COMPANY NUMBER 01003142

ROLLS-ROYCE PLC

ANNUAL REPORT AND AUDITED FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 DECEMBER 2022

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COMPANY INFORMATION

Registered office	Kings Place 90 York Way London N1 9FX
Independent Auditors	PricewaterhouseCoopers LLP Chartered Accountants and Statutory Auditors 1 Embankment Place London WC2N 6RH

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 2022. Rolls-Royce plc (the Company) is, indirectly, a wholly-owned subsidiary of Rolls-Royce Holdings plc. Rolls-Royce plc is a public company limited by shares and incorporated under the Companies Act 2006, it holds the Group's listed debt facilities and is one of the main trading companies of the Group.

Group at a glance

FREE CASH FLOW [1,2]	STATUTORY CASH FLOWS FROM OPERATING ACTIVITIES	UNDERLYING REVENUE [1,2]	STATUTORY REVENUE [1]
£504m	**£1,849m**	**£12,691m**	**£13,520m**
2021: £(1,484)m	2021: £(258)m	2021: £10,947m	2021: £11,218m

UNDERLYING OPERATING PROFIT [1,2]	STATUTORY OPERATING PROFIT [1]	UNDERLYING PROFIT BEFORE TAX [1,2]	STATUTORY LOSS BEFORE TAX [1]
£652m	**£837m**	**£206m**	**£(1,502)m**
2021: £414m	2021: £513m	2021: £36m	2021: £(294)m

NET DEBT [3]	LIQUIDITY [4]
£(3,251)m	**£8.1bn**
2021: £(5,157)m	2021: £7.1bn

See note 2 on page 71 for a reconciliation between underlying and statutory results.

Underlying revenue by business in 2022	
Civil Aerospace	45%
Defence	29%
Power Systems	26%
New Markets and other businesses	Nil

ORDER BACKLOG [1,5]	GROSS R&D EXPENDITURE [2,6]	COUNTRIES WITH ROLLS-ROYCE PRESENCE	EMPLOYEES (MONTHLY AVERAGE)
£60.2bn	**£1.3bn**	**48**	**41,800**

1 2022 and 2021 figures represent the results of continuing operations
2 A reconciliation of Alternative Performance Measures to their statutory equivalent is provided on page 158 to 161
3 Net debt (including lease liabilities) is defined on page 50
4 Liquidity is defined as net funds plus any undrawn facilities, as listed on page 34
5 See note 2 on page 70
6 See note 3 on page 73 for a reconciliation of gross R&D expenditure to total R&D expenditure

Group at a glance

Our businesses in 2022

CIVIL AEROSPACE	DEFENCE	POWER SYSTEMS	NEW MARKETS
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.	Defence is a market leader in aero engines for military transport and patrol aircraft with strong positions in combat and trainer applications. It has significant scale in naval and designs, supplies and supports the nuclear propulsion plant for all of the UK Royal Navy's nuclear submarines.	Power Systems, with its product and solutions brand, *mtu*, is a world-leading provider of integrated solutions for onsite power and propulsion, developing sustainable solutions to meet the needs of its customers.	New Markets are early-stage businesses. They leverage our existing, in-depth engineering expertise and capabilities to develop sustainable products for new markets, focused on the transition to net zero.
UNDERLYING REVENUE	**UNDERLYING REVENUE**	**UNDERLYING REVENUE**	**R&D EXPENDITURE**
Large Engines: 70% Business Aviation: 21% Regional: 4% V2500: 5%	Transport: 33% Combat 24% Submarines: 21% Naval: 9% Other: 13%	Power Generation: 34% Marine: 31% Industrial: 25% Defence: 10%	Rolls-Royce Electrical: 62% Rolls-Royce SMR: 38%
UNDERLYING REVENUE	**UNDERLYING REVENUE**	**UNDERLYING REVENUE**	**UNDERLYING REVENUE**
£5,686m 2021: £4,536m	**£3,660m** 2021: £3,368m	**£3,347m** 2021: £2,749m	**£3m** 2021: £2m
UNDERLYING OPERATING PROFIT/ (LOSS)	**UNDERLYING OPERATING PROFIT**	**UNDERLYING OPERATING PROFIT**	**UNDERLYING OPERATING LOSS**
£143m 2021: £(172)m See page 19	**£432m** 2021: £457m See page 21	**£281m** 2021: £242m See page 23	**£(132)m** 2021: £(70)m See page 25

Chief Executive's review

We must harness the pride of our people to create a more successful company. We will reassert Rolls-Royce as a high-performing, growing and competitive business that has earned the right to invest in future growth. We are capable of moving faster, aiming higher and delivering stronger returns for all our stakeholders.

It is an honour to lead Rolls-Royce. There are only a handful of companies whose products have helped shape modern society. From the birth of transatlantic flight and Europe's first high speed rail service to the development of the jet engine itself, our ingenuity has helped bring the world closer together. Our brand is estimated to be one of the top five most reputable in the world and we have strong market share in attractive markets.

During my introduction to the Company, I have spent time at our largest sites in the UK, Germany and US. Since joining, I have met many smart, hard-working and dedicated people and what struck me about all of them was the pride they feel in working for Rolls-Royce, in being part of a story that stretches back for generations. The people I have met are passionate about the products we make, excited about the possibility of their next invention and invested in our engineering capability. I am proud to be here too and I intend to harness the pride our people have and use it to create a stronger and much more successful company.

My career has been about partnering engineering expertise with a granular strategy, business acumen and intense performance management. What I strive to create, and have achieved in my previous roles, is an organisation that thrives on what I term strategic progress. That means setting clear targets, managing performance with real focus and creating a mindset that is constantly looking to go further and improve the business everyday.

This needs to happen at Rolls-Royce because, as a business, we must do better. We can move faster, aim higher and deliver stronger returns for all our stakeholders. It is that potential of Rolls-Royce as a business, not its place as a household name, that was the primary motivator for me when I accepted the job as Chief Executive.

That potential needs to be realised in an external environment that is changing rapidly. Rising inflation, recessionary pressures, interest rate increases and supply chain issues are realities that we need to face head on. We need to respond proactively to the major trends around us including the energy transition, digitalisation and the growth of the middle classes in the developing world. We must ensure that we move at a greater pace than the world around us and not get left behind.

If the past few years have taught the business community anything, it is that uncertainty and change are the norm. We have seen the pandemic give way to geopolitical and macroeconomic shocks, causing an inflationary environment and destabilising supply chains. Further shocks cannot be ruled out and Rolls-Royce must be able to face them in a stronger position than it has held in the past. This requires a stronger balance sheet to build resilience and to underpin profitable growth opportunities.

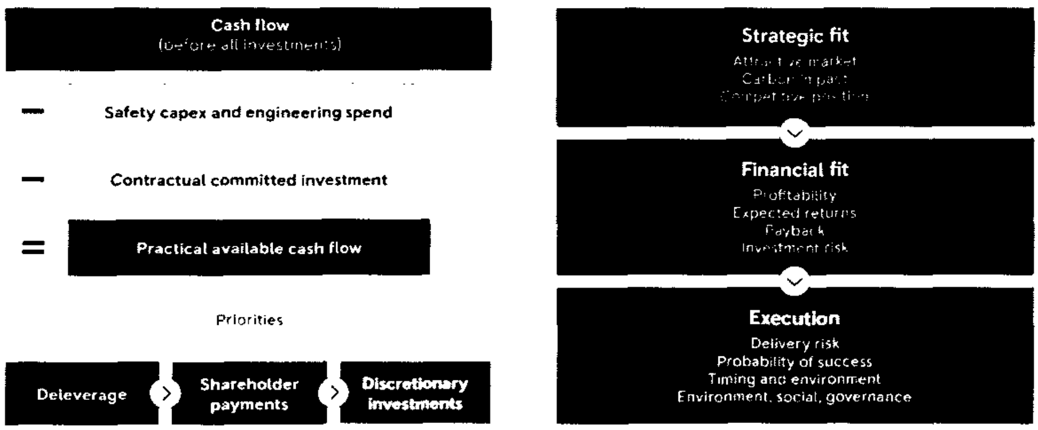
I am very confident that Rolls-Royce has the potential to do this but today we are underperforming and we have been for an extended period of time. Our total shareholder return over the last five years is negative. Cash generation is unsatisfactory. Our debt is too high. Too much of our gross profit is spent on overheads, interest payments and research and development. We must quickly and significantly improve our cash generation to strengthen our balance sheet. We need to get back to an investment grade credit rating through organic self-help, building on the £2bn raised from the disposal programme.

Profit and margins must improve to create a quality business with satisfactory returns on capital employed. Our underperformance is most evident in Civil Aerospace but improvement is something that all our businesses need to deliver. In the past, Rolls-Royce has relied too much on market recovery to drive its success and our low operating margins and high cost base mean that we are not resilient enough to external factors when the environment is unfavourable.

