

	2020 £m
Land and buildings depreciation and impairment	(29)
Plant and equipment depreciation and impairment	(27)
Aircraft and engines depreciation and impairment	(1)
Total depreciation and impairment charge for right-of-use assets	(57)

The Company's leasing activities as lessee and how they are accounted for

The Company leases aero engines that are used to support customers' aircraft fleets; land and buildings used for production, administration or training purposes; and equipment used in the manufacturing process and to support commercial and administrative activities. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease arrangements do not impose any covenants, but leased assets may not be used as security for borrowing purposes.

Right-of-use assets and lease liabilities arising over the lease term are initially measured on a present value basis. The lease term represented is the non-cancellable period of the lease together with periods covered by an option to extend the lease where the Company is reasonably certain to extend. Lease liabilities include the net present value of the following lease payments where such flows exist:

- fixed payments less any lease incentive;
- variable lease payments that are based on an index or a rate;
- amounts expected to be payable by the Company under residual value guarantees;
- the exercise price of a purchase option if the Company is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease, if the lease term reflects the Company exercising that option.

Leases for engines typically contain no specific contractual right to renew. Certain land and building leases have renewal options with renewal dates for the most significant property leases in 2025 and 2028. Such judgements on lease terms are made each period end and consider the specific terms of the lease and the operational significance of the site, especially where utilised for manufacturing activities. Lease obligations beyond the renewal dates are included in the lease liability where we are reasonably certain to extend the lease.

Engine leases in the Civil Aerospace business often include clauses that require the engines to be returned to the lessor with specific levels of useable life remaining. The cost of meeting these requirements are included in the estimate of the lease payments set out above. The amount payable is dependent upon the utilisation of the engines over the lease term, whether the engine is restored to the required condition by performing an overhaul at our own cost or through the payment of amounts specified in the contract and any new contractual arrangements arising when the current lease contracts end. Where estimates of payments change, an adjustment is made to the lease liability and the right-of-use asset. If the adjustment exceeds the value of the right-of-use asset, the balance is credited to the income statement. Liabilities in USD and other non-functional currencies are reported at the closing spot rates with changes arising from a change in exchange rates reported within financing.

On transition to IFRS 16 *Leases* on 1 January 2019, finance leases continued to be recognised at their 2018 closing value and operating leases were measured at the present value of the remaining lease payments discounted using an incremental borrowing rate appropriate to the lease. For new leases, the lease payments are discounted using the interest rate implicit in the lease or if that rate cannot be readily determined, which is generally the case for leases in the Company, the incremental borrowing rate, being the rate required to pay to borrow the funds necessary to obtain an asset of similar value to the right-of-use asset in a similar economic environment with similar terms, security and conditions.

To determine the incremental borrowing rate, the Company uses a build-up approach that starts with the risk-free interest rate which is then adjusted for credit risk to reflect the nature of the borrowing based on empirical evidence of similar external borrowings undertaken by the Company. The rate used reflects the term and currency of the lease.

The Company is exposed to potential future increases in lease payments where the amount paid is based on an index (such as LIBOR) or rate, which are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is remeasured and an equivalent adjustment is made to the right-of-use asset except where the change results from a change in the floating interest rates when a revised discount rate is used that reflects changes in those rates.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of the lease liability or a revaluation of the liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- restoration costs.

Each right-of-use asset is depreciated over the shorter of its useful life and the lease term on a straight-line basis unless the lease is expected to transfer ownership of the underlying asset to the Company in which case the asset is depreciated to the end of the useful life of the asset.

14 Leases continued

Income from sub-leasing right-of-use assets is primarily generated from the use of engines by our Civil Aerospace customers. In a small number of circumstances current excess property capacity is sub-let at market rates.

Leases as lessor

The Company acts as lessor for engines to customers when they require engines to support their fleets. All such contracts where we are lessor are operating leases. The Company also leases out a small number of properties or parts of properties and a finance lease, where there is excess capacity under operating leases.

15 Trade payables and other liabilities

	Current		Non-current		Total	
	2020 £m	2019 ³ £m	2020 £m	2019 ³ £m	2020 £m	2019 ³ £m
Trade payables	709	861	—	62	709	923
Payables due on RRSAs	697	1,029	—	—	697	1,029
Amounts owed to:						
Subsidiary undertakings	5,493	4,397	—	—	5,493	4,397
Joint ventures and associates	576	910	1	37	577	947
Parent undertaking	—	10	—	—	—	10
Customer concessions payable	1,534	1,461	514	495	2,048	1,956
Warranty credits	173	185	196	218	369	403
Accruals	1,205	1,478	101	74	1,306	1,552
Deferred receipts from RRSA workshare partners	16	16	500	507	516	523
Government grants ¹	2	1	20	23	22	24
Other taxation and social security	46	34	—	—	46	34
Other payables ²	231	455	305	351	536	806
	10,682	10,837	1,637	1,767	12,319	12,604

¹ During the year, £6m (2019: £2m) of government grants were recognised in the income statement.

² Other payables include £46m (2019: £73m) for financial penalties from agreements with investigating bodies, parts purchase obligations, payroll liabilities and HMG levies.

³ During the year the presentation of trade payables and other liabilities has been analysed in greater detail, without changing the total amount previously reported. As a consequence some comparative balances and currency movements have been represented in additional and more appropriate line items. Trade payables have decreased by £345m, amounts owed to joint ventures and associates increased by £118m, accruals have decreased by £38m and other payables have decreased by £3,123. Payables due on RRSA, customer concession credits and warranty credits totalling £3,388m are now presented as separate lines. The total amount of trade payables and other liabilities in 2019 is unchanged.

Amounts due to group undertakings are unsecured, interest free, have no fixed date of repayment and are repayable on demand.

The carrying amounts of trade and other payables are considered to be the same as their fair values, due to their short-term nature.

Our payment terms with suppliers vary on the products and services being sourced, the competitive global markets we operate in and other commercial aspects of suppliers' relationships. Industry average payment terms vary between 90-120 days. We offer reduced payment terms for smaller suppliers, so that they are paid in 30 days. In line with aerospace industry practice, we offer a supply chain financing (SCF) programme in partnership with banks to enable suppliers, including joint ventures, who are on our standard 75-day payment terms to receive their payments sooner. The SCF programme is available to suppliers at their discretion and does not change our rights and obligations with suppliers nor the timing of our payment of suppliers. At 31 December 2020 suppliers had drawn £582m under the SCF scheme (2019: £859m).

16 Provisions for liabilities and charges

	At 1 January 2020 £m	Charged to income statement ¹ £m	Reversed £m	Utilised £m	At 31 December 2020 £m
Trent 1000 exceptional costs	1,382	40	(560)	(541)	321
Contract losses	792	412	(343)	(18)	843
Warranties and guarantees	25	3	(1)	(3)	24
Customer financing	22	—	(5)	—	17
Restructuring	41	299	(37)	(165)	138
Tax related interest and penalties	18	3	(18)	—	3
Employer liability claims	10	—	(1)	(1)	8
Other	—	59	(1)	—	58
	2,290	816	(966)	(728)	1,412
Current liabilities	667				506
Non-current liabilities	1,623				906

¹ The charge to the income statement includes £48m as a result of the unwinding of the discounting of provisions previously recognised.

16 Provisions for liabilities and charges continued

Trent 1000 exceptional costs

In November 2019, the Group announced the outcome of testing and a thorough technical and financial review of the Trent 1000 TEN programme, following technical issues which were identified in 2019, resulting in a revised timeline and a more conservative estimate of durability for the improved HP turbine blade for the TEN variant. An exceptional charge of £1,361m (at underlying exchange rates) was recorded in 2019, £1,531m at prevailing exchange rates and net of £203m reflecting insurance receipts and contract accounting adjustments. Of the charge, £1,275m was recorded in relation to Trent 1000 exceptional costs, and £459m in relation to contract losses (see below). During the year ended 31 December 2020, and reflecting the impact of COVID-19 and the work we have performed to reduce fleet AOG levels and improve the availability of spare engines, the total estimated Trent 1000 cash costs relating to remediation shop visits and customer disruption reduced the provision by £560m, taking into account the expected underlying exchange rates and a share of the costs borne by the RRSAs the income statement impact was £390m (see note 2). In the year the Group has utilised £541m of the Trent 1000 exceptional costs provision. This represents customer disruption costs settled in cash and credit notes, and remediation shop visit costs. The remaining provision is expected to be utilised over the period 2021 to 2023.

A 12-month delay in the availability of the modified HPT blade (from mid-2021 to mid-2022) could lead to a £60-100m increase in the Trent 1000 exceptional costs provision.

Contract losses

Provisions for contract losses are recorded when the direct costs to fulfil a contract are assessed as being greater than the expected revenue. Provisions for contract losses are expected to be utilised over the term of the customer contracts, typically within 10-15 years.

During 2019, contract losses of £459m (at prevailing exchange rates) were recognised relating to the upfront recognition of future losses on a small number of contracts which became loss making as a result of the margin impact of the updated HP turbine durability expectations on the Trent 1000 TEN. During the year, these Trent 1000 TEN loss-making contracts have improved by £230m. For these contracts, a reduction in flying hours resulting from COVID-19 has allowed for a reassessment of shop visits required and the cost savings identified have more than offset the reduction in future revenue leading to an improvement in the overall position of these contracts.

EFHs have reduced as a result of the impact of COVID-19. For certain Civil Aerospace contracts, the impact of this reduction across the contract term has been to significantly reduce revenue without an associated reduction in shop visit costs. Consequently, during the year there have been an increased number of contracts that have become loss-making. A reduction in Civil Aerospace widebody engine flying hours of 15% and the associated decrease in revenue and cost impact could lead to a £10m – £15m increase in the onerous contract provision.

Additional contract losses of £406m have been recognised in the year, together with £36m relating to changes in foreign exchange and the effect of discounting.

Warranties and guarantees

Provisions for warranties and guarantees primarily relate to products sold and generally cover a period of up to three years.

Restructuring

In May 2020, the Company announced a fundamental restructuring programme in response to the financial and operational impact caused by COVID-19, this activity will reshape and resize the Company. As a consequence of this announcement, and based on the detailed plans communicated during 2020, a provision of £262m has been recorded and recognised in cost of sales and commercial and administrative costs. During the year, £165m has been utilised as part of these plans. At 31 December 2020, the provision of £138m is expected to be utilised over the period 2021-2022. Included within the exceptional charge of £341m are costs of £79m associated with other initiatives to enable the restructuring charged directly to the income statement.

Customer financing

Customer financing provisions have been made to cover guarantees provided for asset value and/or financing where it is probable that a payment will be made.

In addition to the provisions recognised, the Group has contingent liabilities for customer financing arrangements where they payment is not probable as described below.

In connection with the sale of its products the Company will, on some occasions, provide financing support for its customers, generally in respect of civil aircraft. The Company's commitments relating to these financing arrangements are spread over many years, relate to a number of customers and a broad product portfolio and are generally secured on the asset subject to the financing. These include commitments of **US\$1.9bn** (2019: US\$2.8bn) (on a discounted basis) to provide facilities to enable customers to purchase aircraft (of which approximately US\$630m could be called during 2021). These facilities may only be used if the customer is unable to obtain financing elsewhere and are priced at a premium to the market rate. Significant events impacting the international aircraft financing market, including the COVID-19 pandemic, the failure by customers to meet their obligations under such financing agreements, or inadequate provisions for customer financing liabilities may adversely affect the Group's financial position.

Commitments on delivered aircraft in excess of the amounts provided are shown in the table below. These are reported on a discounted basis at the Company's borrowing rate to better reflect the time span over which these exposures could arise. These amounts do not represent values that are expected to crystallise. The commitments are denominated in US Dollars. As the Company does not generally adopt cash flow hedge accounting for future foreign exchange transactions, this amount is reported together with the sterling equivalent at the reporting date spot rate. The values of aircraft providing security are based on advice from a specialist aircraft appraiser.

16 Provisions for liabilities and charges continued

The discounted value of the total gross contingent liabilities relating to financing arrangements on all delivered aircraft less insurance arrangements and relevant provisions were:

	2020		2019	
	£m	\$m	£m	\$m
Gross contingent liabilities	38	52	60	79
Value of security	(14)	(19)	(9)	(11)
Indemnities	(5)	(6)	(8)	(11)
Net commitments	19	27	43	57
Net commitments with security reduced by 20% ¹	22	30	43	57

¹ Although sensitivity calculations are complex, the reduction of the relevant security by 20% illustrates the sensitivity of the contingent liability to this assumption.

Insurance

The Company's captive insurance company retains a portion of the exposures it insures on behalf of the remainder of the Company. Significant delays occur in the notification and settlement of claims and judgement is involved in assessing outstanding liabilities, the ultimate cost and timing of which cannot be known with certainty at the balance sheet date. The insurance provisions are based on information currently available, however it is inherent in the nature of the business that ultimate liabilities may vary. Provisions for outstanding claims are established to cover the outstanding expected liability as well as claims incurred but not yet reported.

Tax related interest and penalties

Provisions for tax related interest and penalties relate to uncertain tax positions. Utilisation of the provisions will depend on the timing of resolution of the issues with the Tax Authority.

Employer liability claims

The provision relating to employer healthcare liability claims is as a result of an historical insolvency of the previous provider and is expected to be utilised over the next 30 years.

Other

Other provisions comprise a number of liabilities with varying expected utilisation rates.

17 Deferred taxation

	2020 £m	2019 £m
At 1 January	1,073	993
Impact of adoption of IFRS 16	–	2
Amount charged to income statement	(475)	(231)
Amount credited to statement of comprehensive income	165	308
Amount credited to equity	5	1
At 31 December	768	1,073
Deferred tax assets	1,077	1,472
Deferred tax liabilities	(309)	(399)
Deferred tax	768	1,073

The analysis of the deferred tax position is as follows:

	2020 £m	2019 £m
Property, plant and equipment	68	9
Intangible assets	(229)	(225)
Other temporary differences	45	51
Pensions and other post-retirement scheme benefits	(309)	(399)
Foreign exchange and commodity financial assets and liabilities	185	426
Losses	801	1,010
Advance corporation tax	163	163
Research and development expenditure credit withholding tax	44	38
	768	1,073

Unprovided deferred tax

Foreign exchange and commodity financial assets and liabilities	369	86
Losses	1,181	438
	1,550	524

Gross amount of losses and other deductible temporary differences for which no deferred tax has been recognised on which there is no expiry

Foreign exchange and commodity financial assets and liabilities	1,940	503
Losses	6,214	2,575
	8,154	3,078

Deferred tax assets of £1,077m include £801m (2019: £1,010m) relating to tax losses and £163m (2019: £163m) relating to Advance Corporation Tax (ACT). These assets have been recognised based on the expectation that the business will generate taxable profits and tax liabilities in the future against which the losses and ACT can be utilised.

17 Deferred taxation continued

Most of the tax losses relate to the Civil Aerospace widebody business which makes initial losses through the investment period of a programme and then makes a profit through its contracts for services. The programme lifecycles typically range between 30 and 55 years with more of the widebody engine programmes forecast at the upper end of that range. In the past few years there have been four new engines that have entered into service (Trent 1000-TEN, Trent 7000 and Trent XWB-84 and Trent XWB-97), all of which are still in the investment stage.

Deferred tax assets are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised. A recoverability assessment has been undertaken, taking account of deferred tax liabilities against which the reversal can be offset and using latest UK forecasts, which are mainly driven by the Civil Aerospace widebody business, to assess the level of future taxable profits.

The recoverability of deferred tax assets relating to tax losses and ACT has been assessed in 2020 on the following basis:

- Using the most recent UK profit forecasts prepared by management, which are consistent with past experience and external sources on market conditions. These forecasts cover the next five years;
- The long-term forecast profit profile of certain of the major widebody engine programmes which is typically between 30 and 55 years from initial investment to retirement of the fleet, including the aftermarket revenues earned from airline customers; and
- The long-term forecast profit and cost profile of the other parts of the business.

The assessment takes into account UK tax laws that, in broad terms, restrict the offset of the carried forward tax losses to 50% of current year profits.