NEW CAPITAL ALLOCATION FRAMEWORK

Higher priority on deleveraging the balance sheet and re-establishing shareholder payments and then on discretionary investment

Only projects which demonstrate satisfactory scores against these criteria will be considered for investment.



Chief Executive's review

We owe it to our stakeholders to perform better. It will require turning passion for engineering projects into a passion for profitable growth. We will set clear goals, performance manage with real focus and create a winning mindset. That last element unlocks belief within an organisation which creates the energy required to deliver extraordinary outcomes.

We need to apply a clear financial framework to, firstly, strengthen our balance sheet; secondly, reward investors with growing returns; and, thirdly, invest our surplus capital to drive future growth. Improving our cash generation will enable us to pay down debt and deleverage the balance sheet, in order to position ourselves to return to an investment grade credit rating as soon as possible. This will make us stronger and give us flexibility to allocate capital to drive growth in the future.

We have to make the right capital allocation choices to grow the business in the most value accretive way. We cannot continue to allocate capital to projects that have low returns. This will mean capital allocation decisions in line with strategy and centrally allocated capital to markets and programmes in line with the framework.

Strategically, we remain committed to helping our customers embrace net zero and we remain steadfast in our opinion that Rolls-Royce has an important role to play in the energy transition. The pace and level of our investment, however, will vary across the business depending on the market opportunity, fit with strategy and our capability.

We must reward the patience and support of our investors. I firmly believe that generating greater returns for shareholders and investing in future growth are not binary options. Good businesses do both. For Rolls-Royce to do both, we will need to change. Before addressing how we will change, we will first look at where we stand today.

Improved profit and cash in 2022

Our financial figures showed an increase on 2021 for revenue, profit and cash. Underlying revenue increased by 14%. Underlying operating profit was £652m, £238m higher than the prior year, with the increase driven by Civil Aerospace and Power Systems. Free cash flow from continuing operations of £504m was £2.0bn higher than the prior year, led by engine flying hour recovery. Net debt of £3.3bn was down from £5.2bn at end 2021, due to disposals and improved cash flow.

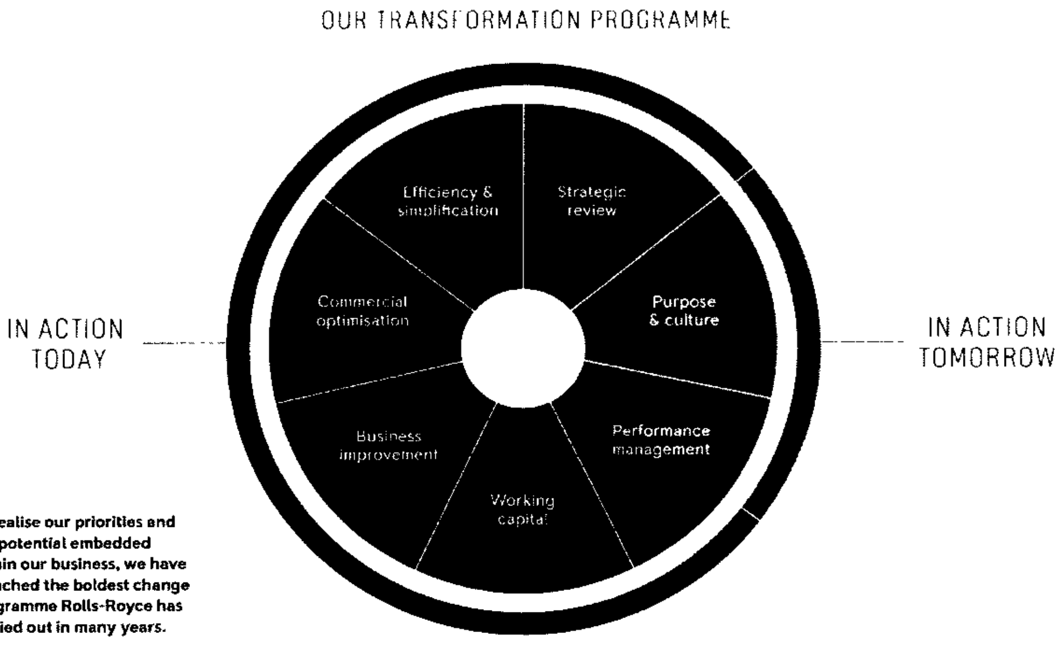
Increased profits in Civil Aerospace and Power Systems were partly offset by lower profit in Defence and increased investment in New Markets. Margin growth reflected improvements in long term service agreement (LTSA) contract margins and increased spare engines profit in Civil Aerospace. This was partly offset by the non-repeat of a foreign exchange revaluation credit in Civil Aerospace and legacy spare parts sales in Defence in 2021, and lower margins in Power Systems due to cost increases.

Free cash flow from continuing operations improved from an outflow of £1.5bn in 2021 to an inflow of £0.5bn, driven by 35% growth in large engine flying hours, comparatively lower growth in large engine major shop visits at 19%, and higher Defence cash flow. Higher inventory in Power Systems saw its cash conversion ratio fall.

In 2023, a continued recovery in our end markets and the actions we are taking give us confidence in delivering higher profit and cash flow.

One Rolls-Royce, winning together

Our guidance for 2023 is, however, only the start of the journey. I see a business that is capable of far more. We cannot rely upon external factors alone to deliver better results. We have already carried out extensive work benchmarking our Group performance and that of our businesses against our peers. That work shows there is significant scope for us to deliver materially higher profit, cash flows and returns in the medium-term. We have now launched a number of multi-year priorities and we are committed to operating a 'one Rolls-Royce' model, aligning the whole organisation behind them.



To realise our priorities and the potential embedded within our business, we have launched the boldest change programme Rolls-Royce has carried out in many years.

Chief Executive's review

Our priorities are clear. They are:

- focus on the safety of our people and products;
- significantly improve earnings and the cash potential of the business;
- deliver substantial efficiency improvements;
- improve cash generation and deleverage the balance sheet;
- develop a clear and granular strategy;
- play a key role in the energy transition; and
- engage our people and build capability.

It is imperative that the safety of our people and products remains our top priority throughout this process. In my previous roles, I have been able to achieve financial resilience and stronger returns while delivering record-setting safety performance. Safety is absolutely paramount to me and I fully understand how crucial both product and personal safety is within Rolls-Royce, which operates in some of the world's most regulated safety-critical industries. We will not tolerate any degradation of standards in the pursuit of efficiencies and, in fact, we will look to improve both.

To realise these priorities and the potential embedded within our business, we have launched the boldest change programme Rolls-Royce has carried out in many years. Internally, we refer to it as 'winning together' a name which signifies that this is about being the best we possibly can be and that it involves everyone within the organisation. It is not an activity which is the responsibility of one individual project team, it is the responsibility of everyone in Rolls-Royce. Our transformation programme will ensure that everyone moves at pace and is held accountable for their deliverables.

The transformation consists of seven workstreams and each of them is led by a senior leader. We are already delivering changes as we work at pace. Activity on many of the workstreams is already underway and as the year progresses we will look to embed the performance management and culture we need to ensure long-term sustainable success across the Group.

Efficiency and simplification
We are examining the organisational structure of the Group including synergies that we can harness from our one Rolls-Royce approach. We see opportunities for footprint consolidation as well as direct and indirect third party efficiencies. While costs were removed during the pandemic, particularly in Civil Aerospace, this was predominantly linked with the dramatic reduction in flying activity. We believe there remains significant opportunity to right-size our cost base to deliver sustainable cost efficiencies across the whole Group.

Commercial optimisation
We are bringing a sharper commercial edge to everything that we do to deliver increased profitability of contracts to improve our earnings, cash generation and returns. This means being rewarded by our customers for the value our products bring and the risks we take. A stronger Rolls-Royce will be a much better partner, better able to deliver operationally and invest in new products. I have met with a number of our largest customers already who understand this.

Business improvements
These programmes, now live within each business and led by our Business Presidents, are tasked with building plans to deliver the full potential of the business. Each business has a resourced programme aligned to our winning together change programme. We have set stretching performance targets following peer benchmarking analysis and we have already identified performance gaps we must address. Each business will be able take advantage of the other workstreams in this winning together programme to continually improve and reinforce their plans.

Working capital
This workstream is tasked with delivering a significant and sustainable reduction in working capital across the Group. By deep diving into the operational value chain and addressing working capital in its component parts, we believe that there are structural improvements available.

Strategic review
Our strategic review process has now been launched. This Group-wide review will decide which areas we are going to invest in and which ones we will not. This investment prioritisation activity will ensure that we focus on profitable opportunities, in new technologies where we are differentiated, where the market size is sufficiently large and where there is a good fit and synergy with our existing activities.

This exercise is not about searching for easy wins but about taking tough decisions to create enduring value for all our stakeholders. The result of this review will be mid-term targets and a strategic implementation plan that we will share in the second half of 2023.

Performance management
In order to succeed in all these areas, our performance management workstream is vital as it will enable us to ensure we are both proceeding with urgency and on track to achieve our goals. This work is already underway and will formalise as the year progresses. We will manage our businesses in a tight and timely manner and deliver on our expectations of high performance from everyone in support of our priorities and strategy.

Purpose and culture
Later in the year we will complement our transformation with our final remaining workstream, purpose and culture. This will embed our purpose and winning culture throughout Rolls-Royce.

We are already in action across all of these workstreams. It is a multi-year programme that will establish a high-performing Rolls-Royce and we will start to see the impact of this programme this year.

Chief Executive's review

A new mindset for a winning company

Alongside being clear in setting out the 'what' of our change programme, what needs to be done differently and to what ends, we are also being very clear on the 'how', how we go about doing this. Alongside the greater strategic clarity, we have set clear expectations of leadership. While this mindset starts at the top, it is permeating throughout the business. We are going to hold ourselves accountable for delivery and performance and we are all team players, working as one company. On a practical level, this means taking a Group approach to making investment choices. On a more emotional level, it means we are all in this together. We are all passionate and committed to the extraordinary success of Rolls-Royce and, ultimately, here to make a real difference.

I believe we have the potential to be a much higher quality and more competitive company. The ultimate purpose of this activity is to create a Rolls-Royce of which all stakeholders can be proud. We have a lot of hard work ahead of us, but we have begun at pace and the potential rewards for all our stakeholders are great.

Through the actions we are now taking, we will reassert Rolls-Royce as a high-performing and competitive business with strong returns, profitability and cash flow. That will earn us the right to invest in future growth.

Rolls-Royce has created tremendous engineering solutions in the past which have engendered pride among our people. Now that same pride will be generated by realising the full potential of Rolls-Royce. I couldn't be more excited to be part of this team.

Strategy

Purpose, vision and mission

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

Purpose

Power is vital to the success of our customers and drives the economic development of the world. We create value for all stakeholders by harnessing the potential of cutting-edge technologies to create safe, cleaner and more efficient power and propulsion solutions.

We operate in some of the most complex and critical parts of the global economy that are central to the successful functioning of the modern world. Our products and services enable our customers to connect people, societies, cultures and economies together; they meet the growing need for power and energy; and enable governments to equip their armed forces with the power required to protect their citizens.

Vision

We create industrial technologies using our expertise and an extensive network of partners, suppliers and customers built over many years, adding to our winning position. We combine distinct engineering disciplines to deliver highly complex power and propulsion solutions in the air, at sea and on land. The thread linking the Group together is the technical and engineering expertise and commercial skillset required to develop complex solutions, products and services. We build long-term relationships with our customers through our services offerings and these relationships ultimately enable us to deliver value for all our stakeholders.

Mission

Global economic development is driving increased demand for energy, international trade and travel. We provide the power that supports that growth – connecting, powering and protecting society – and we understand that power must be made compatible with combatting climate change. As our customers increasingly search for more sustainable solutions, we believe the energy transition creates opportunities for innovation and growth as well as further efficiency in the way we run our operations. It also provides long-term careers for our people and a strong draw for future talent seeking an opportunity to join a company creating innovative solutions, adding value to our stakeholders and supporting energy transition.

Our values and behaviours

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

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

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

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

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

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

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

Strategic review

We have launched a Group-wide strategic review that will help us to identify and assess strategic options, prioritise growth opportunities and assess current portfolio attractiveness. The result of this review will be a granular strategic plan with clearly defined milestones and key performance indicators to enable us to measure the progress.

Near-term areas of focus

In 2022, we dealt with external pressures, particularly in our supply chain and the inflationary issues caused by the recovery from the pandemic, the Russia-Ukraine conflict and economic uncertainty. We are taking the necessary actions to protect our business from the risks of inflation, supply chain disruption and a tightening labour environment. We see the benefits of productivity and efficiency improvements and expect to see more progress to come, alongside being ever more disciplined on our commercial terms. In 2022, demand for our products and services continued to improve significantly, with a record year for order intake in Power Systems, accompanied by continued recovery in Civil Aerospace engine flying hours and a strong order book in Defence. We continue to capitalise on the opportunities presented by our long-term customer relationships and installed product base; to grow our capabilities in core markets and create new business opportunities.

Delivering on our commitments

We are delivering on our commitment to rebuild our balance sheet in the medium term. We have completed four disposals since 2020 with the sale of ITP Aero in September 2022. We repaid a £2bn debt facility in September 2022, significantly reducing our net debt position while maintaining strong liquidity. In the second part of the year, Fitch, Moody's and S&P Global upgraded our credit rating outlook which is a stepping stone to achieving our mid-term ambition of returning to an investment grade credit rating. In 2022, we grew our revenue and made significant progress on profitability which allowed us to deliver against our commitment to return to positive cash flow. We are also seeing the benefits from operational improvements. We will work on increasing the momentum by protecting the efficiencies that have been achieved and focus on supply chain and pricing strategy optimisation, cost control and working capital discipline alongside being more disciplined on our commercial terms.

Strategy

We are also delivering against our commitment to simplify the way we communicate our business performance. In May 2022, we held an investor day to help investors with their understanding of the key drivers of our financial and operational performance and provided more details about the cost reduction programme and expected near-term improvements. We have introduced a new approach to foreign exchange hedging where we will carry a smaller hedge book, with a declining percentage of cover over a five-year period, which will mean that market movements in foreign exchange will impact us sooner. This change is more cost effective, brings us in line with our peers and allows us to anticipate and react to risks more quickly.

Maximise value from existing capabilities

We are the beneficiaries of years, in some cases decades, of hard work, investing in the development of new products and growing market share. Across all our businesses, the key driver of revenue is the number of installed products in the market. This provides resilience against original equipment sales volatility and allows us to increase the scope of our aftermarket reach continuously and to maximise value through the lifecycle of the product.

This is especially true for Civil Aerospace. We are moving beyond a period of unprecedented investment in new Civil Aerospace engine programmes, with four new large engines and three new business jet engines launched in the last decade, to a period in which we will realise the benefits of that effort and investment. Increasing the size of our installed fleet in Civil Aerospace will drive aftermarket revenues which will create value in the medium term and beyond as older engines in our fleet will be retired and replaced with newer models. We remain focused on our services strategy to deliver high quality services to our customers while increasing the returns from the installed products by optimising our processes and operational footprint, reducing costs of maintenance and improving time on wing. There are two key areas we are working on: firstly, the fuel efficiency improvement of existing and newly developed products; and secondly, enabling our customers to use the products in a way that is compatible with sustainable fuels. We can pull the technology levers in our control through testing our existing products with new lower carbon and sustainable fuels and creating upgrade kits, where necessary, to assist adoption.

Growth opportunities

Over many years, Rolls-Royce has built expertise that led to the development of a wide range of technologies and products across various industries and markets. We are continuously exploring opportunities to develop new solutions for existing markets, applying current technologies to new markets, as well as entering new markets with new products.

Innovation is difficult in those sectors where emissions need to reduce but it plays a critical role in developing our Civil Aerospace and Defence businesses. For instance, where our customers around the world are exploring ways to reduce the carbon footprint, there is demand for newer, more efficient products that are compatible with sustainable fuels. In Power Systems we are working on developing new sustainable technologies that allow us to tap into new addressable markets and stay competitive in existing markets while helping our customers in their net zero transition. Our New Markets business, comprising Rolls-Royce SMR and Rolls-Royce Electrical, draws on our existing technological and engineering expertise and experience in delivering complex solutions while working across a wide range of partners.

Priorities

Our purpose, vision and mission provide an overall framework within which our strategic focus sits. This provides our people with clear guidance on our in-year priorities.

Priorities to win together	Link to key performance indicators
1) Focus on the safety of our people and products	G, H
2) Significantly improve earnings and the cash potential of the business	A, B, C, F
3) Deliver substantial efficiency improvements	C, D, F, I
4) Improve cash generation and deleverage the balance sheet	B, C, F
5) Develop a clear and granular strategy	D, E, G, I
6) Play a key role in the energy transition	A, B, D, E, I
7) Engage our people and build capability	G, H

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

Non-financial performance indicators	
G	Customer metric
H	Employee engagement
I	Sustainability

See Key Performance Indicators on pages 13 and 14.

Strategy

External environment

Conflict in Europe

The Russia-Ukraine conflict has brought large-scale armed conflict to Europe, leading to a humanitarian crisis with lives and livelihoods lost and disrupted. It has triggered mass displacement of people, political realignment and international sanctions, as well as sharp escalations in food and energy costs. Cuts to supplies of gas to Europe are amplifying stresses in commodity markets and bring into focus the importance of secure access to energy; with policy shifting towards more diversified, increasingly domestic energy supply. The conflict has resulted in changes to the political landscape, including a re-appraisal of national security and defence priorities in countries most impacted by the conflict

Our response

Following the imposition of sanctions on Russia affecting areas of Rolls-Royce business, and an internal review of our willingness to do business in Russia, we took the decision in March 2022 to stop doing business in Russia. All of our activities affected by sanctions, which were first introduced in February 2022, were stopped immediately. We are reducing our reliance on Russia for titanium through securing a long-term agreement with an alternative supplier.
As countries re-evaluate their defence capabilities, we are responding to customers and we are increasing production capacity in our Power Systems business to meet increased demand for military power and propulsion equipment. The need for domestic energy security sovereignty creates an opportunity for Rolls-Royce SMR.