Based on this assessment, the Company has recognised a deferred tax asset of £801m relating to losses and £163m relating to ACT. This reflects the conclusions that:

- It is probable that the business will generate taxable income and tax liabilities in the future against which these losses and the ACT can be utilised.
- Based on current forecasts and using various scenarios these losses and the ACT will be used in full within the next 20 to 30 years which is within the expected widebody engine programme lifecycles.
- The Company has not recognised any deferred tax assets in respect of 2020 UK losses and de-recognised £327m of the deferred tax asset on the balance sheet at 31 December 2019.
- This is based on management's assumptions relating to the amounts and timing of future taxable profits and takes into account the impact of COVID-19 and climate change on existing widebody engine programmes.

Changes in future profits will impact the recoverability of the deferred tax assets and as explained in note 1, the key assumptions impact contract margins. A 5% change in such margins or a 5% reduction in shop visits over the remaining life of the programmes, against which the recovery of the tax losses and ACT is assessed, would result in a variance of around £100m in the related deferred tax balances recorded on the balance sheet, assuming a 19% tax rate and the 50% loss offset restriction mentioned above.

The assessment also considered the potential impact of climate change on profit forecasts, including additional taxes and levies that could arise and changes in consumer behaviour which could result in a reduction in shop visits (driven by EFHs, which are influenced by a number of factors including climate change). A 5% reduction in shop visits over the remaining life of the programmes would result in a variance of around £100m in the related deferred tax balances.

The Company has also reassessed the recovery of other deferred tax assets, including those arising on unrealised losses on derivative contracts. Any future changes in tax law or the structure of the Company could have a significant effect on the use of losses and ACT, including the period over which they can be used. In view of this and the significant judgement involved the Board continuously reassess this area.

The Spring Budget 2020 announced that the UK corporation tax rate would remain at 19% rather than reducing to 17% from 1 April 2020. The new law was substantively enacted on 17 March 2020. The prior year UK deferred tax assets and liabilities were calculated at 17%, as this was the enacted rate at the 2019 balance sheet date. As the 19% rate has been substantively enacted before 31 December 2020, the UK deferred tax assets and liabilities have been re-measured at 19%.

The resulting credits and charges have been recognised in the income statement except to the extent that they relate to items previously credited or charged to equity. Accordingly, in 2020, £143m has been credited to the income statement and £6m has been credited directly to equity.

The Spring Budget 2021 announced that the UK corporation tax rate will increase to 25% from 1 April 2023. The net deferred tax asset has been calculated at 19% as this rate has been substantively enacted at the balance sheet date. Had the 25% rate been substantively enacted on or before 31 December 2020 it would have had the effect of increasing the net deferred tax asset by £275m.

The unrecognised deferred tax assets on losses and foreign exchange financial assets and liabilities would increase by £373m and £116m respectively if the 25% had been substantively enacted at the balance sheet date.

The temporary differences associated with investments in subsidiaries, joint ventures and associates, for which a deferred tax liability has not been recognised, aggregate to £907m (2019 restated: £770m). No deferred tax liability has been recognised on the potential withholding tax due on the remittance of undistributed profits as the Company is able to control the timing of such remittances and it is probable that consent will not be given in the foreseeable future.

18 Post-retirement benefits

Defined benefit schemes

The Company operates a funded UK defined benefit scheme, with the assets held in a separate trustee administered fund. Employees are entitled to retirement benefits based on either their final or career average salaries and length of service. On 31 December 2020, the scheme was closed to future accrual.

The valuation of the defined benefit scheme is based on the most recent funding valuation, where relevant, updated by the scheme actuaries to 31 December 2020. Although the 31 March 2020 valuation is not yet finalised; the initial results have been used.

Changes to the UK defined benefit scheme

The defined benefit schemes expose the Company to actuarial risks such as longevity, interest rate, inflation and investment risks. The Trustee has adopted investment policies to mitigate some of these risks. This involves investing a significant proportion of the schemes' assets in liability driven investment (LDI) portfolios, which hold investments designed to offset interest rate and inflation rate risks. In addition during 2019, the scheme completed a partial buy-in/buy-out of UK pensioner liabilities.

On 5 June 2019, the Company entered into a partial buy-in with Legal and General Assurance Society Limited covering the benefits of circa 33,000 in-payment pensioners. The buy-in was in anticipation of a buy-out, the final 10% of which concluded on 1 February 2020. Pension assets and liabilities of £422m were derecognised from the Company's balance sheet on this date and this had no impact on the income statement or OCI in the current period. In relation to this transaction, at 31 December 2019, an asset remeasurement net loss estimated at £600m was recognised within the line - 'Actuarial gains/(losses) recognised in OCI'.

A consultation with active managers in the UK scheme was concluded in January 2020. The consultation process agreed certain changes for the relevant manager group which would mitigate future funding cost increases. The changes gave rise to a past service gain of £35m.

On the 20 May 2020, the Company announced its intention to reshape and resize the Company due to the financial and operational impact of COVID-19. As part of this restructuring programme, a voluntary severance programme was offered to certain UK employees and pension liabilities were remeasured as at 30 June 2020 to reflect the number of members who were expected to leave the scheme. In addition, the Company agreed with the Trustee of the RRUKPF to offer a new Bridging Pension Option (BPO) to both active members and also those members leaving on severance. This option allows members to take a larger proportion of their pension prior to reaching the state retirement age and a lower amount thereafter. The accounting impact of these changes gave rise to a past service gain of £213m which was been recognised as a non-underlying profit in the period to 30 June 2020 (see note 2). The assumptions for members remaining employed have subsequently been updated to reflect actual experience, resulting in a demographic loss of £80m, which is included in Actuarial gains/(losses) recognised in OCI. In addition, for members leaving on severance, an experience loss of £47m is also included in Actuarial gains/(losses) recognised in OCI.

On the 29 July 2020, the Company announced a consultation with the active members of the UK scheme on a proposal to close the scheme to future accrual on 31 December 2020. Following the conclusion of this consultation, the closure of the scheme was confirmed, which gave rise to a non-underlying past-service credit of £67m. This primarily arises from the breakage of the link between accrued pensions and salaries for non-manager members (this link had already been largely broken for manager members as a result of the January 2020 consultation described below). Following the confirmation of the scheme closure, the Company is in discussions with the employees' representatives and the Trustee regarding possible additional transitional protections that could be granted from the scheme. Based on the progress of the talks up to 31 December 2020, the Company has allowed for some reductions in the change to the obligation recognised at 31 December. The final details are expected to be agreed in 2021 when any differences will be recognised.

	2020 £m	2019 £m
Amounts recognised in OCI in respect of defined benefit schemes		
Actuarial gains and losses arising from:		
Demographic assumptions ¹	(85)	309
Financial assumptions ²	(1,387)	(1,723)
Experience adjustments ³	(157)	79
Return on plan assets excluding financing income ²	1,166	456
	(463)	(879)

¹ This includes the change in assumption on the take-up rate for the BPO (see above) and reflects latest available CMI mortality projections and an update of the post-retirement mortality assumptions based on an analysis prepared for the 31 March 2020 funding valuation.

² These arise primarily due to changes in interest rates and inflation.

³ This reflects updated membership data available from the 31 March 2020 funding valuation, actual experience of options selected by members leaving employment under the voluntary severance arrangements (see above) offset by lower than expected pension and deferred pension increases.

	2020 £m	2019 £m
Amounts recognised in the balance sheet in respect of defined benefit schemes		
Present value of funded obligations	(8,879)	(8,499)
Fair value of scheme assets	9,762	9,640
Net asset recognised in the balance sheet – Post retirement surplus ¹	883	1,141

¹ The surplus is recognised as, on an ultimate wind-up when there are no longer any remaining beneficiaries, any surplus would be returned to the Company, which has the power to prevent the surplus being used for other purposes in advance of this event.

18 Post-retirement benefits continued

Assumptions

Significant actuarial assumptions used at the balance sheet date were as follows:

	2020 £m	2019 £m
Discount rate	1.45%	2.15%
Inflation assumption (RPI) ¹	3.10%	3.15%
Rate of increase in salaries ²	2.55%	3.15%
Transfer assumption (active/deferred)	40%/40%	45%/35%
BPO assumption	30%	n/a
Life expectancy from age 65: current male pensioner	21.8 years	21.8 years
future male pensioner currently aged 45	23.2 years	23.1 years
current female pensioner	23.6 years	23.1 years
future female pensioner currently aged 45	25.4 years	25.0 years

¹ This is the assumption for the Retail Price Index. The Consumer Price Index is assumed to be on average 0.55% lower, taking account of the announcement in 2020 that from 2030, RPI will be replaced by CPIH (2019: 1.0% lower).

² Following the closure to future accrual, future salaries do not affect the defined benefit obligation. This assumption (with zero increase in 2021) was made to determine the split between past-service credit arising from the closure included in the income statement and the actuarial gain or loss included in OCI.

Discount rates are determined by reference to the market yields on AA rated corporate bonds. The rate is determined by using the profile of forecast benefit payments to derive a weighted average discount rate from the yield curve.

The inflation assumption is determined by the market-implied assumption based on the yields on long-term index-linked government securities and increases in salaries are based on actual experience, allowing for promotion, of the real increase above inflation.

The mortality assumptions adopted for the UK pension schemes are derived from the SAPS S3 'All' actuarial tables, with future improvements in line with the CMI 2019 core projections updated to reflect use of an 'A' parameter of 0.25% for future improvements and long-term improvements of 1.25%. Where appropriate, these are adjusted to take account of the scheme's actual experience.

The assumption for transfers and the BPO is based on actual experience and actuarial advice. The reduction in the transfer assumption is a result of the introduction of the BPO and assumes that 15% of retiring members opt for the BPO rather than transfer.

Other assumptions have been set on advice from the actuary, having regard to the latest trends in scheme experience and the assumptions used in the most recent funding valuation. The rate of increase of pensions in payment is based on the rules of the scheme, combined with the inflation assumption where the increase is capped.

Changes in present value of defined benefit obligations	2020 £m	2019 £m
At 1 January	(8,499)	(10,847)
Current service cost	(147)	(158)
Past-service cost	308	–
Finance costs	(148)	(303)
Contributions by employees	(2)	(2)
Benefits paid out	816	571
Actuarial losses	(1,629)	(1,335)
Settlement	422	3,575
At 31 December	(8,879)	(8,499)
Funded schemes	(8,879)	(8,499)
Unfunded schemes	–	–

The defined benefit obligations are in respect of:	2020 £m	2019 £m
Active participants ¹	(4,369)	(4,751)
Deferred plan participants	(2,750)	(2,154)
Pensioners	(1,760)	(1,594)
Weighted average duration of obligations (years)	23	23

¹ Although the UK scheme closed to future accrual on 31 December 2020, members who became deferred as a result of the closure and remain employed by the Company retain some additional benefits compared to other deferred members. The obligations for these members are shown as active plan participants.

18 Post-retirement benefits *continued*

	2020 £m	2019 £m
Changes in fair value of scheme assets		
At 1 January	9,640	12,773
Administrative expenses	(6)	(6)
Financing	174	362
Return on plan assets excluding financing	1,166	456
Contributions by employer	24	199
Contributions by employees	2	2
Benefits paid out	(816)	(571)
Settlement	(422)	(3,575)
At 31 December	9,762	9,640
Total return on plan assets	1,340	818

	2020 £m	2019 £m
Fair value of scheme assets		
Sovereign debt	7,220	5,799
Corporate debt instruments	2,878	3,135
Interest rate swaps	52	12
Inflation swaps	(55)	(18)
Cash and similar instruments ¹	(1,156)	(784)
Liability driven investment (LDI) portfolios ²	8,939	8,146
Listed equities	—	323
Unlisted equities	64	95
Synthetic equities ³	41	3
Corporate debt instruments	709	662
Partial buy-in insurance policy	—	408
Other	9	3
At 31 December	9,762	9,640

¹ Cash and similar instruments include repurchase agreements on UK Government bonds amounting to £(1,539)m (2019: £(1,308)m). The latest maturity date for these short-term borrowings is September 2022.

² A portfolio of gilt and swap contracts, backed by investment grade credit instruments and LIBOR generating assets, that is designed to hedge the majority of the interest rate and inflation risks associated with the schemes' obligations.

³ Portfolios of swap contracts designed to provide investment returns in line with global equity markets. The maximum exposure (notional value and accrued returns) on the portfolios was £650m (2019: £328m).

The investment strategy is controlled by the Trustee in consultation with the Company. The scheme assets do not directly include any of the Company's own financial instruments, nor any property occupied by, or other assets used by, the Company. At 31 December 2020, there was **no indirect holding** of the Company's financial instruments (2019: £0.1m).

Future contributions

The Company expects to contribute approximately £100m to its defined benefit scheme in respect of 2021 (2020: £100m).

In the UK, the funding is based on a statutory triennial funding valuation process. This includes a negotiation between the Company and the Trustee on actuarial assumptions used to value obligations (Technical Provisions) which may differ from those used for accounting set out above. The assumptions used to value Technical Provisions must be prudent rather than a best estimate of the liability. Most notably, the Technical Provision discount rate is currently based upon UK Government yields plus a margin (0.5% at the 31 March 2017 valuation) rather than being based on yields of AA corporate bonds. Following the triennial valuation process, a Schedule of Contributions (SoC) must be agreed which sets out the agreed rate of cash contributions and any contributions from the employer to eliminate a deficit. The most recent valuation, as at 31 March 2017, agreed by the Trustee in December 2017, showed that the UK scheme was estimated to be 112% funded on the Technical Provisions basis. Following the closure of the scheme on 31 December 2020, no contributions will be made in respect of future accrual and there are no deficit reduction contributions. The 2021 contributions included above are in respect of 2020 accrual, payment of some of which were deferred in agreement with the Trustee as a result of the COVID-19 pandemic. The current SoC (amended in 2020) includes an arrangement for potential contributions during 2024 to 2027 (capped at £48.3m a year) if the Technical Provisions funding position is below 107% at 31 March 2023. As at 31 December 2020 discussions on the 31 March 2020 triennial valuation were ongoing and the Technical Provisions funding position cannot be estimated until these discussions are concluded in the first half of 2021.

Sensitivities

The calculations of the defined benefit obligations are sensitive to the assumptions set out above. The following table summarises how the estimated impact of a change in a significant assumption would affect the UK defined benefit obligation at 31 December 2020, while holding all other assumptions constant. This sensitivity analysis may not be representative of the actual change in the defined benefit obligation as it is unlikely that the change in assumptions would occur in isolation of one another as some of the assumptions may be correlated.

18 Post-retirement benefits continued

The interest rate and inflation hedging is currently based on UK Government bond yields without any adjustment for any credit spread. The sensitivity analysis set out below have been determined based on a method that estimates the impact on the defined benefit obligation as a result of reasonable changes in key assumptions occurring at the end of the reporting period.

The investment strategies are designed to hedge the risks from interest rates and inflation on an economic basis. The impacts of the principal sensitivities are:

		2020 £m	2019 £m
Reduction in discount rate of 0.25% ¹	Obligation	(530)	(495)
	Plan assets (LDI portfolio)	602	502
Increase in inflation rate of 0.25% ¹	Obligation	(290)	(290)
	Plan assets (LDI portfolio)	267	235
Increase in real increase in salaries of 0.25%	Obligations	n/a	(80)
Increase of 1% in transfer value assumption	Obligations	(67)	(64)
Increase of 5% of transfers instead of BPO	Obligations	(45)	n/a
One year increase in life expectancy	Obligations	(455)	(408)

¹ The differences between the sensitivities on obligations and plan assets arise largely due to differences in the methods used to value the obligations for accounting purposes and the adopted proxy solvency basis.

Defined contribution schemes

The Company operates a number of defined contribution schemes. The total expense recognised in the income statement was £80m (2019: £56m).

19 Share Capital

	Equity ordinary shares of 20p each Millions	Nominal value £m
Authorised		
At 1 January and 31 December 2020	2,000	400
Issued and fully paid		
At 1 January 2020	1,691	338
At 31 December 2020	1,691	338

Rights, preferences and restrictions

Each member has one vote for each ordinary share held. Holders of ordinary shares are entitled to receive the Company's Annual Report; attend and speak at general meetings of the Company; to appoint one or more proxies or, if they are corporations, corporate representatives; and to exercise voting rights. The ordinary shares are not listed.