Economic uncertainty

Global economic activity in 2022 was impacted by a broad and deep series of issues resulting in lower-than-expected growth and levels of inflation higher than seen in several decades. The post-COVID-19 global economy continues to face powerful challenges. Initial problems resulting from high levels of government debt and post-pandemic supply chain disruption have been compounded by conflict in Europe, fuelling a cost-of-living crisis, as well as by a slowdown in China driven in part by continued intermittent lockdowns. Sustained uncertainty over energy supplies has contributed to reduced economic activity, particularly in manufacturing, dampening consumer and, to an extent, business confidence. Inflationary pressures have triggered a rapid and synchronised tightening of monetary conditions driving interest rate rises and a powerful strengthening of the US dollar against most other currencies. Labour markets remain tight with historically low unemployment rates and high levels of vacancies. Household debt levels are rising and discretionary spend falling.

Our response

Diversity in our portfolio helps us to be resilient to short-term shocks. Throughout the pandemic, our Defence and Power Systems businesses helped offset some of the impact in Civil Aerospace. We have taken a number of actions to protect our business from the risks of inflation, supply chain disruption and a tightening labour environment through a sharper focus on pricing, productivity and costs. Many of our long-term contracts, as are common in the aerospace sector, contain inflation-linked pricing clauses based on standard indices for energy, materials and wages to mitigate cost increases. In Power Systems, a shorter cycle business, we have been able to raise prices in an environment where demand is strong and margins are closely leveraged to volumes. In Defence, we are working hard to manage supply chain costs through long-term purchasing agreements. Across the business we are taking steps to right size, reduce our cost base and focus investments; and will continue to manage the current energy and raw material inflation risks through supplier agreements and hedging policies.

Long-term trends

Despite the turbulence in 2022, underlying longer-term opportunities and challenges presented by demographics, global economic development and environmental pressures remain. According to the UN, the global population reached eight billion in 2022 and is set to increase to almost ten billion by 2050, with more than 70% of people living in urban environments. Population and economic growth will lead to increased demand for power in markets served by Power Systems. Defence budgets, mainly driven by threat perception and economic growth, are forecast to grow with at least low single digits in real terms each year. One key determinant for demand in our Civil Aerospace business is the number of people in middle and higher-income levels able to afford air travel. Significant growth is expected globally but particularly in countries like China and India. With commitments to reduce greenhouse emissions being increasingly formalised, while being a tremendous societal challenge, this will provide business opportunities to bring cutting-edge technologies to market.

Our response

In Civil Aerospace, we are now positioned to realise the benefits of having built market position over the last few decades. At the same time, we are developing technologies for next-generation aero-engines, certifying our products to be compatible with low and net zero carbon fuels and beginning research into the longer-term potential of hydrogen. We have structured our Power Systems business to address particular growth areas in power generation, commercial marine and industrial segments. Through our joint ventures in China and India we are well-positioned to serve these rapidly growing markets. Our Defence business is well positioned in new markets that could enable growth beyond the existing core. Through Rolls-Royce SMR, we seek to bring to scale an affordable, low-carbon source of power and through Rolls-Royce Electrical we will pioneer electrical power and propulsion in the emerging advanced air mobility market. We are working to enable all our products, on air, sea and land, to be used sustainably.

Business model

We have a business model which we believe creates value for our stakeholders.

Our cross-cutting capability and assets that support our strategy

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

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

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

Partnerships
We build meaningful relationships with partners across the value chain.

Global network and infrastructure
Our geographic footprint ensures we are able to serve customers wherever they are.

Digitalisation
We use digital tools and skills across our business to drive operational efficiency and quality service.

Business excellence
We drive a culture of continuous improvement.

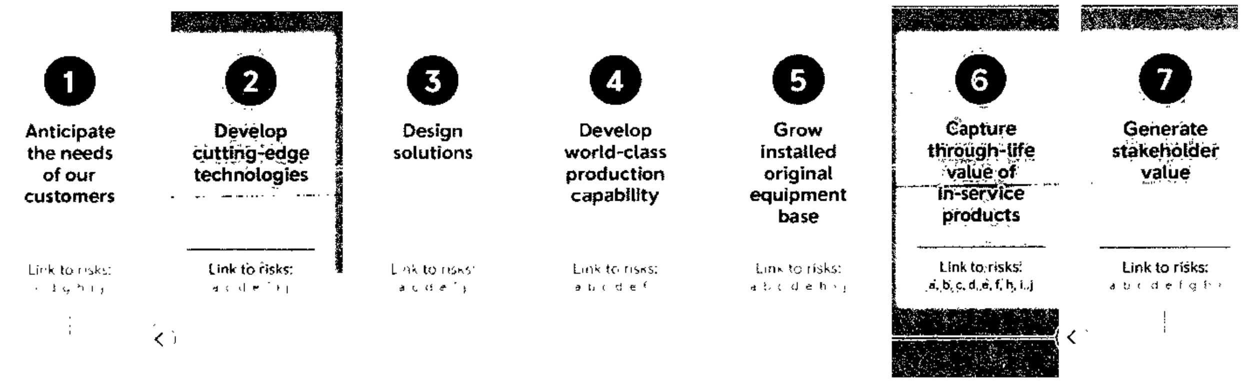
See our Viability Statement on page 35 and Stakeholder Engagement on pages 36 to 39.

Our competitive advantage comes from:

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

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

System life
We provide complete through-life support of our products during their lengthy operating lives which creates opportunity from aftermarket services.



DISCIPLINED CAPITAL ALLOCATION

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

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

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

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

Business model

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

6. Capture through-life value of in-service products
Our substantial installed product base provides a large, diverse and long-term revenue, profit, and cash flow stream.

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

PRINCIPAL RISKS

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

See Principal Risks pages 27 to 33.

Value creation for our stakeholders

Customers
We develop product solutions that improve the competitiveness and efficiency of our customers (see Business Review pages 19 to 26). *Gross R&D expenditure: £1.3bn.*

Investors
We aim to return to generating attractive returns for investors over the long-term.

Employees
We enable them to learn and develop in a style and at a pace that suits them, at every point of their career (see Non-financial KPIs page 14). *Investment in learning and development (hours): 581,505.*

Partners
We create partnerships based on collaboration where each partner benefits from the relationship. *Spend with external suppliers: £8.3bn.*

Communities
We improve the communities that we impact locally, nationally and globally. *Hours of employee time volunteered: 48,347.*

See Stakeholder Engagement, page 37.

Key Performance Indicators

Financial Performance Indicators [1,2]

ORDER BACKLOG (£BN)	UNDERLYING REVENUE (£M)	UNDERLYING OPERATING PROFIT/(LOSS) (£M)
2022: 60.2 2021: 50.6 2020: 52.9 2019: 60.9 2018: 63.1	**2022: 12,691** 2021: 10,947 2020: 11,430 2019: 15,450 2018: 15,067	**2022: 652** 2021: 414 2020: (2,008) 2019: 808 2018: 616
How we define it *Total value of firm orders placed by customers* for delivery of products and services where there is no right to cancel. This KPI is the same as the statutory measure for order backlog. See note 2 on page 70 for more information.	**How we define it** Revenue generated from operations at the average exchange rate achieved on effective settled derivative contracts in the period that the cash flow occurs. See note 2 on page 67 for more information.	**How we define it** *Operating profit generated from operations at* the average exchange rate achieved on effective settled derivative contracts in the period that the cash flow occurs. It excludes M&A, exceptional items and certain other items outside of normal operating activities. See note 2 on page 67 for more information.
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 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 key financial metrics in the Rolls-Royce Incentive Plan, accounting for 60% of the metrics in 2022.	**Link to remuneration** Underlying revenue growth maximises the opportunity to improve profit and free cash flow performance in the year, both of which are financial metrics in the Rolls-Royce Incentive Plan.	**Link to remuneration** Profit is a key financial performance measures for our Rolls-Royce Incentive Plan.

CAPITAL EXPENDITURE AS A PROPORTION OF UNDERLYING REVENUE (%)	SELF-FUNDED R&D AS A PROPORTION OF UNDERLYING REVENUE (%)	FREE CASH FLOW FROM CONTINUING OPERATIONS (£M)
2022: 2.7 2021: 2.8 2020: 4.8 2019: 5.0 2018: 6.0	**2022: 7.3** 2021: 7.4 2020: 7.6 2019: 7.2 2018: 7.6	**2022: 504** 2021: (1,484) 2020: (4,252) 2019: 865 2018: 568
How we define it Cash purchases of property, plant and equipment (PPE) in the year for continuing operations relative to underlying revenue.	**How we define it** In-year self-funded cash expenditure on R&D before any capitalisation or amortisation relative to underlying revenue.	**How we define it** Free cash flow is the change in cash and cash equivalents excluding: transactions with ordinary shareholders; amounts spent or received on activity related to business acquisitions or disposals; financial penalties paid; exceptional restructuring payments; proceeds from increase in loans; and repayment of loans. Cash flow from operating activity is our statutory equivalent. See note 27 on page 112.
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 a key metric used to measure the performance of our business and how effectively we are creating value for our shareholders. It enables the business to fund growth, reduce debt and make shareholder payments.
Link to remuneration Disciplined allocation of capital expenditure optimises in-year profit and cash flow performance without compromising longer-term growth. Long-term metrics in the Rolls-Royce incentive plan in 2022 and 2023 reward strong financial performance.	**Link to remuneration** Disciplined control and allocation of R&D expenditure optimises in-year profit and cash flow performance without compromising long-term growth through innovation. There is a balance of long-term metrics which reward strong financial performance and also relative returns to our shareholders through total shareholder return (TSR) in the 2023 Incentive Plan.	**Link to remuneration** Free cash flow is a key financial metric in the Rolls-Royce Incentive Plan.

[1] The adoption of IFRS 16 *Leases* in 2019 had no material impact on our financial KPIs

[2] 2021 figures represent the results of continuing operations. 2020 figures have been restated, where relevant, to show ITP Aero as a discontinued operation in line with 2021 reporting. 2018 and 2019 figures have not been restated

Key Performance Indicators

Non-financial Performance Indicators

CUSTOMER METRIC (%)	EMPLOYEE ENGAGEMENT (SCORED 1 - 5) [3]	SUSTAINABILITY
Civil Aerospace – **2022: 43**; 2021: 79; 2020: 73.7 **Defence –** **2022: 33**; 2021: 39; 2020: 0 **Power Systems –** **2022: 43**; 2021: 40; 2020: 41.5 **How we define it** In 2019, we introduced a new balanced scorecard of metrics for each business. The business scorecards include on-time delivery, engine availability and quality amongst other indicators. The focus for 2022 has been on the individual business performance against the scorecards. **Why it is important** Customer satisfaction demonstrates whether we are meeting our commitments to our customers across our businesses. This, in turn, drives our cash and profitability. **Link to remuneration** This metric accounts for up to 15% of the individual business incentive outturns.	**2022: 3.85** 2021: 3.73 2020: 3.68 2019: 3.53 **How we define it** In 2019, we introduced a new survey, Gallup Q12. Responses are scored on a scale of one to five. The employee engagement score averages the responses to all 12 questions in the survey. Our target for 2022 was to score a grand mean of 3.84. See page 41 for more information. **Why it is important** Our people are crucial to delivering future business success. This is an objective way to assess how engaged our employees are with the business and its leaders. **Link to remuneration** Employee engagement performance against our target accounts for up to 10% of the Rolls-Royce Incentive Plan.	The metrics for the Rolls-Royce Incentive Plan combine short-term measures which focus on in-year performance, with longer-term strategic measures. The sustainability metric is a longer-term measure with targets set at the start of 2021, which will form 5% of the 2023 Rolls-Royce Incentive Plan. **How we define it** Targets for the three-year performance period ending 31 December 2023 relate to product compatibility with sustainable fuels. **Why it is important** Proving compatibility of our products with sustainable fuels is central to our strategy for supporting customers in the energy transition. **Link to remuneration** This metric accounts for up to 5% of the Rolls-Royce Incentive Plan for 2023.

[3] External assurance over the employee engagement score is provided by Bureau Veritas

A reconciliation from the Alternative Performance Measure to its statutory equivalent can be found on pages 158 to 161.

Financial review

We delivered on our remaining short-term commitments in 2022. We continue to focus on improving our performance to strengthen our balance sheet and put us on a path to generate long-term sustainable value for stakeholders.

In 2022, our underlying revenue was £12.7bn, underlying operating profit increased to £652m and we returned to a positive cash flow £504m. We completed our programme of disposals, achieving around £2bn in total proceeds, which we used to repay debt. Strengthening our balance sheet is a priority and we remain committed to achieving an investment grade rating in the medium term through performance improvement. Although our 2022 results were improved year on year, we must do more. We will be bolder with our ambitions in 2023 and beyond as we deliver sustainable value to our stakeholders. Demand for our products and services continued to meaningfully improve, with a record year for order intake in Power Systems, accompanied by continued recovery in Civil Aerospace flying hours and progress in Defence, underpinned by key contract wins.

Financial performance

Our financial performance improved in 2022, largely driven by the recovery of our end markets following the pandemic. Large engine flying hours were up 35% compared with 2021. We generated free cash flows of £504m, a £2.0bn improvement on the prior year, reflecting higher large engine flying hour receipts, which grew ahead of shop visit events. On an organic basis, underlying revenue improved by 14% and underlying operating profit improved by 48%, helped by the mix of OE engine sales in Civil Aerospace. In 2022, there was a higher volume and different mix of large spare engine sales, with more third party sales to capacity providers than in the prior year. Spare engines carry a higher margin than installed engine sales and accounted for a greater proportion of total engine sales than the 10%-15% we typically expect in a year. Spare engine sales will be higher than the typical range next year also, as we grow the pool of spare engines to underpin fleet health and improve resilience. Contractual improvements in 2022 also increased the expected returns on our long-term contracts. These contract improvements trigger the recognition of additional revenue and profits. These catch-ups are a normal part of our business and are a good indicator of progressive and sustainable performance improvement.

In 2022, we faced challenges from supply chain disruption and inflation. We are actively managing these headwinds through a sharper focus on pricing, productivity and costs and we will continue to address these areas as we strive to succeed in a challenging external environment. Examples of our actions to tackle these issues include our partnership approach with key suppliers, ensuring that we have contractual pricing protection in place through long-term contracts and the hedging of key raw materials and energy. We are tackling rising costs and supply chain constraints by repairing and reusing spare parts where we can. We will continue to improve our productivity and efficiency as we remain focused on these areas, as well as being more disciplined on our commercial terms.

Strengthening our balance sheet

Strengthening our balance sheet remains a high priority. Our net debt was reduced to £3.3bn from £5.2bn. Since 2020, we have completed four disposals, including the sale of ITP Aero in September 2022 with proceeds of €1.6bn and a dividend of €0.1bn paid shortly prior to completion. The proceeds of this disposal were used to repay a £2bn loan, which was supported by an 80% guarantee from UK Export Finance. As a result, we ended the year with £4.1 bn of drawn debt, all of which is on fixed interest rates and £3.3bn net debt, including £2.6bn of cash and £1.8bn of lease liabilities. Our credit ratings are currently below investment grade, which is unacceptable and we must address this. We have seen positive momentum with outlook upgrades from Fitch, Moody's and S&P Global in 2022. Our liquidity position remains strong with £8.1bn of liquidity and no significant debt maturities before 2024.

Simplification of reporting

We are committed to simplifying our reporting and the way we communicate our business performance. In 2022, we held an investor day at our Civil Aerospace site in Derby, UK, which was also streamed online. This event brought to life the changes we have started to make in our business to reduce cost and improve performance. This additional information, illustrated by a number of examples, helped investors to better understand the way our business works and how we are focusing on the improvements required to deliver better financial performance.

Other examples of how we are driving simplicity include our new approach to foreign exchange hedging. Historically, we have hedged a declining percentage of our net foreign exchange exposure across a rolling ten-year horizon, based on our projected net US dollar revenues. Under our new approach, we will carry a smaller hedge book, with a declining percentage of cover over a five-year period, which will mean that market movements in foreign exchange will impact us sooner. This change is more cost effective, brings us in line with our peers and allows us to react quicker to changes in the external environment. We also refreshed our results press release to make it clearer and more concise.

Investing wisely

Capital allocation is critical to generating the right returns from our business. Our first priority is to reduce our debt, accelerating progress to an investment grade credit rating. We also recognise the importance of shareholder returns, both from investing in high return opportunities and from shareholder payments, which we aim to resume once our balance sheet is stronger.

We have strict criteria that we follow when considering investments. Firstly, any investment must be aligned to our strategy, taking us in the right direction to achieve our goals and vision. Linked to this are our strict criteria on sustainability and carbon impact, where investment opportunities must demonstrate alignment with our decarbonisation ambitions. Secondly, it needs to have a risk and reward profile that generates value. Our investments aim to generate a combination of near, medium and long-term returns. We are looking to strike a balance of protecting and growing our established businesses and pursuing long-term growth opportunities.