20 Share-based payments

Effect of share-based payment transactions on the Company's results

	2020 £m	2019 £m
Total expense recognised for equity-settled share-based payment transactions	22	18

Share-based payment plans in operation during the year

During the year, the Company participated in the following share-based payment plans operated by Rolls-Royce Holdings plc:

Long-Term Incentive Plan (LTIP)

These plans involve the award of shares to participants subject to performance conditions. Vesting of the performance shares is based on the achievement of both non-market based conditions (EPS and cash flow per share) and a market based performance condition (Total Shareholder Return - TSR) over a three-year period.

ShareSave share option plan

Based on a three or five-year monthly savings contract, eligible employees are granted share options with an exercise price of up to 20% below the share price when the contract is entered into. Vesting of the options is not subject to the achievement of a performance target.

The plan is HM Revenue & Customs approved.

Annual Performance Related Award (APRA) plan deferred shares

A proportion of the APRA annual incentive scheme is delivered in the form of a deferred share award. The release of deferred share awards is not dependent on the achievement of any further performance conditions other than that participants remain employed by the Company for two years from the date of the award in order to retain the full number of shares. During the two-year deferral period, participants are entitled to receive dividends, or equivalent, on the deferred shares.

20 Share-based payments continued

	Number Millions	ShareSave Weighted average exercise price ¹ Pence	LTIP Number Millions	APRA Number Millions
Outstanding at 1 January 2019	15.2	707	7.7	0.3
Transfer from fellow group undertaking	0.3	707	–	–
Granted	10.5	677	3.4	0.1
Forfeited	(2.9)	831	(0.4)	–
Exercised	(3.3)	626	(2.7)	(0.1)
Outstanding at 1 January 2020	19.8	707	7.9	0.3
Granted	–	–	19.1	0.3
Granted as part of rights issue	15.5	237	20.4	0.7
Forfeited	(13.0)	236	(2.0)	–
Exercised	–	212	(1.6)	(0.1)
Outstanding at 31 December 2020	22.3	237	43.8	1.2

¹ The weighted average exercise price for share movements during 2020 has been re-based following the rights issue in November 2020.

The weighted average share price at the date share options were exercised was **203p** (2019: 311p). The closing price at 31 December 2020 was **111p** (2019: 234p). The number of shares and, where relevant, the exercise prices have been adjusted to reflect the impact of the rights issue of Rolls-Royce Holdings plc which completed on 12 November 2020.

The weighted average remaining contractual life for the cash settled options as at 31 December 2020 was **two years** (2019: one year).

Fair values of share-based payment plans

The weighted average fair values per share of equity-settled share-based payment plans granted during the year, estimated at the date of grant are as follows:

	2020	2019
LTIP	388p	851p
LTIP (ELT and Board)	354p	774p
ShareSave – three-year grant	n/a	165p
ShareSave – five-year grant	n/a	176p
APRA	490p	892p

Expected volatility is based on the historical volatility of Rolls-Royce Holdings plc's share price over the seven years prior to the grant or award date. Expected dividends are based on Rolls-Royce Holdings plc's payments to shareholders in respect of the previous year.

LTIP

The fair value of shares awarded under the LTIP is calculated using a pricing model that takes account of the non-entitlement to dividends (or equivalent) during the vesting period and the market-based performance condition based on expectations about volatility and the correlation of share price returns in the group of FTSE 100 companies and which incorporates into the valuation the interdependency between share price performance and TSR vesting. This adjustment increases the fair value of the award relative to the share price at the date of grant.

ShareSave

The fair value of the options granted under the ShareSave plan is calculated using a binomial pricing model that assumes that participants will exercise their options at the beginning of the six-month window if the share price is greater than the exercise price. Otherwise it assumes that options are held until the expiration of their contractual term. This results in an expected life that falls somewhere between the start and end of the exercise window.

APRA

The fair value of shares awarded under APRA is calculated as the share price on the date of the award, excluding expected dividends (or equivalent).

21 Contingent liabilities

Contingent liabilities in respect of customer financing commitments are described in note 16.

In January 2017, after full cooperation, companies within the Rolls-Royce group concluded deferred prosecution agreements with the SFO and the US Department of Justice and a leniency agreement with the MPF, the Brazilian federal prosecutors ("the agreements"). Other authorities are investigating members of the Group for matters relating to misconduct in relation to historical matters. The Group is responding appropriately. Action may be taken by further authorities against group companies or individuals. In addition, we could still be affected by actions from customers and customers' financiers. The Directors of the group companies currently involved in investigations are not currently aware of any matters that are likely to lead to a material financial loss over and above the penalties imposed to date but cannot anticipate all the possible actions that may be taken or their potential consequences. There are no financial consequences of the agreements on the Company.

21 Contingent liabilities continued

Contingent liabilities exist in respect of guarantees provided by the Company in the ordinary course of business for product delivery, commitments made for future service demand in respect of maintenance, repair and overhaul, and performance and reliability. The Company has, in the normal course of business, entered into arrangements in respect of export finance, performance bonds, countertrade obligations and minor miscellaneous items. Various Company undertakings are parties to legal actions and claims which arise in the ordinary course of business, some of which are for substantial amounts. As a consequence of the insolvency of an insurer as previously reported, the Company is no longer fully insured against known and potential claims from employees who worked for certain of the Company's UK based businesses for a period prior to the acquisition of those businesses by the Company. While the outcome of some of these matters cannot precisely be foreseen, the Directors do not expect any of these arrangements, legal actions or claims, after allowing for provisions already made, to result in significant loss to the Company.

Where the Company enters into financial guarantee contracts to guarantee the indebtedness of other companies within its Group, the Company considers these to be insurance arrangements, and accounts for them as such. In this respect, the Company treats the guarantee contract as a contingent liability until such time as it becomes probable that the Company will be required to make a payment under the guarantee. At 31 December 2020, these guarantees amounted to **£1,354m** (2019: £1,940m). At 31 December 2020, there were Company guarantees in respect of joint ventures amounting to **£3m** (2019: £1m).

The Company participates in a Cash Pooling Arrangement. Under the Pooling Arrangement the Company benefits from more favourable interest rates than would be available outside of the Pooling Arrangement as well as more streamlined treasury functions. As part of the Pooling Arrangement, the Company cross-guarantees the borrowings of other pooling participants. At 31 December 2020, these guarantees amounted to **£4m** (2019: £4m).

22 Related party transactions

	2020 £m	2019 £m
Sale of goods and services to joint ventures and associates ¹	3,479	3,508
Purchases of goods from joint ventures and associates ¹	(4,059)	(3,460)
Guarantees of joint arrangements' and associates' borrowings	3	1
Guarantees of non-wholly owned subsidiaries' borrowings	3	3
Other income received from joint ventures and associates	–	1

¹ Included at the exchange rate achieved on settled derivative contracts. At the average exchange rate, sales were **£3,488m** (2019: £4,217m) and purchases were **£4,063m** (2019: £4,218m).

The Company is a wholly owned subsidiary of its ultimate parent Rolls-Royce Holdings plc, and is included within the consolidated results of Rolls-Royce Holdings plc and therefore has taken advantage of the exemption in FRS 101 not to disclose related party transactions with its parent company and other wholly owned group companies. The aggregated balances with joint ventures are shown in notes 9 and 15.

23 Parent and ultimate parent company

The direct parent of the Company is Rolls-Royce Group Limited and the ultimate holding company is Rolls-Royce Holdings plc, incorporated in Great Britain. The Financial Statements for Rolls-Royce Holdings plc may be obtained from the Company Secretary, Rolls-Royce Holdings plc, Kings Place, 90 York Way, London, N1 9FX, United Kingdom.

SUBSIDIARIES

As at 31 December 2020, the companies listed below and on the following pages are indirectly held by Rolls-Royce plc except those companies indicated which are directly owned by Rolls-Royce plc. The financial year end of each company is 31 December unless otherwise indicated.

Company name	Address	Class of shares	% of class held
Aeromaritime America, Inc.	M&H Agent Services, Inc., 1850 North Central Avenue, Suite 2100, Phoenix, Arizona 85004, United States	Common	100
Aeromaritime Mediterranean Limited	7 Industrial Estate, Hal Far, Birzebbuha, BBG 3000, Malta	Ordinary	100
Aerospace Transmission Technologies GmbH **, ³	Adelheidstrasse 40, D-88046, Friedrichshafen, Germany	Capital Stock	50
Amalgamated Power Engineering Limited *	Derby ¹	Deferred Ordinary	100 100
Bergen Engines AS	Hordvikneset 125, N-5108, Hordvik, Bergen 1201, Norway	Ordinary	100
Bergen Engines Bangladesh Private Limited	Green Grandeur, 6th Floor, Plot no.58 E, Kamal Ataturk Avenue Banani, C/A Dhaka, 1213, Bangladesh	Ordinary	100
Bergen Engines BV	Werfdijk 2, 3195HV Pernis, Rotterdam, Netherlands	Ordinary	100
Bergen Engines Denmark A/S	Østre Havnepromenade 34 9000 Ålborg, Denmark	Ordinary	100
Bergen Engines India Private Limited ³	52-b, 2nd Floor, Okhla Industrial Estate, Phase III, New Delhi 110020, India	Ordinary	100
Bergen Engines Limited	Derby ¹	Ordinary	100
Bergen Engines PropertyCo AS	Hordvikneset 125, N-5108, Hordvik, Bergen 1201, Norway	Ordinary	100
Bergen Engines S.L.	Calle Dinamarca s/n (esquina Calle Alemania), Polígono Industrial de Constanti, 43120 Constanti, Tarragona, Spain	Social Participation	100
Bergen Engines S.r.l.	Via Castel Morrone 13, 16161, Genoa, Italy	Social Capital	100
Bristol Siddeley Engines Limited **, ³	Derby ¹	Ordinary	100
Brown Brothers & Company Limited *	Taxiway, Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, KY11 9JT, Scotland	Ordinary	100
C.A. Parsons & Company Limited *	Derby ¹	Ordinary	100
Derby Specialist Fabrications Limited *	Derby ¹	Ordinary	100
Europea Microfusioni Aerospaziali S.p.A. #	Zona Industriale ASI, 83040 Morra de Sanctis, Avellino, Italy	Ordinary	100
Heaton Power Limited *	Derby ¹	Ordinary	100
Industria de Tuberías Aeronáuticas México S.A. de C.V.	Acceso IV, No.6B, Zona Industrial Benito Juárez, Querétaro, 76120, Mexico	Class A	100
Industria de Tuberías Aeronáuticas S.A.U.	Pabellón Industrial, Torrelarrgoiti, Parcela 5H, Naves 7 a 10, Zamudio, Vizcaya, Spain	Ordinary	100
Industria de Turbo Propulsores S.A. #	Parque TechnolÓgico Edificio 300, 48170 Zamudio, Vizcaya, Spain	Ordinary	100
ITP Engines UK Limited	The Whittle Estate, Cambridge Road, Whetstone, Leicester, LE8 6LH, England	Ordinary	100
ITP Externals India Private Ltd	Plot 60/A, IDA Gandhi Nagar, Hyderabad, 500037, India	Ordinary	100
ITP Externals S.L.U.	Pabellón Industrial, Polígono Ugaldeguren I, PIILA, Pab 1-2 Zamudio, Vizcaya, Spain	Ordinary	100
ITP Ingeniería y FabricaciÓn S.A. de C.V.	Acceso IV, No.6D, Zona Industrial Benito Juárez, Querétaro, 76120, Mexico	Class A Class B	100 100
ITP México FabricaciÓn S.A. de C.V.	Acceso IV, No.6, Zona Industrial Benito Juárez, Querétaro, 76120, Mexico	Class A	100
ITP México S.A. de C.V.	Acceso IV, No.6, Zona Industrial Benito Juárez, Querétaro, 76120, Mexico	Fixed capital B Variable capital B	100 100
ITP Next Generation Turbines S.L.U. #	Parque TechnolÓgico Edificio 300, 48170 Zamudio, Vizcaya, Spain	Ordinary	100
John Thompson Cochran Limited *	Taxiway, Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, KY11 9JT, Scotland	6% Cumulative Preference Ordinary	100 100
Kamewa Holding AB * (in liquidation)	Box 1010, S-68129, Kristinehamn, Sweden	Ordinary	100
Karl Maybach-Hilfe GmbH	Maybachplatz 1, 88045, Friedrichshafen, Germany	Capital Stock	100
Kinolt FZE (UAE)	Warehouse Number FZLIU10BD09, Liu 10, BD09 Jafza South Jebel Ali Free Zone, PO Box 263346, Dubai ,United Arab Emirates	Ordinary	100
Kinolt GmbH	Konrad-Zuse-Str. 3, 47877, Willich	Ordinary	100
Kinolt Group SA	Rue de l'Avenir 61, 4460, Grace-Hollogne, Belgium	Ordinary	100

* Directly owned by Rolls-Royce plc.

¹ Dormant entity.

² though the interest held is 50%, the Company controls the entity (see note 1 to the Consolidated Financial Statements) and, as a result, consolidates the entity and records a non-controlling interest.

³ Moor Lane, Derby, Derbyshire, DE24 8BJ, England.

³ Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.

³ Reporting year end is 31 March.

Company name	Address	Class of shares	% of class held
Kinolt Guc Kaynaklari Sistemleri San. Ve Tic A.A.	Kazim Ozalp Mah. Kuleli, Sok. No:83/5 Cankaya-Ankara, Turkey	Ordinary	100
Kinolt Hong Kong Limited (HK)	20th Floor, Euro-Trade Centre, 21-23 Des Vouex Road Central, Hong Kong	Ordinary	100
Kinolt Immo SA	Rue de l'Avenir 61, 4460, Grace-Hollogne, Belgium	Ordinary	100
Kinolt Immobilien SA	Rue de l'Avenir 61, 4460, Grace-Hollogne, Belgium	Ordinary	100
Kinolt LLC (Qatar) **	REGUS Service Office, Office No. 1034, Shoumoukh Tower, 10th floor, Tower B, C-Ring Road, Al Sadd, PO Box 207207, Doha, Qatar	Ordinary	49
Kinolt LLC (RU)	Electrozavodskaya str, 33, bld.5, floor 4, room VII, office 12, Moscow, 107076, Russia	Ordinary	100
Kinolt Pte. Limited	1 Kaki Bukit View Techview #05-03/04, 415941, Singapore	Ordinary	100
Kinolt SA	Rue de l'Avenir 61, 4460, Grace-Hollogne, Belgium	Ordinary	100
Kinolt SAS (FR)	Tour Opus 2, La Defense 9, 77 Esplanade du General du Gaulle, 92914 Paris La Defense Cedex, France	Ordinary	100
Kinolt Sistemas de UPS Limitada	Alameda dos Maracatins 780 - 2502, Indianapolis 04089-001, Sao Paulo, Brazil	Ordinary	100
Kinolt Sistemas de UPS SpA	Bucarest No 17 Oficina, No 33, Previdencia, Santiago, Chile	Ordinary	100
Kinolt UK Limited	101/102 Cirencester Business Park, Love Lane, Cirencester, GL7 1XD, United Kingdom	Ordinary	100
Kinolt USA Inc.	Corporation Trust Center, 1209 Orange Street, Wilmington, County of New Castle, Delaware, USA	Common Stock	100
LC Nuclear Limited #	Derby ¹	Ordinary	100
MTU Africa (Proprietary) Limited	36 Marconi Street, Montague Gardens, Cape Town, 7441, South Africa	Capital Stock	100
MTU America Inc.	Wilmington ²	Ordinary	100
MTU Asia PTE Limited	10 Tukang Innovation Drive, Singapore 618302	Ordinary	100
MTU Benelux B.V.	Merwedestraat 86, 3313 CS, Dordrecht, Netherlands	Ordinary	100
MTU China Company Limited	Room 1803 18/F Ascendas Plaza, No.333 Tian Yao Qiao Road, Xuhai District, Shanghai, 200030, China	Ordinary	100
MTU do Brasil Limitada	Via Anhanguera, KM 29203, 05276-000 Sao Paulo – SP, Brazil	Ordinary	100
MTU Engineering (Suzhou) Company Limited	9 Long Yun Road, Suzhou Industrial Park, Suzhou 215024, Jiang Su, China	Ordinary	100
MTU France S.A.S.	Immeuble Colorado, 8/10 rue de Rosa Luxembourg-Parc des Bellevues 95610, Eragny-sur-Oise, France	Ordinary	100
MTU Friedrichshafen GmbH	Maybachplatz 1, 88045, Friedrichshafen, Germany	Capital Stock	100
MTU Hong Kong Limited	Room 1006, 10/F, Hang Seng Tsimshatsui Building, 18 Carnarvon Road, Tsimshatsui, Kowloon, Hong Kong	Ordinary	100
MTU Ibérica Propulsión y Energía S.L.	Calle Copérnico 26-28, 28823 Coslada, Madrid, Spain	Ordinary	100
MTU India Private Limited ³	6th Floor, RMZ Galleria, S/Y No. 144 Bengaluru, Bangalore, Karnataka 560,064, India	Ordinary	100
MTU Israel Limited	4 Ha'Alon Street, South Building, Third Floor, 4059300 Kfar Neter, Israel	Ordinary	100
MTU Italia S.r.l.	Via Aurelia Nord, 328, 19021 Arcola (SP), Italy	Capital Stock	100
MTU Japan Co. Limited	Resorttrust Building 4-14-3, Nishitenma Kita-ku, Osaka 530-0047, Japan	Ordinary	100
MTU Korea Limited	22nd Floor, Olive Tower, 41 Sejongdaero 9 gil, Junggu, 100-737 Seoul, Republic of Korea	Ordinary	100
MTU Middle East FZE	S3B5SR06, Jebel Ali Free Zone, South P.O. Box 61141, Dubai, United Arab Emirates	Ordinary	100
MTU Motor Türbin Sanayi ve Ticaret. A.Ş.	Hatira Sokak, No. 5, Ömerli Mahellesi, 34555 Arnavutköy, Istanbul, Turkey	Ordinary	100
MTU Onsite Energy GmbH	Dasinger Strasse 11, 86165, Augsburg, Germany	Capital Stock	100
MTU Onsite Energy Systems GmbH	Rotthofer Strasse 8, 94099 Ruhstorf a.d. Rott, Germany	Capital Stock	100
MTU Polska Sp. z o.o.	Ul. Śląska, Nr 9. Raum, Ort: Stargard Szczeciński, Plz: 73-110, Poland	Ordinary	100
MTU Reman Technologies GmbH	Friedrich-List-Strasse 8, 39122 Magdeburg, Germany	Capital Stock	100
MTU Rus Limited Liability Company	Shabolovka Street 2, 119049, Moscow, Russian Federation	Ordinary	100