As we focus on strengthening our balance sheet we will be vigilant with our capital allocation decisions. In 2022, we spent £1.3bn on research and development, £359m of which was paid for by funding from third parties. Investments made in 2022 included engineering to increase time on wing for our in-service engines, leading to better aftermarket margins as well as longer-dated investments in new products. Not all of our capital allocation decisions are based purely on commercial returns. The health of our people and the safety of our processes and products remain the top priority, where investment will be made to ensure our people can be at their best in a safe environment. In 2022, we approved an investment to replace one of our ageing Defence test beds with a state-of-the-art facility, ensuring on-going health and safety standards are met.

Financial review

Outlook

A continued recovery in our end markets and the actions we are taking give us confidence in delivering higher profit and cash flows in 2023. This is based on large engine flying hours at 80 to 90% of the 2019 level and 1,200 to 1,300 total shop visits. We expect underlying operating profit between £0.8bn and £1.0bn, including £100m to £200m of targeted contract improvements (2022: £319m). We expect free cash flow of between £0.6bn to £0.8bn, which is based on £500m to £700m growth in the Civil LTSA creditor (2022: £792m), a year-on-year headwind of approximately £200m associated with legacy Boeing OE concessions and around £100m adverse impact in 2023 due to fires at two suppliers' premises in late 2022 and early 2023. This cash impact will reverse in 2024.

Statutory and underlying Group financial performance from continuing operations

	2022					2021
£ million	**Statutory**	**Impact of hedge book** [1]	**Impact of acquisition accounting**	**Impact of non-underlying items**	**Underlying**	Underlying
Revenue	**13,520**	**(829)**	**–**	**–**	**12,691**	10,947
Gross profit	**2,757**	**(264)**	**58**	**(74)**	**2,477**	1,996
Operating profit	837	(264)	58	21	652	414
Gain arising on disposal of businesses	81	–	–	(81)	–	–
Profit before financing and taxation	**918**	**(264)**	**58**	**(60)**	**652**	414
Net financing costs	(2,420)	1,935	–	39	(446)	(378)
(Loss)/profit before taxation	**(1,502)**	**1,671**	**58**	**(21)**	**206**	36
Taxation	308	(416)	(9)	69	(48)	(26)
(Loss)/profit for the year from continuing operations	**(1,194)**	**1,255**	**49**	**48**	**158**	10

[1] Reflecting the impact of measuring revenue and costs at the average exchange rate during the year and the valuation of assets and liabilities using the year end exchange rate rather than the rate achieved on settled foreign exchange contracts in the year or the rate expected to be achieved by the use of the hedge book

Revenue: Underlying revenue of £12.7bn was up 14%, largely driven by underlying revenue increases across Civil Aerospace, Defence and Power Systems. Statutory revenue of £13.5bn was 21% higher compared with 2021. The difference between statutory and underlying revenue is driven by statutory revenue being measured at average prevailing exchange rates (2022: GBP:USD 1.24; 2021: GBP:USD 1.38) and underlying revenue being measured at the hedge book achieved rate during the year (2022 GBP:USD 1.50; H1 2021: GBP:USD 1.39; H2 2021: GBP:USD 1.59).

Operating profit: Underlying operating profit of £652m (5.1% margin) versus £414m (3.8% margin) in the prior year. The year-on-year growth was led by Civil Aerospace and Power Systems, partly offset by marginally lower year-on-year profits in Defence and increased investment in New Markets. Statutory operating profit was £837m, higher than the £652m underlying operating profit largely due to the £264m negative impact from currency hedges in the underlying results. Net charges of £21m were excluded from the underlying results as these related to non-underlying items comprising: net restructuring charges of £47m; net impairments of £65m, partly offset by the write back of exceptional Trent 1000 programme credits of £69m; and a £22m pension past service credit.

Profit before taxation: Underlying profit before tax of £206m included £(446)m net financing costs primarily related to net interest payable. Statutory loss before tax of £(1,502)m included £(1,579)m net fair value losses on derivative contracts, £(308)m net interest payable and a net £81m profit from disposals of businesses from continuing operations.

Taxation: Underlying taxation charge of £(48)m (2021: £(26)m). This reflects a tax charge on overseas profits of £(175)m and a tax credit due to increases in certain UK deferred tax assets of £127m. Deferred tax has not been recognised on current year UK tax losses. The tax charge in 2021 was driven by similar factors.

Financial review

Free cash flow

£ million	2022 Cash flow	2022 Impact of hedge book	2022 Impact of acquisition accounting	2022 Impact of other non-underlying items	2022 Funds flow	2021 Funds flow
Operating profit	**837**	**(264)**	**58**	**21**	**652**	**414**
Operating profit/(loss) from discontinued operations	86	-	-	-	86	(43)
Depreciation, amortisation and impairment	1,076	-	(58)	(65)	953	971
Movement in provisions	(197)	91	-	83	(23)	(136)
Movement in Civil LTSA balance	1,158	(366)	-	-	792	66
Other operating cash flows [1]	73	(53)	-	22	42	(90)
Operating cash flow before working capital and income tax	**3,033**	**(592)**	**-**	**61**	**2,502**	**1,182**
Working capital (excluding Civil LTSA balance) [2]	(350)	(165)	-	(19)	(534)	(809)
Cash flows on other financial assets and liabilities held for operating purposes	(660)	737	-	-	77	(85)
Income tax	(174)	-	-	-	(174)	(185)
Cash from operating activities	**1,849**	**(20)**	**-**	**42**	**1,871**	**103**
Capital element of lease payments	(218)	20	-	-	(198)	(374)
Capital expenditure and investment	(512)	-	-	36	(476)	(426)
Interest paid	(352)	-	-	-	(352)	(331)
Settlement of excess derivatives	(326)	-	-	-	(326)	(452)
Other	49	-	-	(78)	(29)	39
Free cash flow	**490**	**-**	**-**	**-**	**490**	**(1,441)**
- of which is continuing operations	**504**				**504**	**(1,484)**

[1] Other operating cash flows includes profit/(loss) on disposal, share of results and dividends received from joint ventures and associates, interest received, flows relating to our defined benefit post-retirement schemes, and share based payments

[2] Working capital includes inventory, trade and other receivables and payables, and contract assets and liabilities (excluding Civil LTSA balances)

Free cash flow in the year was £0.5bn, an improvement of £2.0bn compared with the prior year driven by:

Operating cash flow before working capital and income tax of £2.5bn, £1.3bn higher year on year. The improvement at the Group level was principally due to higher flying hours in Civil Aerospace. Large engine flying hours increased by 35%, driving a £1.3bn increase in invoiced EFH receipts (from £2.3bn in 2021 to £3.6bn in 2022). Large engine major shop visit volumes of 248 were 19% higher than in the prior year (2021: 208). The movement in provisions of £(23)m largely related to utilisation of the Trent 1000 provision and movements in the contract loss provisions. Other operating cash flow movement of £41m included £36m interest received, the £131m improvement year-on-year was mainly due to lower pension contributions and higher dividends received from joint ventures.

Working capital £(0.5)bn, £0.3bn better year on year. Supply chain disruption resulted in an increase in inventories through 2022, notably in Civil Aerospace and Power Systems, which partly unwound at the end of the year. This was partly offset by a net inflow across payables and receivables reflecting collections of overdue debts in Civil Aerospace (c£180m in 2022), increased advance payment receipts in Power Systems (a c£150m year on year benefit) and a £63m advance payment received in Defence.

Income tax of £(174)m, net cash tax payments in 2022 were £(174)m (2021: £(185)m).

The capital element of lease payments was £(198)m, £(176)m lower than 2021 (£(374)m). In the prior year the elevated cost was driven by end of lease payments made on a small number of engines, as well as timing impacts on lease payments, with 2022 returning to more typical levels.

Capital expenditure and investments of £(476)m, comprising £(302)m PPE additions net of disposals, £(202)m intangibles additions, partly offset by a net movement in investments of £28m. The combined additions were similar to last year.

Interest paid of £(352)m, including lease interest payments, similar to the £(331)m in 2021. Following the repayment of the £2bn UK Export Finance backed loan in September 2022, we would expect interest paid to fall in 2023.

Settlement of excess derivative contracts of £(326)m, down from £(452)m in 2021. The decrease was in line with previously communicated guidance and reflects the profile of derivative contracts taken out to reduce the size of the hedge book. In total £710m of excess derivative settlements are left to be settled between 2023 and 2026.

Financial review

Balance Sheet

£ million	2022	2021	Change
Intangible assets	4,098	4,041	57
Property, plant and equipment	3,936	3,917	19
Right of use assets	1,061	1,203	(142)
Joint ventures and associates	422	404	18
Contract assets and liabilities	(10,681)	(8,836)	(1,845)
Working capital [1]	2,632	1,791	841
Provisions	(2,333)	(1,582)	(751)
Net debt [2]	(3,251)	(5,110)	1,859
Net financial assets and liabilities	(3,625)	(3,009)	(616)
Net post-retirement scheme deficits	(420)	(225)	(195)
Taxation	2,468	1,787	681
Held for sale [3]	-	1,305	(1,305)
Other net assets and liabilities	36	36	-
Net liabilities	**(5,657)**	**(4,278)**	**(1,379)**
Other items			
US$ hedge book (US$bn)	19	22	
Civil LTSA asset	885	915	
Civil LTSA liability	(8,257)	(7,129)	
Civil net LTSA liability	(7,372)	(6,214)	

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

2 Net debt (adjusted by £0.1bn to exclude net debt held for sale in 2021) includes £86m (2021: £37m) of the fair value of derivatives included in fair value hedges and the element of fair value relating to exchange differences on the underlying principle of derivatives in cash flow hedges

3 Held for sale in 2021 mainly related to ITP Aero which was disposed of on 15 September 2022

Key drivers of balance sheet movements were:

Contract assets and liabilities: The £(1,845)m movement in the net liability balance was mainly driven by an increase in deposits, foreign exchange movements and invoiced LTSA receipts in Civil Aerospace exceeding revenue recognised in the year, partly offset by £360m positive LTSA catch-ups.

Working capital: The £2.6bn net current asset position was £0.8bn higher than prior year, due to increased inventory of £1.0bn mostly in Civil Aerospace due to delayed outputs and supply chain disruption and Power Systems to support sales. Receivables increased by £1.6bn and payables increased by £(1.8)bn primarily driven by ITP Aero being external to the Group at year-end. Other drivers included higher trading volumes resulting in higher payables and receivables.

Provisions: The £(751)m increase primarily reflected the adoption of the amendment to IAS 37 for Onerous Contracts - Cost of Fulfilling a Contract which increased contract loss provisions by £(723)m on 1 January 2022. The amendment clarifies that the direct cost of fulfilling a contract comprises the incremental costs of fulfilling that contract and also an allocation of other costs that relate directly to fulfilling contracts.

Net debt: Decreased from £(5.1)bn to £(3.3)bn driven by the completion of the disposal programme and free cash inflow of £0.5bn. Our liquidity position is strong with £8.1bn of liquidity including cash and cash equivalents of £2.6bn and undrawn facilities of £5.5bn. Net debt included £(1.8)bn of lease liabilities (2021: £(1.7)bn).

Net financial assets and liabilities: A £(616)m increase in the net financial liabilities driven by a change in fair value of derivative contracts largely due to the impact of the movement in GBP:USD exchange rates, partly offset by deals that matured in the year.

Net post-retirement scheme deficits: A £(195)m increase in the net deficit driven by an increase in bond yields and inflation impacting both plan assets and obligations.

Taxation: The net tax asset increased by £681m, most of which related to an increase in the deferred tax asset on unrealised losses on derivatives of £329m and certain other UK deferred tax assets of £118m reflecting tax relief that will be taken in the future, based on profit forecasts. There has also been a £165m decrease in deferred tax liabilities, the majority of which related to a reduction in the UK pension surplus.

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 service solutions for its customers.

UNDERLYING REVENUE	UNDERLYING OPERATING PROFT/(LOSS)	ORDER BACKLOG
£5,686	**£143m**	**£47.7bn**
2021: £4,536m	2021: £(172)m	2021: £41.1bn

UNDERLYING REVENUE MIX	UNDERLYING REVENUE MIX BY SECTOR
OE: 35% Services: 65%	Large engines: 70% Business Aviation: 21% Regional: 4% V2500: 5%

Market overview

The Civil Aerospace market continues to recover from the effects of the COVID-19 pandemic. In 2022, recovery continued and our large engine flying hours (EFH) were 64% of 2019 levels, a solid improvement from 48% in 2021. The restrictions in China were a key hurdle to get back to pre-pandemic levels, along with increased staffing for airlines and airports to meet demand in countries that have largely recovered. Business aviation flying hours continue to be above 2019 levels and original equipment (OE) engine deliveries are increasing as expected with a strong start for our Pearl family of engines. Industry forecasts for the recovery in long-haul travel are positive with a predicted return to 2019 large engine flying levels in 2024.

The aerospace market was impacted by the Russia-Ukraine conflict which caused supply-chains to become strained and some raw materials have been in short supply for the whole industry. We have actively managed the disruption by having diversified sources of supply and through the use of hedging for near and mid-term price protection.

Inflation risk increased in 2022, with higher costs for energy, raw materials, freight and wages impacting our own costs and those of our suppliers. We manage inflation risk by having long-term contracts with our customers, suppliers and hedging counterparties and by having a cost aware culture that focuses on cost saving initiatives and efficiencies. As a result, we were able in part to protect margin against inflation in 2022. Our actions resulted in improvement in our long-term service agreement margins, which contributed to positive catch-ups in the year.

Market activity for large engine passenger aircraft is now increasing, albeit from a low base as a result of the pandemic. OE deliveries rose by 15% year-on-year, with 165 Business aviation deliveries (2021: 114) and 190 total large engine deliveries (2021: 195). In 2022, we delivered 44 large spare engines (2021: 36), which represented 23% of total large engine deliveries (2021: 18%). This is above the typical range of 10-15% of total engine deliveries, as we grow the pool of spare engines to underpin fleet health and improve resilience. We expect this elevated level of spare engine deliveries to continue in 2023 and 2024.

Total shop visits were 1,044 versus 953 in 2021. There were 248 large engine major shop visits in 2022 versus 208 in 2021. In 2022, we agreed with Air China to create a joint-venture overhaul facility that will eventually support up to 250 shop visits per year.

Financial performance

Underlying revenue of £5.7bn was up 25%. OE revenue of £2.0bn was up 23% reflecting higher spare engine deliveries. Services revenue of £3.7bn was up 26% on the prior year, reflecting higher large engine shop visits, aftermarket revenue growth from business aviation, regional and V2500, and positive LTSA catch-ups £360m, (2021: £214m).

Underlying operating profit was £143m (a 2.5% margin) versus a loss of £(172)m in 2021. The year on year increase was driven by improvements in LTSA contract margins, with an onerous provision credit of £51m (2021: a £122m charge) and £319m of positive LTSA catch-ups (2021: £256m), a higher volume and different mix of large spare engine sales with more third party sales to capacity providers than in the prior year, increased aftermarket profit, and reduced losses on installed large engine OE deliveries. This was partly offset by the non-repeat of a foreign exchange revaluation credit of c£140m in 2021.

Trading cash flow was £226m versus £(1,670)m in the prior year. The improvement was due to higher engine flying hour receipts reflecting the growth in LTSA flying hours, which grew at a materially faster rate than shop visits in 2022. Cash flows in 2022 benefited from the recovery of overdue balances from airlines incurred during the pandemic of c£180m.

Improvements in underlying operating profit and cash flows were delivered despite the challenges associated with inflation and the supply chain, which are expected to persist in 2023.

Business review

Financial overview

£ million	2022	Organic change [1]	FX	2021	Change	Organic change [1]
Underlying revenue	**5,686**	**1,126**	**24**	**4,536**	**25%**	**25%**
Underlying OE revenue	1,982	374	(4)	1,612	23%	23%
Underlying services revenue	3,704	752	28	2,924	27%	26%
Underlying gross profit	**853**	**359**	**20**	**474**	**80%**	**76%**
Gross margin %	15.0%			*10.4%*	*4.6%pt*	*4.3%pt*
Commercial and administrative costs	(371)	(71)	(3)	(297)	25%	24%
Research and development costs	(452)	(15)	(3)	(434)	4%	3%
Joint ventures and associates	113	23	5	85	33%	27%
Underlying operating profit/(loss)	**143**	**296**	**19**	**(172)**	**nm**	**nm**
Underlying operating margin %	**2.5%**			**(3.8)%**	**6.3%pt**	**6.0%pt**

	2022	2021	Change
Trading cash flow	**226**	(1,670)	1,896

Key operational metrics:

	2022	2021	Change
Large engine deliveries	190	195	(5)
Business jet engine deliveries	165	114	51
Total engine deliveries	**355**	**309**	**46**
Large engine LTSA flying hours (million)	**10.0**	**7.4**	**2.6**
Large engine LTSA major refurbs	248	208	40
Large engine LTSA check & repair	455	402	53
Total large engine LTSA shop visits	**703**	**610**	**93**

[1] Organic change is the measure of change at constant translational currency applying full year 2021 average rates to 2022. All underlying income statement commentary is provided on an organic basis unless otherwise stated

Operational and strategic progress

Within our Civil Aerospace business we have a large installed product base of more than 4,100 large engines and around 8,600 business aviation and regional engines. Around two thirds of these are covered by LTSA contracts, which provide aftermarket services for our customers for many years. Our order book in Civil Aerospace stands at 1,300 new large engines, due for delivery over the next few years.

OE orders slowed during the COVID-19 pandemic but recovered substantially in 2022 with considerable orders from Malaysia Aviation Group, Norse Atlantic Airways and Qantas as well as a large order with Air India in 2023. These OE orders also include TotalCare agreements, which will create value into the future and demonstrate a return in demand, which we expect to continue into 2023.