* Directly owned by Rolls-Royce plc.

** Though the interest held is 49% the Company controls the entity (see note 1 to the Consolidated Financial Statements) and, as a result, consolidates the entity and records a non-controlling interest.

¹ Moor Lane, Derby, Derbyshire, DE24 8BJ, England.

² Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.

³ Reporting year end is 31 March.

Company name	Address	Class of shares	% of class held
MTU South Africa (Proprietary) Limited	36 Marconi Street, Montague Gardens, Cape Town, 7441, South Africa	Ordinary	100
MTU UK Limited	Derby ¹	Ordinary	100
NEI International Combustion Limited *	Derby ¹	Ordinary	100
NEI Mining Equipment Limited *	Derby ¹	Ordinary	100
NEI Nuclear Systems Limited *	Derby ¹	Ordinary	100
NEI Parsons Limited *	Derby ¹	Ordinary	100
NEI Peebles Limited *	Derby ¹	Ordinary	100
NEI Power Projects Limited *	Derby ¹	Ordinary	100
Nightingale Insurance Limited	Maison Trinity, Trinity Square, St. Peter Port, GY1 4AT, Guernsey	Ordinary	100
No-Break Power Limited *	101/102 Cirencester Business Park, Love Lane, Cirencester, GL7 1XD, United Kingdom	Ordinary	100
Power Jets (Research and Development) Limited *	The Whittle Estate, Cambridge Road, Whetstone, Leicester, LE8 6LH, England	Ordinary	100
Powerfield Limited	Derby ¹	Ordinary	100
Precision Casting Bilbao S.A.U.	Calle El BarracÓn 1, Baracaldo, Vizcaya, 48910, Spain	Ordinary	100
PT MTU Indonesia	Secure Building Blok B, Jl. Raya Protokol Halim, Perdanakusuma, Jakarta, 13610, Indonesia	Ordinary	100
PT Rolls-Royce	Secure Building Blok B, Jl. Raya Protokol Halim, Perdanakusuma, Jakarta, 13610, Indonesia	Ordinary	100
Rolls-Royce (Ireland) Unlimited Company *	Ulster International Finance, 1st Floor IFSC House, IFSC, Dublin 1, Ireland	Ordinary	100
Rolls-Royce (Thailand) Limited	4, 4.5 Level 12, Suite 1299, Rajdamri Road, Pathumwan, Bangkok, 10330, Thailand	Ordinary	100
Rolls-Royce Aero Engine Services Limited *,#	Derby ¹	Ordinary	100
Rolls-Royce Australia Pty Limited	Level 1, 60 Martin Place, Sydney NSW 2000, Australia	Ordinary	100
Rolls-Royce Australia Services Pty Limited	Level 1, 60 Martin Place, Sydney NSW 2000, Australia	Ordinary	100
Rolls-Royce Brasil Limitada #	Rua drive Cincinato Braga No. 47, Planalto District, São Bernardo do Campo, SP, 09890-900, Brazil	Quotas	100
Rolls-Royce Canada Limited	9500 Côte de Liesse, Lachine, Québec H8T 1A2, Canada	Common Stock	100
Rolls-Royce Chile SpA	Alcantra 200 office 601, Piso 6, C.O, 7550159 Las Condes, Santiago, Chile	Ordinary	100
Rolls-Royce China Holding Limited #	305-306 Indigo Building 1, 20 Jiuxianqiao Road, Beijing, 100016, China	Registered Capital	100
Rolls-Royce Civil Nuclear S.A.S.	23 chemin du Vieux Chêne, 38240, Meylan, France	Ordinary	100
Rolls-Royce Commercial Aero Engines Limited *,#	Derby ¹	Ordinary	100
Rolls-Royce Control Systems Holdings Co	Wilmington ²	Common Stock	100
Rolls-Royce Controls and Data Services (NZ) Limited	c/o Deloitte, 80 Queen Street, Auckland Central, Auckland 1010, New Zealand	Ordinary	100
Rolls-Royce Controls and Data Services (UK) Limited #	Derby ¹	Ordinary	100
Rolls-Royce Controls and Data Services Limited *,#	Derby ¹	Ordinary	100
Rolls-Royce Corporation	Wilmington ²	Common Stock	100
Rolls-Royce Crosspointe LLC	Wilmington ²	Partnership (no equity)	100
Rolls-Royce Defense Products and Solutions, Inc.	Wilmington ²	Common Stock	100
Rolls-Royce Defense Services, Inc.	Wilmington ²	Common Stock	100
Rolls-Royce Deutschland Ltd & Co KG	Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany	Capital Stock	100
Rolls-Royce Electrical Norway AS #	Jarleveien 8A, 7041, Trondheim 500, Norway	Ordinary	100
Rolls-Royce Energy Angola, Limitada *	Rua Rei Katavala, Edificio Rei Katavala, Entrada B, Piso 8, Luanda, Angola	Quota	100
Rolls-Royce Energy Systems Inc.	Wilmington ²	Common Stock	100
Rolls-Royce Engine Services Holdings Co.	Wilmington ²	Common Stock	100
Rolls-Royce Engine Services Limitada Inc. (in liquidation)	Bldg. 06 Berthaphil Compound, Jose Abad Santos Avenue, Clark Special Economic Zone, Clark, Pampanga, Philippines	Capital Stock	100

* Directly owned by Rolls-Royce plc.

Dormant entity.

¹ Moor Lane, Derby, Derbyshire, DE24 8BJ, England.

² Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.

Company name	Address	Class of shares	% of class held
Rolls-Royce Erste Beteiligungs GmbH	Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany	Capital Stock	100
Rolls-Royce Finance Company Limited	Derby ¹	Deferred Ordinary	100 100
Rolls-Royce Finance Holdings Co.	Wilmington ²	Common Stock	100
Rolls-Royce Fuel Cell Systems Limited #	Derby ¹	Ordinary	100
Rolls-Royce General Partner (Ireland) Limited #	29 Earlshot Terrace, Dublin 2, Ireland	Ordinary	100
Rolls-Royce General Partner Limited *	Derby ¹	Ordinary	100
Rolls-Royce High Temperature Composites, Inc.	Corporation Service Company, 2710 Gateway Oaks Drive, Suite 150N, Sacramento, California 95833, United States	Ordinary	100
Rolls-Royce Holdings Canada Inc. #	9500 Côte de Liesse, Lachine, Québec H8T 1A2, Canada	Common C	100
Rolls-Royce Hungary Kft #	Gizella U. 51-57, 1143 Budapest, Hungary	Cash shares	100
Rolls-Royce India Limited * ³	Derby ¹	Ordinary	100
Rolls-Royce India Private Limited ³	Birla Tower West, 2nd Floor 25, Barakhamba Road, New Delhi, 110001, India	Equity	100
Rolls-Royce Industrial & Marine Power Limited *	Derby ¹	Ordinary	100
Rolls-Royce Industrial Power (India) Limited * ³	Derby ¹	Ordinary	100
Rolls-Royce Industrial Power Engineering (Overseas Projects) Limited	Derby ¹	Ordinary	100
Rolls-Royce Industries Limited #	Derby ¹	Ordinary	100
Rolls-Royce International Limited #	Derby ¹	Ordinary	100
Rolls-Royce International s.r.o.	Pobřežní 620/3, Postal code 186 00, Karlin – Prague 8, Czech Republic	Ordinary	100
Rolls-Royce Japan Co., Limited	31st Floor, Kasumigaseki Building, 3-2-5 Kasumigaseki, Chiyoda-Ku, Tokyo, 100-6031, Japan	Ordinary	100
Rolls-Royce Leasing Limited #	Derby ¹	Ordinary	100
Rolls-Royce Malaysia Sdn. Bhd.	C-2-3A TTDI Plaza, Jalan Wan Kadir 3, Taman Tun Dr Ismail, 6000 Kuala Lumpur, Malaysia	Ordinary	100
Rolls-Royce Marine North America, Inc.	Wilmington ²	Common Stock	100
Rolls-Royce Mexico Administration S. de R.L. de C.V.	Boulevard Adolfo Ruiz Cortinez 3642-403, Fracc Costa de Oro, Verzcrus CP 94299 6, Mexico	Ordinary	100
Rolls-Royce Mexico S. de R.L. de C.V.	Boulevard Adolfo Ruiz Cortinez 3642-403, Fracc Costa de Oro, Verzcrus CP 94299 6, Mexico	Ordinary	100
Rolls-Royce Military Aero Engines Limited * ^{3, #}	Derby ¹	Ordinary	100
Rolls-Royce New Zealand Limited	c/o Deloitte, 80 Queen Street, Auckland Central, Auckland 1010, New Zealand	Ordinary	100
Rolls-Royce North America (USA) Holdings Co.	Wilmington ²	Common Stock	100
Rolls-Royce North America Holdings, Inc.	Wilmington ²	Common Stock	100
Rolls-Royce North America Ventures, Inc.	Wilmington ²	Common Stock	100
Rolls-Royce North America, Inc.	Wilmington ²	Common Stock	100
Rolls-Royce North American Technologies, Inc.	Wilmington ²	Common Stock	100
Rolls-Royce Oman LLC	Bait Al Reem, Business Office #131, Building No 81, Way No 3409, Block No 234, Al Thaqafa Street, Al Khuwair, PO Box 20, Postal Code 103, Oman	Ordinary	100
Rolls-Royce Operations (India) Private Limited	Birla Tower West, 2nd Floor, 25 Barakhamba Road, New Delhi, 110001, India	Ordinary	100
Rolls-Royce Overseas Holdings Limited #	Derby ¹	Ordinary Ordinary A	100 100
Rolls-Royce Overseas Investments Limited	Derby ¹	Ordinary	100
Rolls-Royce Placements Limited	Derby ¹	Ordinary	100
Rolls-Royce Power Engineering plc #	Derby ¹	Ordinary	100
Rolls-Royce Power Systems AG	Maybachplatz 1, 88045, Friedrichshafen, Germany	Ordinary	100

Directly owned by Rolls-Royce plc.

* Dormant entity.

¹ Moor Lane, Derby, Derbyshire, DE24 8BJ, England.

² Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.

³ Reporting year end is 31 March.

Company name	Address	Class of shares	% of class held
Rolls-Royce Retirement Savings Trust Limited * ^{3, #}	Derby ¹	Ordinary	100
Rolls-Royce Saudi Arabia Limited	PO Box 88545, Riyadh, 11672, Saudi Arabia	Cash shares	100
Rolls-Royce Singapore Pte. Limited	6 Shenton Way, #33-00 OUE, Downtown Singapore 068809, Singapore	Ordinary	100
Rolls-Royce Solutions Berlin GmbH	Villa Rathenau, Wilhelminenstrasse 75, 12459 Berlin, Germany	Preference A Preference	100 100
Rolls-Royce Sp z.o.o. #	Opolska 100 31-323, Krakow, Poland	Ordinary	100
Rolls-Royce Submarines Limited #	Atlantic House, Raynesway, Derby, DE21 7BE, Derbyshire, England	Ordinary	100
Rolls-Royce Technical Support Sarl	Centreda I, Avenue Didier Daurat, 31700 Blagnac, Toulouse, France	Ordinary	100
Rolls-Royce Total Care Services Limited #	Derby ¹	Ordinary	100
Rolls-Royce Turkey Power Solutions Industry and Trade Limited	Levazim Mahellesi, Koru Sokagi, Zorlu Center, No. 2 Teras Evler T2 D:204, Zincirlikuyu, Besiktas, Istanbul 34340, Turkey	Cash shares	100
Rolls-Royce UK Pension Fund Trustees Limited * [,] #	Derby ¹	Ordinary	100
Rolls-Royce Zweite Beteiligungs GmbH #	Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany	Capital Stock	100
Ross Ceramics Limited	Derby ¹	Ordinary	100
Servowatch Systems Limited	Endeavour House, Benbridge Industrial Estate, Holloway Road, Heybridge, Maldon, Essex, CM9 4ER, United Kingdom	Ordinary	100
Sharing in Growth UK Limited **,*#	Derby ¹	Limited by guarantee	100
Spare IPG 20 Limited *	Derby ¹	Ordinary	100
Spare IPG 21 Limited *	Derby ¹	Ordinary	100
Spare IPG 24 Limited *	Derby ¹	Ordinary	100
Spare IPG 27 Limited	Taxiway Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, KY11 9JT, Scotland	Ordinary 7% Cumulative Preference	100 100
Spare IPG 32 Limited *	Derby ¹	7.25% Cumulative Preference Ordinary	100 100
Spare IPG 4 Limited *	Derby ¹	Ordinary	100
The Bushing Company Limited *	Derby ¹	Ordinary	100
Timec 1487 Limited *	Derby ¹	Ordinary	100
Trigno Energy S.R.L.	Zona Industriale, San Salvo, 66050, Italy	Ordinary	100
Turbine Surface Technologies Limited **,*#	Derby ¹	Ordinary A Ordinary B	Nil 100
Turborreactores S.A. de C.V.	Acceso IV, No.6C, Zona Industrial Benito Juárez, Querétaro, 76120, Mexico	Class A Class B	100 100
Vessel Lifter, Inc. *	Corporation Service Company, 1201 Hays Street, Tallahassee, Florida 32301, United States	Common Stock	100
Vinters Defence Systems Limited *	Derby ¹	Ordinary	100
Vinters Engineering Limited	Derby ¹	Ordinary	100
Vinters International Limited	Derby ¹	Ordinary	100
Vinters Limited #	Derby ¹	Ordinary	100
Vinters-Armstrongs (Engineers) Limited *	Derby ¹	Ordinary	100
Vinters-Armstrongs Limited *	Derby ¹	Ordinary B	100
Yocova PTE. Ltd. #	6 Shenton Way, #33-00 OUE, Downtown Singapore 068809, Singapore	Ordinary	100

* Directly owned by Rolls-Royce plc.

Dormant entity.

** The entity is not included in the consolidation as Rolls-Royce plc does not have a beneficial interest in the net assets of the entity.

¹ Moor Lane, Derby, Derbyshire, DE24 8BJ, England.

³ Reporting year end is 31 March.

JOINT VENTURES AND ASSOCIATES

Company name	Address	Class of shares	% of class held	Group interest held %
Aero Gearbox International SAS **,#	18 Boulevard Louis Sequin, 92700 Colombes, France	Ordinary	50	50
Airtanker Holdings Limited #	Airtanker Hub, RAF Brize Norton, Carterton, Oxfordshire, OX18 3LX, England	Ordinary	23	23
Airtanker Services Limited #	Airtanker Hub, RAF Brize Norton, Carterton, Oxfordshire, Ordinary OX18 3LX, England	Ordinary	23.5	23.5
Alpha Leasing (US) (No.2) LLC	Wilmington ²	Partnership (no equity held)	-	50
Alpha Leasing (US) (No.4) LLC	Wilmington ²	Partnership (no equity held)	-	50
Alpha Leasing (US) (No.5) LLC	Wilmington ²	Partnership (no equity held)	-	50
Alpha Leasing (US) (No.6) LLC	Wilmington ²	Partnership (no equity held)	-	50
Alpha Leasing (US) (No.7) LLC	Wilmington ²	Partnership (no equity held)	-	50
Alpha Leasing (US) (No.8) LLC	Wilmington ²	Partnership (no equity held)	-	50
Alpha Leasing (US) LLC	Wilmington ²	Partnership (no equity held)	-	50
Alpha Partners Leasing Limited	1 Brewer's Green, London, SW1H 0RH, England	Ordinary A	100	50
CFMS Limited	43 Queen Street, Bristol, BS1 4QP, England	Limited by guarantee	-	50
Clarke Chapman Portia Port Services Limited	Maritime Centre, Port of Liverpool, Liverpool, L21 1LA, England	Ordinary A	100	50
Consorcio Español para el Desarrollo Industrial del Programa Eurofighter, A.I.E.	Paseo de John Lennon, s/n, edificio T22, 2 ^a planta, Getafe, Madrid, Spain	Partnership (no equity held)	-	50
Consorcio Español para el Desarrollo Industrial del Helicóptero de Ataque Tigre, A.I.E.	Avda. de Aragón 404, 28022 Madrid, Spain	Partnership (no equity held)	-	50
Egypt Aero Management Services (in liquidation)	EgyptAir Engine Workshop, Cairo International Airport, Cairo, Egypt	Ordinary	50	50
EPI Europrop International GmbH #	Dachauer Strasse 655, 80995, Munich, Germany	Capital Stock	44	44
Eurojet Turbo GmbH #	Lilienthalstrasse 2b, 85399 Halbergmoos, Germany	Capital Stock	46	46
Force MTU Power Systems Private Limited	Mumbai Pune Road, Akurdi, Pune, Maharashtra 411035, India	Capital Stock	49	49
Genistics Holdings Limited #	Derby ¹	Ordinary A	100	50
Global Aerospace Centre for Icing and Environmental Research Inc. **	1000 Marie-Victorin Boulevard, Longueuil Québec J4G 1A1, Canada	Ordinary	50	50
Hong Kong Aero Engine Services Limited	33rd Floor, One Pacific Place, 88 Queensway, Hong Kong	Ordinary	50	50
International Aerospace Manufacturing Private Limited **, ³	Survey No. 3 Kempapura Village, Varthur Hobli, Bangalore, KA 560037, India	Ordinary	50	50
Light Helicopter Turbine Engine Company (unincorporated partnership)	Suite 119, 9238 Madison Boulevard, Madison, Alabama 35758, United States	Partnership (no equity held)	-	50
MEST Co., Limited	97 Bukjeonggongdan 2-gil, Yangsan-si, Gyeongsangnam-do, 50571, Republic of Korea	Normal	46.8	46.8
Metlase Limited #	Unipart House, Garsington Road, Cowley, Oxford, OX4 2PG, England	Ordinary B	100	20

* Directly owned by Rolls-Royce plc.

Dormant entity.

** These entities are accounted for as joint operations (see note 1 to the Consolidated Financial Statements).

¹ Moor Lane, Derby, Derbyshire, DE24 8BJ, England.

² Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.

³ Reporting year end is 31 March.

Company name	Address	Class of shares	% of class held	Group interest held %
MTU Power Systems Sdn. Bhd.	Level 10 Menara LGB, 1 Jalan Wan Kadir Taman Tun Dr Ismail 6000 Kuala Lumpur, Malaysia	Ordinary A	100	49
MTU Turbomeca Rolls-Royce GmbH #	Am Söldnermoos 17, 85399 Hallbergmoos, Germany	Capital Stock	33.3	33.3
MTU Turbomeca Rolls-Royce ITP GmbH #	Am Söldnermoos 17, 85399 Hallbergmoos, Germany	Capital Stock	50	50
MTU Yuchai Power Company Limited	No 7 Danan Road, Yuzhou, Yulin, Guangxi, China, 537005, China	Capital Stock	50	50
N3 Engine Overhaul Services GmbH & Co KG	Gerhard-Höltje-Strasse 1, D-99310, Arnstadt, Germany	Capital Stock	50	50
N3 Engine Overhaul Services Verwaltungsgesellschaft Mbh	Gerhard-Höltje-Strasse 1, D-99310, Arnstadt, Germany	Capital Stock	50	50
Rolls Laval Heat Exchangers Limited *#	Derby ¹	Ordinary	50	50
Rolls-Royce & Partners Finance (US) (No 2) LLC	Wilmington ²	Partnership (no equity held)	-	50
Rolls-Royce & Partners Finance (US) LLC	Wilmington ²	Partnership (no equity held)	-	50
SAFYRR Propulsion Limited #	Derby ¹	B Shares	100	50
Shanxi North MTU Diesel Co. Limited	No.97 Daqing West Road, Datong City, Shanxi Province, China	Ordinary	49	49
Singapore Aero Engine Services Private Limited	11 Calshot Road, 509932, Singapore	Ordinary	50	50
Taec Ucak Motor Sanayi AS	Buyukdere Caddesi, Prof. Ahmet Kemal Aru, Sokagi Kaleseramik, Binasi Levent No. 4, Besiktas, Istanbul, Turkey	Cash Shares	49	49
Techjet Aerofoils Limited **	Tefen Industrial Zone, PO Box 16, 24959, Israel	Ordinary A Ordinary B	50 50	50
Texas Aero Engine Services LLC	The Corporation Trust Company, 1209, Orange Street, Wilmington, Delaware 19801, United States	Partnership (no equity held)	-	50
TRT Limited #	Derby ¹	Ordinary B	100	49.9
UK Nuclear Restoration Limited *	Booths Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ, England	Ordinary	20	20
Xian XR Aero Components Co., Limited ***#	Xujiawan, Beijiao, Po Box 13, Xian 710021, Shaanxi, China	Ordinary	49	49

Directly owned by Rolls-Royce plc.

* Dormant entity.

** These entities are accounted for as joint operations (see note 1 to the Consolidated Financial Statements).

¹ Moor Lane, Derby, Derbyshire, DE24 8BJ, England.

² Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.

³ Reporting year end is 31 March.

INDEPENDENT AUDITORS' REPORT

Independent auditors' report to the members of Rolls-Royce plc

Report on the audit of the financial statements

Opinion

In our opinion:

- Rolls-Royce plc's Consolidated Financial Statements and Company Financial Statements (the "financial statements") give a true and fair view of the state of the group's and of the company's affairs as at 31 December 2020 and of the group's and company's loss and the group's cash flows for the year then ended;
- the Consolidated Financial Statements have been properly prepared in accordance with international accounting standards in conformity with the requirements of the Companies Act 2006;
- the Company Financial Statements have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 "Reduced Disclosure Framework", and applicable law); and
- the financial statements have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements, included within the Annual Report, which comprise: the Consolidated and Company Balance Sheets as at 31 December 2020; the Consolidated Income Statement and Consolidated and Company Statement of Comprehensive Income; the Consolidated Cash Flow Statement for the year then ended; the Consolidated and Company Statements of Changes in Equity for the year then ended; and the notes to the financial statements, which include a description of the significant accounting policies.

Our opinion is consistent with our reporting to the Audit Committee.

Separate opinion in relation to international financial reporting standards adopted pursuant to Regulation (EC) No 1606/2002 as it applies in the European Union

As explained in note 1 to the Consolidated Financial Statements, the group, in addition to applying international accounting standards in conformity with the requirements of the Companies Act 2006, has also applied international financial reporting standards adopted pursuant to Regulation (EC) No 1606/2002 as it applies in the European Union.

In our opinion, the Consolidated Financial Statements have been properly prepared in accordance with international financial reporting standards adopted pursuant to Regulation (EC) No 1606/2002 as it applies in the European Union.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) ("ISAs (UK)") and applicable law. Our responsibilities under ISAs (UK) are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We remained independent of the group in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, which includes the FRC's Ethical Standard, as applicable to listed public interest entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

To the best of our knowledge and belief, we declare that non-audit services prohibited by the FRC's Ethical Standard were not provided to the group headed by Rolls-Royce Holdings plc, of which the company is a member.

Other than those disclosed in note 6 to the financial statements, we have provided no non-audit services to the group in the period under audit.

Our audit approach

Overview

Audit scope

- Overall group materiality: £70m, based on 0.5% of the three year average of underlying revenue (2019: £75m, based on 0.5% of underlying revenue).
- Overall company materiality: £66m, based on 0.8% of the three year average of revenue (2019: £71m, based on 0.8% of revenue).
- Following our assessment of the risks of material misstatement of the Consolidated Financial Statements we subjected 32 individual components (including three joint ventures) to full scope audits for group purposes, which following an element of consolidation, equates to 16 group reporting opinions. In addition eight components performed targeted specified procedures.
- In addition, the group engagement team audited the company and other centralised functions including those covering the group treasury operations, corporate costs, corporate taxation, post-retirement benefits, certain goodwill and intangible asset impairment assessments. The group engagement team performed audit procedures over the group consolidation and financial statements disclosures and performed group level analytical procedures over out of scope components.
- The components on which full scope audits, targeted specified procedures and centralised work was performed accounted for 93% of revenue, 89% of loss before tax and 90% of total assets.
- Central audit testing was performed where appropriate for reporting components in group audit scope who are supported by the group's Finance Service Centres (FSCs).
- As part of the supervision process, the group engagement team has performed 13 virtual file reviews, which included meetings on approach and conclusions with the component teams and review of their audit files and final deliverables.

Key audit matters

- Long-term contract accounting and associated provisions (group and company)
- Deferred tax asset recognition and recoverability (group and company)
- Translation of foreign-currency denominated transactions and balances (group and company)

- Presentation and accuracy of underlying results and disclosure of other one-off items (including exceptional items) (group)
- Recoverability of accounts receivable and contract assets (group and company)
- Recoverability of intangible programme assets (group and company)
- Ability of the group and company to continue as a going concern (group and company)
- Impact of the COVID-19 pandemic (group and company)

Materiality

- Overall group materiality: £70m (2019: £75m) based on 0.5% of three year average underlying revenues.
- Overall company materiality: £66m (2019: £71m) based on 0.8% of three year average revenues.
- Performance materiality: £53m (group) and £50m (company).

The scope of our audit

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements.

Capability of the audit in detecting irregularities, including fraud

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined in the Auditors' responsibilities for the audit of the financial statements section, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below.

Based on our understanding of the group and industry, we identified that the principal risks of non-compliance with laws and regulations related to the UK Corporate Governance Code, the Listing Rules of the UK Financial Conduct Authority, applicable Generally Accepted Accounting Practices, tax compliance legislation, the regulations of country aviation authorities such as the Civil Aviation Authority, import and export restrictions (including International Traffic in Arms Regulations), and the UK Bribery Act, and we considered the extent to which non-compliance might have a material effect on the financial statements. We also considered those laws and regulations that have a direct impact on the preparation of the financial statements such as the Companies Act 2006. We evaluated management's incentives and opportunities for fraudulent manipulation of the financial statements (including the risk of override of controls), and determined that the principal risks were related to : (1) posting inappropriate journal entries to manipulate financial results; (2) management bias in accounting estimates such as long-term contract accounting and associated provisions, the recoverability of intangible programme assets, and deferred tax asset recognition; (3) the sale of engines to joint ventures for no clear commercial purpose or above market prices; and (4) inappropriately including or excluding transactions from the group's underlying or free cash flow alternative performance metrics.. The group engagement team shared this risk assessment with the component auditors so that they could include appropriate audit procedures in response to such risks in their work. Audit procedures performed by the group engagement team and/or component auditors included:

- Discussions throughout the year with management, internal audit, the group's internal and external legal counsel, and the head of ethics and compliance, including consideration of known or suspected instances of non-compliance with laws and regulation and fraud;
- Reading the minutes of the group's Safety, Ethics & Sustainability committee and assessment of 'speak-up' matters reported through the group's Ethics Line and the results of management's investigation of such matters;
- Challenging assumptions and judgements made by management in determining significant accounting estimates (because of the risk of management bias), in particular in relation to long-term contract accounting and associated provisions, the recoverability of programme assets, and the recognition and recoverability of deferred tax assets (see related key audit matters below);
- Understanding and evaluating changes in processes and controls as a result of the COVID-19 pandemic;
- Identifying and testing unusual journal entries, in particular journal entries posted with unusual account combinations, and testing all material consolidation journals; and
- Challenging why certain items are excluded or included from underlying profit or free cash flow and review of disclosures included in the Annual Report explaining and reconciling alternative performance measures to statutory metrics.

There are inherent limitations in the audit procedures described above. We are less likely to become aware of instances of non-compliance with laws and regulations that are not closely related to events and transactions reflected in the financial statements. Also, the risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error, as fraud may involve deliberate concealment by, for example, forgery or intentional misrepresentations, or through collusion.

Key audit matters

Key audit matters are those matters that, in the auditors' professional judgement, were of most significance in the audit of the financial statements of the current period and include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by the auditors, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. These matters, and any comments we make on the results of our procedures thereon, were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

This is not a complete list of all risks identified by our audit.

Recoverability of intangible programme assets, recoverability of accounts receivable and contract assets and the ability of the group and company to continue as a going concern are new key audit matters this year. The implementation of IFRS 16: Leases and response to deferred prosecution and leniency agreements in connection with alleged bribery and corruption in overseas markets, which were key audit matters last year, are no longer included because of the fact that the risk associated with IFRS 16 was in relation to 2019 being the first year of adoption of this accounting standard. We now consider the risks associated with IFRS 16 to be normal. The potential exposures to known uncertain tax positions have reduced and accordingly we now consider this as a normal risk. During 2020, the deferred prosecution agreement reached with the Department of Justice expired and was dismissed and the formal reporting obligations for the UK deferred prosecution agreement came to an end. Given this and the positive evolution in the group's compliance environment, we did not assess there to be a heightened risk. Otherwise, the key audit matters below are consistent with last year.

Key audit matter	How our audit addressed the key audit matter
<p><i>Long-term contract accounting and associated provisions (group and company)</i> (relevant to the Consolidated and Company Financial Statements)</p> <p><i>Note 1 to the Consolidated Financial Statements – Accounting policies – Revenue recognition and note 1 to the Company Financial Statements – Accounting policies – Revenue recognition.</i></p> <p>The Civil Aerospace and Defence businesses operate primarily with long-term customer contracts that span multiple periods. The UK parts of these businesses sit within the company.</p> <p>These long-term contracts require a number of assumptions to be made in order to determine the expected lifetime revenue and costs of the contract and the amounts of revenue and profit that is recognised in each reporting period.</p> <p>Small adjustments can have a significant impact on the results of an individual financial year. In addition, changes to the operating condition of engines such as changes in route structure can result in different performance assumptions and hence cost profiles which impact the expected profitability of a contract.</p> <p>For Defence, long term contracts tend to be for a fixed price or based on a cost plus or target cost reimbursement for qualifying costs and there are also some flying hours arrangements. For Civil Aerospace aftermarket contracts, cash is earned based on engine flying hours, which requires management to estimate future engine flying hours in order to arrive at the total income expected over the life of a contract. As a result of COVID-19, engine flying hours have reduced significantly in 2020. Slow and gradual recovery in engine flying hours is expected which will impact forecast income on aftermarket contracts in the short and medium term. There is much estimation uncertainty over the speed and shape of the recovery in flying hours. An adjustment of £1,061m was recognised in the year, reversing revenue recognised in previous periods largely because of lower engine flying hour forecasts.</p> <p>In addition, the profitability of aftermarket contracts typically assumes that there will be significant cost improvements over the lifetime (15–25 years) of the contracts. Significant judgement needs to be applied in determining time-on-wing, whether incremental costs should be treated as wastage or are part of the ongoing cost of servicing a contract, future exchange rates used to translate foreign currency income and costs and other operating parameters used to calculate the projected life cycle. These future costs are also risk adjusted to take into account forecasting accuracy which represents an additional judgement.</p> <p>The expected costs from in-service issues on the Trent 1000 programme have decreased in the year resulting in the release of £560m of the associated provision. This is largely driven by lower than expected customer disruption costs from the in-service issues because of the impact of the COVID-19 pandemic in reducing the number of aircraft on ground as a result of in-service issues. The assessment of the total cost of delivering this programme, the cost of the proposed engineering solutions, changes in the shop visit profile, speed of implementation of design, manufacture and installation of improved parts and the</p>	<p>We focused our work on a number of contracts where we consider there to be the highest degree of management judgement or estimation and designed specific procedures over the long-term contract accounting targeted at the associated risks. We also sample tested the remaining population of contracts. This approach was applied in the Civil Aerospace and Defence businesses and was substantive in nature. The audit procedures performed included:</p> <ul style="list-style-type: none"> - We attended meetings with Civil Aerospace and Defence engine programme and customer contract managers in order to understand the operational matters impacting the performance of specific contracts and any amendments to contractual arrangements required by changes to underlying expectations of performance; - We obtained and read the relevant sections of a sample of contracts to understand the key terms including performance obligations and pricing structures; - We assessed how management had forecast the speed and shape of the recovery of engine flying hours including by considering the downside scenarios modelled and comparing the assumptions to industry data; - We challenged management's judgments and associated risk adjustments relating to the risk of customer default and insolvency, the risk of airlines parking more mature aircraft as a result of COVID-19 and the ability for contractual protection clauses to be enforced across the customer portfolio; - We re-performed the calculations used to determine the degree of completion for a sample of contracts and this was also used in assessing the magnitude of any catch-up adjustments; - We compared the previously forecast results of a sample of contracts with the actual results to assess the performance of the contract and the historical accuracy of forecasting; - We verified a sample of costs incurred to third party documentation in order to assess the validity of the forecast costs to complete; - We challenged management's judgement around whether incremental contract costs arising from in-service issues should be accounted for over the expected duration of the underlying contract or recognised immediately; - Where the disruption has resulted in payments to customers we have validated the settlement to contractual agreements, considered the terms of previous settlements, correspondence with customers, the forecast period of further aircraft being on the ground and the completeness of the liability; - We assessed the assumptions relating to life cycle cost reductions to determine the likelihood of realisation and where relevant the speed at which they would be achieved, including the impact on the number of shop visits, validating these assumptions directly with the senior programme engineers; - We obtained support for the risk adjustments made in respect of future costs and challenged management's assumptions through assessment against historical performance, known technical issues and the stage of completion of the programme; - We challenged the assessment of provisions for loss making or onerous contracts to determine the completeness of the unavoidable costs to fulfil the contractual obligations;

Key audit matter	How our audit addressed the key audit matter
<p>level of customer disruption which was not expected at the inception of the contract are all significant judgements which impact the value and timing of revenue and profit recognition. In addition, certain contracts may become onerous as a result and require immediate recognition of the loss.</p> <p>At the development stage of a programme, agreements are entered into with certain Civil suppliers to share in the risk and rewards of the contracts (Risk and Revenue Sharing Partners – 'RRSP'). This can involve upfront participation fees from the RRSP that are amortised over the engine production phase. In addition, specified revenue and costs are recorded in the Consolidated Income Statement net of the RRSP's share.</p> <p>The nature of the Civil Aerospace business gives rise to a number of contractual guarantees, warranties and potential claims. The accounting for these can be complex and judgemental and may impact the Consolidated Income Statement immediately or over the life of the contract. The valuation of provisions for the associated amounts may be judgemental and needs to be considered on a contract by contract basis.</p>	<ul style="list-style-type: none"> - We assessed the sensitivity of the Trent 1000 provision to reasonable changes in estimates, particularly in respect of the repair and overhaul facility capacity, technical cost creep on the known issues and cost outturns against previous provisions, in determining whether the provision was sufficient; - We read and understood the key terms of a sample of RRSP contracts to assess whether revenue and costs had been appropriately reflected, net of the share attributable to the RRSP in the Consolidated Income Statement; - We considered whether there were any indicators of management override of controls or bias in arriving at their reported position; and - We also assessed the adequacy of disclosures in note 1 of the key judgements and estimates involved in long-term contract accounting. <p>Misstatements identified from our work were largely corrected by management leaving an immaterial uncorrected position. Overall we concluded that the key estimates and judgements used by management for long-term contract accounting were supportable and no material exceptions arose from our work.</p>
<p><i>Deferred tax asset recognition and recoverability (group and company)</i> (relevant to the Consolidated and Company Financial Statements)</p> <p><i>Note 1 to the Consolidated Financial Statements – Accounting policies – Taxation, note 5 to the Consolidated Financial Statements – Taxation, note 1 to the Company Financial Statements – Accounting policies – Taxation, and note 17 to the Company Financial Statements – Deferred taxation</i></p> <p>The recognition and recoverability of deferred tax assets in the company is a significant judgement. The company has recognised significant deferred tax assets on the basis of expected future levels of profitability. The magnitude of the assets recognised necessitates the need for significant judgement in assessing the future levels of profitability in the UK over an extended period.</p> <p>The additional loss reported for 2020, along with the existence of tax losses brought forward and other deductible temporary differences in the company, combined with the impact of COVID 19 and climate change on future forecasts, presents a heightened risk that deferred tax assets previously recognised may not be recoverable. Further there is an inherent increased level of uncertainty in the future level of forecast profits.</p>	<p>We evaluated management's methodology for assessing the recognition and recoverability of deferred tax assets, including the ability to offset certain deferred tax liabilities and deferred tax assets. Where recognition is supported by the availability of sufficient probable taxable profits in future periods against which the asset can be utilised in future periods, our evaluation of these future profits considered both the business model and the tax jurisdiction.</p> <p>We assessed the future profit forecasts and the underpinning assumptions including management's risk weighting of particular profit streams in Rolls-Royce plc and tested that the assumptions and forecasts for periods beyond the normal five year forecasting horizon were reasonable. The right of offset of certain deferred tax liabilities and deferred tax assets was also assessed.</p> <p>Where applicable we assessed the consistency of the forecasts used to justify the recognition of deferred tax assets to those used elsewhere in the business, including for long-term contract accounting, impairment assessments, or for the Directors' viability and going concern statements. We also assessed the risk adjustments applied by management to these profit forecasts to future periods that are significantly further in time than the group's normal five year forecasting process and considered whether these appropriately reflect the potential impact of climate change on the group's mix of results.</p> <p>We assessed the treatment of the losses that are realised or unrealised on the group's hedge book and whether they were treated appropriately and how they are recovered using the same profit forecasts.</p> <p>We also assessed the adequacy of disclosures over this area, particularly the derecognition of a portion of the deferred tax asset and impact of changes in key estimates of the asset recognised and this has been disclosed in notes 1 and 5.</p> <p>We did not identify any material uncorrected exceptions from our audit work.</p>

Key audit matter	How our audit addressed the key audit matter
<p><i>Translation of foreign-currency denominated transactions and balances (group and company) (relevant to the Consolidated and Company Financial Statements)</i></p> <p><i>Note 1 to the Consolidated Financial Statements – Accounting policies – Foreign currency translation and note 1 to the Company Financial Statements – Accounting policies – Foreign currency translation</i></p> <p>Foreign exchange rate movements influence the reported Consolidated income statement, the Consolidated cash flow statement and Consolidated and Company balance sheets. One of the group's primary accounting systems that is used by a number of its subsidiaries translates transactions and balances denominated in foreign currencies at a fixed budget rate for management information purposes.</p> <p>Foreign currency denominated transactions and balances are then re-translated to actual average and closing spot rates through manual adjustments. Due to the manual nature of the process and significance of the recurring adjustments needed there is a risk that transactions and balances denominated in foreign currencies are incorrectly translated in the Consolidated or Company Financial Statements.</p>	<p>In addition to our testing in other areas of the various financial statement line items, we performed the following specific audit procedures over this area:</p> <ul style="list-style-type: none"> – Obtained an understanding of the process employed by management to correctly report the translation of foreign currency balances and transactions; – Tested system reports identifying transactions and balances in source currency by agreeing these to general ledger balances; – Tested on a sample basis the manual calculations of the adjustment needed to correctly report the translation of the foreign currency denominated transactions and balances; – We sample tested the balances and transactions requiring adjustment by source currency to source data and assessed the completeness of these balances and transactions; – We agreed the exchange rates used in management's translation adjustments to an independent source; and – For each adjustment sampled we assessed whether the foreign currency denominated balance or transaction was translated at the appropriate exchange rate depending on its nature. <p>There are no material uncorrected exceptions from our audit work.</p>
<p><i>Presentation and accuracy of underlying results and disclosure of other one-off items (including exceptional items) (group)</i></p> <p>(relevant to the Consolidated Financial Statements)</p> <p><i>Note 1 to the Consolidated Financial Statements – Accounting policies – Presentation of underlying results, note 2 to the Consolidated Financial Statements – Segmental analysis and note 28 to the Consolidated Financial Statements – Derivation of summary of funds flow statement.</i></p> <p>In addition to the performance measures prescribed by International Financial Reporting Standards, the group also presents its results on an "underlying" basis, as the Directors believe this better reflects the performance of the group during the year. The group also presents a free cash flow metric which the Directors believe reflects the cash generated from underlying trading; this differs from the cash flows presented in the Consolidated cash flow statement.</p> <p>A key adjustment between the statutory results and the underlying results relates to the foreign exchange rates used to translate foreign currency transactions and balances. The underlying results reflect the achieved rate on foreign currency derivative contracts settled in the period and retranslates assets and liabilities at the foreign currency rates at which they are expected to be realised or settled in the future. As the group can influence which derivative contracts are settled in each reporting period it has the ability to influence the achieved rate and hence the underlying results. This risk is more limited for free cash flow as there are a small number of items that are excluded from free cash flows, however, there may be judgement to determine whether an item meets the definition for being excluded from free cash flow.</p>	<p>We have considered the judgements taken by management to determine what should be treated as a one-off or exceptional item and the translation of foreign currency amounts and obtained corroborative evidence for these.</p> <p>We also considered whether there were items that were recorded within underlying profit that are exceptional in nature and should be reported as an exceptional item. No such material items were identified. As part of this assessment we challenged management's rationale for the designation of certain items as exceptional or one-off and assessed such items against the group's accounting policy, considering the nature and value of those items.</p> <p>Within underlying results, foreign currency transactions are presented at rates achieved on derivative contracts hedging the net operating cash flows of the group. In the current year the group experienced a net US Dollar outflow rather than inflow as had been anticipated prior to the COVID-19 pandemic. The impact on trading also resulted in a reduction in the levels of future net US Dollar inflows compared to the forecast position prior to the start of the pandemic resulting in an overhedge position in 2020 as well as a forecast overhedge position in subsequent years to 2026. As a result the achieved rate in 2020 was similar to the average spot rate for the year. To address the overhedge position the group entered into a number of offsetting derivative contracts for a notional value equal to the deficit between its pre-pandemic expectation of net US Dollar cash inflows and its current forecasts. Some of these contracts were used in 2020 to purchase US Dollars to close out derivative positions that could not be met from cash generation in 2020 and the remainder are being used to offset similar forecast positions in the short and medium term.</p>

Key audit matter	How our audit addressed the key audit matter
<p>During the year, the group recognised a finance charge of £1,689m to underlying profit before tax arising from the impact of closing out derivatives that were to hedge \$11.8bn of actual and forecast net US Dollar inflows which are no longer expected. This was transacted primarily by entering into offsetting forward foreign currency derivatives. In addition, the group has excluded £1,293m of impairment charges, £584m of exceptional credits and pension past service credits of £308m in arriving at underlying profit before tax.</p> <p>The underlying results differ significantly from the reported statutory results and are used extensively to explain performance to the shareholders. Alternative performance measures can provide investors with a better understanding of the group's performance if consistently calculated, properly used and presented. However, when improperly used and presented, these non-GAAP measures can mislead investors and may mask the real financial performance and position.</p>	<p>The net overhedge position in 2020 was addressed by entering into and closing out offsetting derivative contracts. A charge was recognised within underlying financing to reflect cost associated with those closed out in 2020 and the expected future cash cost of settlement relating to the over hedged position. This cash cost was partially incurred in 2020, with the balance falling between 2021 and 2026. We have agreed key terms of the offsetting derivative contracts to confirmations or cash settlement, and have recalculated the over-hedged charge presented within underlying finance costs.</p> <p>Within underlying results, monetary assets and liabilities are also retranslated at rates forecast to be achieved on derivative contracts when the associated cash flows occur. We have agreed these forecast rates to the profile of the derivatives that are expected to mature in the future and tested their application to the relevant monetary assets and liabilities.</p> <p>We audited the reconciling items between the underlying loss before tax and free cash flow disclosed in note 28 including verifying that the items adjusted for are consistent with the prior period. We also considered whether free cash flow contains material one-off items which require further disclosure.</p> <p>We also assessed the appropriateness and completeness of the disclosures of the impact of one-off or non-underlying items primarily in notes 1, 2, 4 and 28 to the Consolidated Financial Statements and found them to be appropriate. This included assessing the explanations management has provided on the reconciling items between underlying performance and statutory performance in note 2 and disclosure of the impact of a further deterioration of forecast US Dollar cash inflows to the overhedge position within note 4.</p> <p>Overall we found that the classification judgements made by management were in line with their policy for underlying results and exceptional items, had been consistently applied and there are no material uncorrected misstatements resulting from our testing. Given the size of the net hedge book against future projected cash flows, future results are sensitive to further charges if net cash inflows fall below those projected, this sensitivity is disclosed in note 4.</p>
<p><i>Recoverability of accounts receivable and contract assets (group and company)</i> (relevant to the Consolidated and Company Financial Statements)</p> <p><i>Note 14 to the Consolidated Financial Statements – Trade receivables and other assets, note 15 to the Consolidated Financial Statements – Contract assets and liabilities, note 14 to the Company Financial Statements – Trade receivables and other assets and note 15 to the Company Financial Statements – Contract assets and liabilities.</i></p> <p>At 31 December 2020, the group holds trade receivables and other financial assets of £4,905m (2019: £4,137m) and contract assets of £1,076m (2019: £1,496m). Management is required to assess the recoverability of these balances and recorded a provision against future expected credit losses. At 31 December 2020 this provision was £252m (2019: £138m). Given the impact of COVID-19 we assess there to be a heightened risk of the recoverability of the group's</p>	<p>We obtained management's calculation of the expected credit loss provision. For a sample of customers we verified the credit rating issued by the rating agencies and recalculated the resulting expected credit loss provision required to compare against management's estimate.</p> <p>We performed sensitivity analysis in order to quantify changes to the expected credit loss rate that would be required in order to result in a material change in the provision.</p> <p>Where customer balances are subject to specific provisions, we considered the reasonableness of the provision after discussions with management to understand their rationale for the provision, reviewing customer correspondence, payment history and our knowledge of the financial condition of the customers. We also considered what balances were settled subsequent to the year end.</p>

Key audit matter	How our audit addressed the key audit matter
<p>trade receivables and contract assets within the Civil Aerospace business.</p> <p>Management estimates the expected credit loss provision by assessing the credit grade of its customers and determining the expected credit loss based on rates provided by rating agencies. The recognition of provisions for credit losses generally occurs earlier under IFRS 9 than the previous accounting standard and so there is a heightened risk that additional provisions should be recognised over these balances.</p>	<p>Overall we found management's estimate of the expected credit loss provision to be appropriate and found no material exceptions from our testing.</p>
<p><i>Recoverability of intangible programme assets (group and company)</i> (relevant to the Consolidated and Company Financial Statements)</p> <p><i>Note 1 to the Consolidated Financial Statements – Accounting policies – Impairment of non-current assets, note 8 to the Consolidated Financial Statements - Intangible assets, note 11 to the Consolidated Financial Statements – Impairment of intangible assets, property, plant and equipment and right of use assets and investments, note 1 to the Company Financial Statements – Accounting policies – Impairment of non-current assets, note 3 to the Company Financial Statements - Intangible assets and note 6 to the Company Financial Statements – Impairment of intangible assets, property, plant and equipment and right of use assets</i></p> <p>At 31 December 2020, the group had £1,761m (2019: £2,093m) of capitalised development expenditure, predominantly related to Civil Aerospace engine programmes. In addition, the group has recognised customer relationship intangible assets of £925m (2019: £949m) most significantly in relation to ITP Aero. Intangible assets are tested for impairment if an indicator exists and the fall in forecast cash flows as a result of COVID-19 was identified by management as such an indicator.</p> <p>The recoverable value of intangible assets is dependent on a number of significant judgements including the shape and speed of the expected recovery in engine flying hours, which drives a significant proportion of the programme's cash flows, the timing and amount of engine sales, the rate at which costs will grow and discount rates. Management has reflected the increased uncertainty from COVID-19 by probability weighting a base case and downside scenario in order to arrive at expected future cash flows.</p> <p>Following the impairment reviews, management has recorded an impairment charge of £571m.</p>	<p>We obtained management's impairment model and tested its logic and mathematical accuracy. We also tested the reasonableness of key assumptions, including the cash inflows from original equipment and aftermarket sales, cost of sales and operating cash flows and the selection of discount rates. We also assessed the reasonableness of the two scenarios used by management and the associated probability given to each.</p> <p>We agreed projections to management approved budgets and forecasts and assessed how these projections are compiled.</p> <p>Deploying our valuations experts, we assessed the terminal growth rate and discount rate applied to the programmes with third party information, past performance, the group's cost of capital and relevant risk factors.</p> <p>We performed our own risk assessment by considering historical performance and management's forecasting accuracy to highlight the programmes with either lower headroom or which are more sensitive to changes in key assumptions. We also performed our own independent sensitivity analysis to understand the impact of reasonably possible changes in management's assumptions on the available headroom. We challenged the significant assumptions, specifically relating to revenue and cash flow growth in light of the individual programme's past performance to assess whether the forecasts are achievable.</p> <p>As a result of our work, we determined that the impairment charge recognised in 2020 for intangible assets was appropriate. We have assessed management's disclosures in light of the impairment testing we performed, and we consider the disclosures made to be reasonable. For those intangible assets where management has determined there is a risk of future impairments, we found that suitable disclosure has been given showing the impairment charge that would result from reasonably possible changes in the underlying key assumptions.</p>
<p><i>Ability of the group and company to continue as a going concern (group and company)</i> (relevant to the Consolidated and Company Financial Statements)</p> <p><i>Going Concern Statement, note 1 to the Consolidated Financial Statements – Accounting policies, and note 1 to the Company Financial Statements – Accounting policies.</i></p> <p>COVID-19 and the impact of lockdowns on global aviation has had a significant impact on the group's cash generation. While the Defence sector remains robust, and the Power Systems sector has been moderately impacted by the pandemic, the group's core Civil Aerospace business</p>	<p>Our procedures and conclusions in respect of going concern are set out below in the 'Conclusions relating to going concern' section.</p>

Key audit matter	How our audit addressed the key audit matter
<p>has experienced a significant deterioration in cash generation. The unprecedented decline in air travel, particularly long haul, which is the focus market for a large proportion of the Civil Aerospace business has meant engine flying hour receipts in 2020 and forecasts for 2021/22 have been severely impacted as has cash generated from OE sales to Boeing and Airbus that have been impacted by airline order deferrals, cancellations and reduced production levels. Overall the group experienced a £4.2bn free cash outflow in 2020, which after excluding the impact of largely discontinuing its use of invoice discounting was a £3.1bn free cash outflow.</p> <p>At the half year management disclosed two material uncertainties in the half year financial statements of Rolls-Royce Holdings plc, being the timing of recovery in the commercial aviation market to pre-crisis levels and the availability of sufficient funding. Since the half year management has improved available liquidity by £3.1bn with a £2bn rights issue by Rolls-Royce Holdings plc, £2bn of new bonds, a £1bn new term loan, offset by the expiry of a £1.9bn revolving credit facility that was mandatorily cancelled with the rights issue. As a result overall liquidity at 31 December 2020 increased to £9bn.</p> <p>There is on-going and significant uncertainty over the shape and speed of potential recovery and the impact of new variants of the COVID-19 virus. The group's free cash flow forecasts for 2021 and 2022 have been significantly downgraded as a result by analysts. Given this uncertainty management has modelled a base and downside liquidity headroom position for its going concern assessment. The group's debt facilities do not contain financial covenants. The Directors have concluded that there is sufficient liquidity available for at least the 18 month period of its going concern assessment to September 2022.</p> <p>As the going concern assessment is dependent on management's future cash flow forecasts there is significant judgement involved in determining these and concluding that there is not a material uncertainty.</p>	
<i>Impact of the COVID-19 pandemic (group and company)</i>	<p>COVID-19 has impacted a number of areas of the financial statements that are described in the key audit matters above.</p>
<p>(relevant to the Consolidated and Company Financial Statements)</p>	<p>We have held regular meetings with management during the year to understand the impacts of the pandemic on the business and how it has impacted the significant estimates and judgements used in the preparation of the Consolidated and Company Financial Statements.</p>
<p><i>Going Concern Statement, note 1 to the Consolidated Financial Statements – Accounting policies, and note 1 to the Company Financial Statements – Accounting policies.</i></p>	<p>To test group's restructuring provision, we assessed whether a legal or constructive obligation was present to carry out the restructuring by reference to the communications that the group has made externally and internally and the actions it had taken by 31 December 2020. We validated the assumptions used to quantify the expected costs of restructuring including by comparing those costs against the experience of past restructuring exercises and leavers in the year.</p>
<p>The COVID-19 pandemic has had a significant impact on the trading performance and cash generation of the group during the year which has continued into 2021. The pandemic has brought significant estimation uncertainty over future performance in the Civil Aerospace business in particular, given the shape and speed of recovery is uncertain particularly with new variants of the virus. Further this may impact consumer behaviour in the short and longer term.</p>	<p>We assessed the accounting treatment of the £300m financing under the CCFF and the £2bn UKEF loan to consider whether they were sufficiently close in pricing and terms to equivalent debt that may be raised by the group without any Government involvement. We considered the timing of the issues, the terms of the UKEF loan and compared the rates payable on this debt to indicative quotes received from other financing options and found the resultant accounting treatment to be appropriate.</p>
<p>There is a risk that the assessment of the financial impact made by management may be inappropriate. Accordingly we have focused on areas where the financial impact is likely to manifest in the financial statements. Many of these are risks that are the subject of separate key audit matters set out above. In addition we have identified the following:</p>	

Key audit matter	How our audit addressed the key audit matter
<ul style="list-style-type: none"> - The group announced a fundamental restructuring programme during the year. This resulted in a provision of £373m, representing management's best estimate of the related severance costs. In addition, the group has decided to exit certain sites and has therefore written down the related assets at those sites to their fair value less cost of disposal. This resulted in an impairment charge of £288m; - The group received £47m from the UK Government as part of the Coronavirus Job Retention Scheme (CJRS) and issued £300m of commercial paper under the Covid Corporate Financing Facility (CCFF). In addition it obtained a £2bn term loan that is 80% guaranteed by UK Export Finance; and - Management's way of working, including the operation of controls, has been impacted by COVID-19 as a result of a large number of staff working remotely. There is inevitably an increase in risk due to the remote accessing of IT systems and potentially heightened cyber risk. 	<p>Our audit places only limited reliance on the group's IT and control environment. However, in response to any incremental risk from remote working, we understood key changes to the group's IT controls and processes as part of our assessment of audit risks to consider where additional testing might be required. We also met with senior management responsible for cyber security and considered whether there were developments in the year that warranted further procedures to be performed.</p> <p>We have assessed the adequacy of the disclosures in the Consolidated and Company Financial statements explaining the impact of COVID-19 and the disclosure management has given to explain and quantify key judgements and sources of estimation uncertainty and found these to be appropriate.</p>

How we tailored the audit scope

We tailored the scope of our audit to ensure that we performed enough work to be able to give an opinion on the financial statements as a whole, taking into account the structure of the group and the company, the accounting processes and controls, and the industry in which they operate.

Our scoping is based on the group's consolidation structure. We define a component as a single reporting unit which feeds into the group consolidation. Of the group's 462 reporting components, 32 individual components (including three joint ventures) were subject to full scope audits for group purposes, which following an element of consolidation, equates to 16 group reporting opinions; and eight components performed targeted specified procedures.

In order to achieve audit coverage over the financial statements, under our audit methodology, we test both the design and operation of relevant business process controls and perform substantive testing over each financial statement line item.

The group operates Finance Service Centres (FSCs) to bulk process financial transactions in Derby (UK), Indianapolis (US) and Bangalore (India). Based on our assessment with management it is not possible to fully test revenue and profit centrally as certain key processes, such as long-term contracting, remain within the business due to their nature and are not handled by the FSCs.

Our audit covered 93% of revenue, 89% of loss before tax and 90% of total assets. All entities that contribute in excess of 3% of the group's revenue were included in full scope.

Further specific audit procedures over central functions, the group consolidation and areas of significant judgement (including corporate costs, taxation, certain goodwill balances, intangible assets, treasury and post-retirement benefits) were directly led by the group audit team.

Where work was performed by component auditors, we determined the level of involvement we needed to have in the audit work at those reporting units to be able to conclude whether sufficient appropriate audit evidence had been obtained as a basis for our opinion on the Consolidated Financial Statements.

We issued formal written instructions to all component auditors setting out the audit work to be performed by each of them and maintained regular communication with the component auditors throughout the audit cycle. These interactions included attending certain component clearance meetings and holding regular conference calls, as well as reviewing and assessing any matters reported. The group engagement team also reviewed selected audit working papers for certain component teams.

In addition, senior members of the group engagement team have virtually visited component teams across all group segments in the United Kingdom, United States of America, Germany, Spain and Saudi Arabia. These visits included meetings with the component auditor and attendance at segment clearance meetings.

Materiality

The scope of our audit was influenced by our application of materiality. We set certain quantitative thresholds for materiality. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and in evaluating the effect of misstatements, both individually and in aggregate on the financial statements as a whole.

Based on our professional judgement, we determined materiality for the financial statements as a whole as follows:

	Financial statements - group	Financial statements - company
Overall materiality	£70m (2019: £75m).	£66m (2019: £71m).
How we determined it	0.5% of three year average underlying revenues	0.8% of three year average revenues
Rationale for benchmark applied	We have consistently used underlying revenue to determine materiality as opposed to a profit based benchmark. This is because there is considerable volatility in profit/loss before tax as a result of revenue recognition under IFRS 15 and from the fair value movement in the group's derivatives. Underlying revenue continues to be a key performance metric for the group and is much less volatile than the profit metric. However, for 2020 COVID-19 introduced additional volatility that impacted benchmarks. To mitigate this we have used a three year average underlying revenue measure to calculate materiality.	We have consistently used revenue to determine materiality as opposed to a profit based benchmark. This is because there is considerable volatility in profit/loss before tax as a result of revenue recognition under IFRS 15 and from the fair value movement in the group's derivatives. Revenue continues to be a key performance metric for the group and is much less volatile than the profit metric. However, for 2020 COVID-19 introduced additional volatility that impacted benchmarks. To mitigate this we have used a three year average revenue measure to calculate materiality.

For each component in the scope of our group audit, we allocated a materiality that is less than our overall group materiality. The range of materiality allocated across components was between £5m and £63m. Certain components were audited to a local statutory audit materiality that was also less than our overall group materiality.

We use performance materiality to reduce to an appropriately low level the probability that the aggregate of uncorrected and undetected misstatements exceeds overall materiality. Specifically, we use performance materiality in determining the scope of our audit and the nature and extent of our testing of account balances, classes of transactions and disclosures, for example in determining sample sizes. Our performance materiality was 75% of overall materiality, amounting to £53m for the Consolidated Financial Statements and £50m for the Company Financial Statements.

In determining the performance materiality, we considered a number of factors - the history of misstatements, risk assessment and aggregation risk and the effectiveness of controls - and concluded that an amount at the upper end of our normal range was appropriate.

We agreed with the Audit Committee that we would report to them misstatements identified during our audit above £3m (group audit) (2019: £3m) and £3m (company audit) (2019: £3m) as well as misstatements below those amounts that, in our view, warranted reporting for qualitative reasons.

Conclusions relating to going concern

Our evaluation of the directors' assessment of the group's and the company's ability to continue to adopt the going concern basis of accounting included:

- Testing the model used for management's going concern assessment which is primarily a liquidity assessment given there are no significant financial covenants in its committed debt facilities. Management's assessment covered the 18 months to September 2022. We focussed on this period and also considered the subsequent three months to the end of 2022 given the group's £1bn term loan expires in October 2022.
- Management's base case forecasts are based on its normal budget and forecasting process for each of its businesses for the next five years. We understood and assessed this process by business including the assumptions used for 2021 and 2022 and assessed whether there was adequate support for these assumptions. We also considered the reasonableness of the monthly phasing of cash flows. A similar assessment was performed of the downside cash flows, including understanding of the scenarios modelled by management, how they were quantified and the resultant monthly phasing of the downside cash flow forecasts.
- Comparison of the going concern base case forecasts to Board approved forecasts and where applicable, we compared these forecasts for consistency to those used elsewhere in the business, including for long-term contract accounting and impairment assessments.
- We have read and understood the key terms of all committed debt facilities to understand any terms, covenants or undertakings that may impact the availability of the facility.
- Using our knowledge from the audit and assessment of previous forecasting accuracy we calculated our own sensitivities to apply to management's cash flow forecasts. We overlaid these on management's forecasts to arrive at our own view of management's downside forecasts. This included considering the three month period after September 2022 to assess the impact on liquidity headroom of the £1bn term loan expiring in the downside case together with our sensitivities.
- We considered the potential mitigating actions that management may have available to it to reduce costs, manage cash flows or raise additional financing and assessed whether these were within the control of management and possible in the period of the assessment.
- We assessed the adequacy of disclosures in the Going Concern statement and statements in note 1 of the Consolidated and Company Financial statements and found these appropriately reflect the key areas of uncertainty identified.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the group's and the company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

In auditing the financial statements, we have concluded that the directors' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

However, because not all future events or conditions can be predicted, this conclusion is not a guarantee as to the group's and the company's ability to continue as a going concern.

In relation to the company's reporting on how they have applied the UK Corporate Governance Code, we have nothing material to add or draw attention to in relation to the directors' statement in the financial statements about whether the directors considered it appropriate to adopt the going concern basis of accounting.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report.

Reporting on other information

The other information comprises all of the information in the Annual Report other than the financial statements and our auditors' report thereon. The directors are responsible for the other information. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except to the extent otherwise explicitly stated in this report, any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If we identify an apparent material inconsistency or material misstatement, we are required to perform procedures to conclude whether there is a material misstatement of the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report based on these responsibilities.

With respect to the Strategic report and Statement of the Directors' responsibilities in respect of the Financial Statements, we also considered whether the disclosures required by the UK Companies Act 2006 have been included.

Based on our work undertaken in the course of the audit, the Companies Act 2006 requires us also to report certain opinions and matters as described below.

Strategic report and Statement of the Directors' responsibilities in respect of the Financial Statements

In our opinion, based on the work undertaken in the course of the audit, the information given in the Strategic report and Statement of the Directors' responsibilities in respect of the Financial Statements for the year ended 31 December 2020 is consistent with the financial statements and has been prepared in accordance with applicable legal requirements.

In light of the knowledge and understanding of the group and company and their environment obtained in the course of the audit, we did not identify any material misstatements in the Strategic report and Statement of the Directors' responsibilities in respect of the Financial Statements.

Corporate governance statement

The Listing Rules require us to review the directors' statements in relation to going concern, longer-term viability and that part of the corporate governance statement relating to the company's compliance with the provisions of the UK Corporate Governance Code specified for our review. Our additional responsibilities with respect to the corporate governance statement as other information are described in the Reporting on other information section of this report.

Based on the work undertaken as part of our audit, we have concluded that each of the following elements of the corporate governance statement is materially consistent with the financial statements and our knowledge obtained during the audit, and we have nothing material to add or draw attention to in relation to:

- The directors' confirmation that they have carried out a robust assessment of the emerging and principal risks;
- The disclosures in the Annual Report that describe those principal risks, what procedures are in place to identify emerging risks and an explanation of how these are being managed or mitigated;
- The directors' statement in the financial statements about whether they considered it appropriate to adopt the going concern basis of accounting in preparing them, and their identification of any material uncertainties to the group's and company's ability to continue to do so over a period of at least twelve months from the date of approval of the financial statements;
- The directors' explanation as to their assessment of the group's and company's prospects, the period this assessment covers and why the period is appropriate; and
- The directors' statement as to whether they have a reasonable expectation that the group and company will be able to continue in operation and meet its liabilities as they fall due over the period of its assessment, including any related disclosures drawing attention to any necessary qualifications or assumptions.

Our review of the directors' statement regarding the longer-term viability of the group was substantially less in scope than an audit and only consisted of making inquiries and considering the directors' process supporting their statement; checking that the statement is in alignment with the relevant provisions of the UK Corporate Governance Code; and considering whether the statement is consistent with the financial statements and our knowledge and understanding of the group and company and their environment obtained in the course of the audit.

In addition, based on the work undertaken as part of our audit, we have concluded that each of the following elements of the corporate governance statement is materially consistent with the financial statements and our knowledge obtained during the audit:

- The directors' statement that they consider the Annual Report, taken as a whole, is fair, balanced and understandable, and provides the information necessary for the members to assess the group's and company's position, performance, business model and strategy;
- The section of the Annual Report that describes the review of effectiveness of risk management and internal control systems; and
- The section of the Annual Report describing the work of the Audit Committee.

We have nothing to report in respect of our responsibility to report when the directors' statement relating to the company's compliance with the Code does not properly disclose a departure from a relevant provision of the Code specified under the Listing Rules for review by the auditors.

Responsibilities for the financial statements and the audit

Responsibilities of the directors for the financial statements

As explained more fully in the Statement of the Directors' responsibilities in respect of the Financial Statements, the directors are responsible for the preparation of the financial statements in accordance with the applicable framework and for being satisfied that they give a true and fair view. The directors are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the group's and the company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the group or the company or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Our audit testing might include testing complete populations of certain transactions and balances, possibly using data auditing techniques. However, it typically involves selecting a limited number of items for testing, rather than testing complete populations. We will often seek to target particular items for testing based on their size or risk characteristics. In other cases, we will use audit sampling to enable us to draw a conclusion about the population from which the sample is selected.

A further description of our responsibilities for the audit of the financial statements is located on the FRC's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditors' report.

Use of this report

This report, including the opinions, has been prepared for and only for the company's members as a body in accordance with Chapter 3 of Part 16 of the Companies Act 2006 and for no other purpose. We do not, in giving these opinions, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

Other required reporting

Companies Act 2006 exception reporting

Under the Companies Act 2006 we are required to report to you if, in our opinion:

- we have not obtained all the information and explanations we require for our audit; or
- adequate accounting records have not been kept by the company, or returns adequate for our audit have not been received from branches not visited by us; or
- certain disclosures of directors' remuneration specified by law are not made; or
- the company financial statements and the part of the Remuneration Committee Report to be audited are not in agreement with the accounting records and returns.

We have no exceptions to report arising from this responsibility.

Appointment

Following the recommendation of the Audit Committee, we were appointed by the members on 3 May 2018 to audit the financial statements for the year ended 31 December 2018 and subsequent financial periods. The period of total uninterrupted engagement is three years, covering the years ended 31 December 2018 to 31 December 2020.



Ian Chambers (Senior Statutory Auditor)
for and on behalf of PricewaterhouseCoopers LLP
Chartered Accountants and Statutory Auditors
London
12 March 2021

OTHER FINANCIAL INFORMATION

Foreign exchange

Foreign exchange rate movements influence the reported income statement, the cash flow and closing net funds balance. The average and spot rates for the principal trading currencies of the Group are shown in the table below:

£m		2020	2019	Change
USD per GBP	Year-end spot rate	1.36	1.32	+3%
	Average spot rate	1.28	1.28	-
EUR per GBP	Year-end spot rate	1.11	1.18	-6%
	Average spot rate	1.13	1.14	-1%

The Group's global corporate income tax contribution

The Group's total corporation tax payments in 2020 were £231m. Around 85% of this was paid in the US, Germany, UK and Singapore which reflects the fact that the majority of the Group's business is undertaken, and employees are based, in these countries. The balance was paid in around 40 other countries.

In common with most multinational groups, the total of all profits in respect of which corporate income tax is paid is not the same as the consolidated loss before tax reported on page 48. The main reasons for this are:

- (i) the consolidated income statement is prepared under IFRS, whereas tax is paid on the profits of each Group company, which are determined by local accounting rules;
- (ii) accounting rules require certain income and costs relating to our commercial activities to be eliminated from, or added to, the aggregate of all the profits of the Group companies when preparing the consolidated income statement (consolidation adjustments); and
- (iii) specific tax rules including exemptions or incentives as determined by the tax laws in each country.

The level of tax paid in each country is impacted by the above. In most cases, (i) and (ii) are only a matter of timing and therefore tax will be paid in an earlier or later year. As a result they only have a negligible impact on the Group's underlying tax rate. The underlying tax rate can be found on page 17. This is due to deferred tax accounting, details of which can be found in note 5 to the Consolidated Financial Statements. The impact of (iii) will often be permanent depending on the relevant tax law. Further information on the tax position of the Group can be found as follows:

- note 1 to the Consolidated Financial Statements (page 55) - Details of key areas of uncertainty and accounting policies for tax; and
- note 5 to the Consolidated Financial Statements (page 75) Details of the tax balances in the Consolidated Financial Statements together with a tax reconciliation. This explains the main drivers of the tax rate and the impact of our assessment on the recovery of UK deferred tax assets.

At this stage we expect these items to continue to influence the underlying tax rate. The reported tax rate is more difficult to forecast due to the impact of significant adjustments to reported profits, in particular the net unrealised fair value changes to derivative contracts and the recognition of losses and advance corporation tax.

Information on the Group's approach to managing its tax affairs can be found at www.rolls-royce.com.

Investments and capital expenditure

The Group subjects all major investments and capital expenditure to a rigorous examination of risks and future cash flows to ensure that they create shareholder value. All major investments, including the launch of major programmes, require Board approval.

The Group has a portfolio of projects at different stages of their lifecycles. All of our major investments and projects are assessed using a range of financial metrics, including discounted cash flow and return on investment.

Financial risk management

The Board has established a structured approach to financial risk management. The Financial risk committee (Frc) is accountable for managing, reporting and mitigating the Group's financial risks and exposures. These risks include the Group's principal counterparty, currency, interest rate, commodity price, liquidity and credit rating risks outlined in more depth in note 20. The Frc is chaired by the Chief Financial Officer or group controller. The Group has a comprehensive financial risk policy that advocates the use of financial instruments to manage and hedge business operations risks that arise from movements in financial, commodities, credit or money markets. The Group's policy is not to engage in speculative financial transactions. The Frc sits quarterly to review and assess the key risks and agree any mitigating actions required.

Capital structure

£m	2020	2019
Total equity	(4,517)	(1,114)
Cash flow hedges	94	96
Group capital	(4,425)	(1,018)
Net funds (excluding lease liabilities)	(1,533)	1,352

Operations are funded through various shareholders' funds, bank borrowings, bonds and notes. The capital structure of the Group reflects the judgement of the Board as to the appropriate balance of funding required. Funding is secured by the Group's continued access to the global debt markets. Borrowings are funded in various currencies using derivatives where appropriate to achieve a required currency and interest rate profile. The Board's objective is to retain sufficient financial investments and undrawn facilities to ensure that the Group can both meet its medium-term operational commitments and cope with unforeseen obligations and opportunities.

The Group holds cash and short-term investments which, together with the undrawn committed facilities, enable it to manage its liquidity risk.

During the year, the Group issued \$1,000m, €750m and £545m of bond notes, \$1,000m and £545m of which mature in 2027 and €750m in 2026. The Group issued £300m of commercial paper under the Covid Commercial Finance Facility made available by the Bank of England in response to COVID-19. The Group also entered into a new committed £2,000m loan maturing 2025 (supported by an 80% guarantee from UK Export Finance) and a new £1,000m bank loan maturing 2022. Also during 2020 the Group extended the maturity of the £2,500m committed revolving credit facility from 2024 to 2025. The £2,500m revolving credit facility, the £2,000m loan and £1,000m loan were undrawn at the period end. The Group also repaid a \$500m bond during the year. At the year end, the Group retained aggregate liquidity of £9.0bn, including cash and cash equivalents of £3.5bn and undrawn borrowing facilities of £5.5bn.

Circa £1.0bn of drawn borrowings mature in 2021 (£1.3bn including lease liabilities).

The maturity profile of the borrowing facilities is regularly reviewed to ensure that refinancing levels are manageable in the context of the business and market conditions. There are no rating triggers in any borrowing facility that would require the facility to be accelerated or repaid due to an adverse movement in the Group's credit rating. The Group conducts some of its business through a number of joint ventures. A major proportion of the debt of these joint ventures is secured on the assets of the respective companies and is non-recourse to the Group. This debt is further outlined in note 11.

Credit rating

£m	Rating	Outlook
Moody's Investors Service	Ba3-	Negative
Standard & Poor's	BB-	Negative
Fitch	BB-	Negative

The Group subscribes to Moody's, Standard & Poor's and Fitch for independent long-term credit ratings with the ratings in the table above being applicable at the date of this report.

Accounting

The Consolidated Financial Statements have been prepared in accordance with International Financial Reporting Standards (IFRS), as adopted by the UK.

No new accounting standards had a material impact in 2020, or are expected to have a material impact in 2021.

Additional commentary on key performance indicators

Order backlog, also known as unrecognised revenue, is the amount of revenue on current contracts that is expected to be recognised in future periods. Civil Aerospace OE orders where the customer has retained the right to cancel (for deliveries in the next 7-12 months) are excluded. Further details are included in note 2 on page 71.

Underlying revenue is used as it reflects the impact of our foreign exchange (FX) hedging policy by valuing foreign currency revenue at the actual exchange rates achieved as a result of settling FX contracts in the year. This provides a clearer measure of our year-on-year performance. Further details and reconciliation to reported revenue are included in note 2 on page 72.

Self-funded R&D as a proportion of underlying revenue - We expect to spend approximately 5% of underlying revenue on R&D although this proportion will fluctuate depending on the stage of development of current programmes. We expect this proportion will reduce modestly over the medium term. Further details are included in note 3 on page 73.

Capital expenditure as a proportion of underlying revenue - All proposed investments are subject to rigorous review to ensure that they are consistent with forecast activity and will provide value for money. We measure annual capital expenditure as the cash purchases of property, plant and equipment acquired during the period; over the medium-term we expect a proportion of around 4%. Further details are included in note 9 on page 81.

Underlying operating profit includes: (a) revenue and costs denominated in US dollars and euros on the basis of the exchange rates achieved based on our FX hedge book; (b) similar adjustments in respect of commodity derivatives; (c) consequential adjustments to reflect the impact of exchange rates on trading assets and liabilities, and long-term contracts, on a consistent basis; and (d) items of a one-off nature. Further details and reconciliation to reported operating (loss)/profit are included in note 2 on page 69.

Free cash flow is the movement in net debt from cash flows excluding: transactions with ordinary shareholders; M&A activity; financial penalties paid; exceptional restructuring payments; and the capital element of lease payments. Further details and reconciliation to reported cash flow are included in note 28 on page 117.

Cash return on invested capital (CROIC) is calculated as cash flow divided by invested capital. Cash flow is the free cash flow (as defined above), adjusted to remove R&D, PPE and software capital expenditure, certification costs, other intangibles, and working capital (excluding change in the net LTSA balance in Civil Aerospace). Invested capital is defined as the sum of 15 years net R&D investment, PPE and software at cost, certification costs, other intangibles (excluding M&A and goodwill) and working capital (excluding net LTSA balance in Civil Aerospace) and ten times current year lease payments.

GLOSSARY

ABC	anti-bribery and corruption	IASB	International Accounting Standards Board
ACARE	Advisory Council for Aviation Research and Innovation in Europe	IFRS	International financial reporting standards
ALPS	Advanced Low Pressure System	KPIs	key performance indicators
AMRCs	Advanced Manufacturing Research Centres	ktCO2e	kilotonnes carbon dioxide equivalent
AOG	aircraft on ground	kW	kilowatts
APM	alternative performance measure	LGBT+	lesbian, gay, bisexual and transgender
Articles	Articles of Association of Rolls-Royce plc	LIBOR	London inter-bank offered rate
bps	basis points	LRIP	low rate initial production
Brexit	UK exit from the European Union	LTIP	long-term incentive plan
C&A	commercial and administrative	LTPR	long-term planning exchange rate
CARs	contractual aftermarket rights	LTSA	long-term service agreement
CEO	chief executive officer	M&A	mergers & acquisitions
CFO	chief financial officer	MoU	memorandum of understanding
CGT	capital gains tax	MRO	maintenance repair and overhaul
Our Code	Global Code of Conduct	MW	megawatts
the Code	UK Corporate Governance Code 2018	NCI	non-controlling interest
Company	Rolls-Royce plc	NED	Non-Executive Director
CPS	cash flow per share	NOx	nitrogen oxide
CROIC	cash return on invested capital	OCI	other comprehensive income
D&I	diversity & inclusion	OE	original equipment
DJSI	Dow Jones Sustainability Index	OECD	Organisation for Economic Co-operation and Development
DoJ	US Department of Justice	OEM	original equipment manufacturer
DPAs	deferred prosecution agreements	P&L	profit and loss
DTR	the FCA's Disclosure Guidance and Transparency Rules	PBT	profit before tax
EASA	European Aviation Safety Agency	PPE	property, plant and equipment
EFH	engine flying hours	PSMS	product safety management system
EIS	entry into service	PSP	performance share plan
ELG	Enterprise Leadership Group	R&D	research and development
ERG	employee resource group	R&T	research and technology
ESG	environment, social and governance	REACH	registration, evaluation, authorisation and restriction of chemicals
EU	European Union	RMS	risk management system
EUR	euro	RRMS	Rolls-Royce management system
EVTOL	electric vertical take-off and landing	RRSAs	risk and revenue sharing arrangements
FCA	Financial Conduct Authority	SAF	sustainable aviation fuel
FCF	free cash flow	SFO	UK Serious Fraud Office
FRC	Financial Reporting Council	SMR	small modular reactors
FTE	full time equivalent	STEM	science, technology, engineering and mathematics
FX	foreign exchange	TCFD	Taskforce on Climate-related Financial Disclosures
GBP	Great British pound or pound sterling	TRI	total reportable injuries
GHG	greenhouse gas	TSR	total shareholder return
Group	Rolls-Royce plc and its subsidiaries	USAF	United States Air Force
HPT	high pressure turbine	USD/US\$	United States dollar
HSE	health, safety and environment	UTCs	University Technology Centres