Increasing time on wing and reducing the cost of our maintenance activities are key value drivers in our aftermarket business model. In May, at our Civil Aerospace investor day, we talked about how product improvement, life limited parts extensions, enhancing temperature limits and better aircraft operations are all contributing to a greater time on wing. In addition, utilising lean engine overhaul methods, increased re-use of parts, more repair of parts and advanced repair technologies are reducing our shop visit costs.

The launch of the Airbus A350 as a freighter aircraft in 2022 was an important addition and gives us significant new opportunity in the freight market. Furthermore, we are seeing an increase in passenger to freighter conversions on the Airbus A330, which will keep our engines flying for longer and extend our aftermarket contracts.

As shop visit events return, we will assess the size of our operation and take action where required. We continue to grow our MRO network to support future shop visit volumes, for example the launch of our new MRO partnership with Air China.

We remain focused on the decarbonisation of the civil aerospace market and we will continue to collaborate with third parties to explore sustainable aviation fuel (SAF) and clean propulsion systems. One of our commitments is to demonstrate that all of our Trent and Business Aviation engines are compatible with 100% SAF by the end of 2023. All our Trent and Business Aviation engines are already certified and ready to operate on a 50% SAF blend with traditional fossil-based aviation jet fuels. A recent agreement with Air bp will ensure that all fuel supplied for engine testing at our Derby, UK, Bristol, UK, and Dahlewitz, Germany, facilities will be 10% SAF. In addition, Air bp will also provide the fuel for the testing of our UltraFan demonstrator engine, which will be carried out entirely on SAF.

In business aviation, our Pearl 10X engine development programme continues to make good progress. The Pearl 10X, which is the newest member of the state-of-the-art Pearl family and the first of our engines to power a business aviation aircraft produced by Dassault, has surpassed its target thrust level on the first test run, making it the most powerful business aviation engine in our portfolio. Furthermore, the development programme has included rigorous testing of the new ultra-low emissions ALM combustor, which is compatible with 100% SAF. Further progress was made on our Pearl 700 development programme for the new Gulfstream G700/800, with EASA engine certification achieved in September 2022.

Outlook

Industry forecasts predict a continued recovery in international travel which is a key driver of our financial performance. In 2023, we expect large EFH to be in the range of 80% to 90% of the 2019 levels compared with 64% in 2022. Business and regional markets are expected to continue to perform above 2019 levels, with growth year-on-year.

Business review

Defence

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

UNDERLYING REVENUE	UNDERLYING OPERATING PROFIT	ORDER BACKLOG
£3,660m	**£432m**	**£8.5bn**
2021: £3,368m	2021: £457m	2021: £6.5bn

UNDERLYING REVENUE MIX	UNDERLYING REVENUE MIX BY SECTOR
OE: 45% Services: 55%	Transport : 33% Combat: 24% Submarines: 21% Naval : 9% Other: 13%

Market overview

We continue to be a trusted and key supplier to governments in the provision of defence power for the protection of society, preservation of peace and in underpinning economic and social stability. We operate with integrity in a tightly regulated and closely controlled industry in the provision of defence power. We remain long-term partners in the development, manufacture and maintenance of countries' defences, as we power critical military assets that deter threats and save lives.

Defence budgets are increasing globally and this increased investment is providing for the long-term success of our Defence business and will underpin new contract wins to provide robust value to the Group over many decades. However, due to the long life of our Defence products and the availability and readiness of fleets currently, we are not immediately affected by changes to defence demand and governmental budget uplifts.

The defence market is long cycle, with production programmes spanning decades. Customer contracts typically range between one and five years and the Defence business has been going through a cycle of renewals. In 2022, contract renewals totalling USD1.8bn were agreed, including five additional years of support for the US Navy T-45 flight trainer aircraft and C-130J and KC-130J transport airport aircraft for the US Marine Corps and Kuwait. In addition, in 2022, we won a contract with the UK Ministry of Defence to provide support for our Adour engine which powers the Hawk Jet trainer aircraft. This 11-year contract, worth £105m, will enable us to provide the maintenance, repair and overhaul of the two Adour engines in service in the UK.

There was a high level of programme win activity in our Defence business in 2022, with the end of the year seeing announcements that will underpin the long-term outlook for the business. The Bell V-280 Valor, powered by our AE1107F engines, was selected by the US Army for the future long range assault aircraft programme. Meanwhile, the governments in the UK, Italy and Japan announced the launch of the new global combat air programme (GCAP) to create a sixth-generation fighter jet due to enter service in 2035, building on the research and development progress already made by team tempest. Australia concluded negotiations for the first deliveries of the Australian Hunter frigate programme which will be powered by our MT30 gas turbine engine.

Financial performance

Order intake in our Defence business was £5.4bn in 2022 versus £2.3bn in 2021, with a book-to-bill of 1.5x versus 0.7x last year. The Bell V-280 Valor, powered by our AE1107F engines, was selected by the US Army for the Future Long Range Assault Aircraft programme. Major contract awards included the renewal of $1.8bn of services contracts in the U.S. for trainer and transport aircraft over the next five years.

These awards, combined with increased military activity and spending underpin the long-term outlook for the business. Our order backlog at the year end was £8.5bn, with 86% order cover in 2023 and a high degree of cover in 2024 and beyond.

Revenue increased 2% to £3.7bn. OE revenue was up 10% year on year, with strong growth in Submarines along with new programmes (including B-52 and UK Combat). This more than offset reductions in services revenue, down 3% due to the non-repeat of legacy spare parts sales made in 2021.

Operating profit was £432m (11.8% margin) versus £457m (13.6% margin) in the prior year, reflecting the non-repeat of £45m of high margin one time legacy spare parts sales in the prior year and the changing mix of the business. Self-funded R&D and investment levels were elevated, as we support growth across the portfolio including the UK Future Combat programme and opportunities in North America.

Trading cash flow of £426m improved versus £377m last year, despite slightly lower underlying profit and increased inventory, due to an advance payment from one of our customers of £63m.

Business review

Financial overview

£ million	2022	Organic change [1]	FX	2021	Change	Organic change [1]
Underlying revenue	**3,660**	**78**	**214**	**3,368**	**9%**	**2%**
Underlying OE revenue	1,634	136	87	1,411	16%	10%
Underlying services revenue	2,026	(58)	127	1,957	4%	(3)%
Underlying gross profit/(loss)	**726**	**(28)**	**33**	**721**	**1%**	**(4)%**
Gross margin %	*19.8%*			*21.4%*	*(1.6)%pt*	*(1.3)%pt*
Commercial and administrative costs	(174)	(6)	(7)	(161)	8%	4%
Research and development costs	(122)	(9)	(8)	(105)	16%	9%
Joint ventures and associates	2	(1)	1	2	-	-
Underlying operating profit/(loss)	**432**	**(44)**	**19**	**457**	**(5)%**	**(10)%**
Underlying operating margin %	***11.8%***			***13.6%***	***(1.8)%pt***	***(1.6)%pt***

	2022	2021	Change
Trading cash flow	**426**	377	49

[1] Organic change is the measure of change at constant translational currency applying full year 2021 average rates to 2022. All underlying income statement commentary is provided on an organic basis unless otherwise stated

Operational and strategic progress

At a time where there is heightened focus on military and defence applications, we continue to support our customers in maintaining peace and providing protection for society. Rolls-Royce does not provide or manufacture weapons for our customers.

Our position in the US has been further solidified with the completion of a major investment programme in our naval facilities in Pascagoula, Mississippi and Walpole, Massachusetts. These will provide increased capability and capacity to meet US Navy demand for the manufacture of propellers and propulsion components for their naval platforms. These investments, in addition to the previous investment made in our Indianapolis facility, mean we are well positioned to provide the US Department of Defence with world-class products and services for decades to come.

A new market opening up for us is participation in the manufacture of advanced nuclear microreactors for deployable military applications and base power in the US. We are proud to be a key part of a contract awarded by the US Department of Defense to build the first full-scale transportable microreactor prototype for delivery in 2024, developing technology which will enable militaries to become untethered from fossil fuels and increase their energy resilience. The transportable microreactor will also have potential for commercial applications such as disaster recovery and remote location power coverage.

In the UK, we opened our nuclear skills academy based in Derby to enhance the pipeline of talent in this field. The academy has funding to take on 200 apprentices each year for the next ten years and will be a key enabler as we explore solutions to satisfy the growing demand of society for clean, carbon-free energy.

In July, at the Farnborough Air Show, the UK Government's defence, science and technology laboratory and the UK's national security strategic investment fund announced a joint programme to deliver significant enhancements to UK defence capabilities through the development of innovative hypersonic technologies. Rolls-Royce is partnered with Reaction Engines and the Royal Air Force's rapid capabilities office on the hypersonic air vehicle experimental programme which aims to establish the UK as a leader in reusable hypersonic air systems.

In November, the Rolls-Royce Trent 700 engine helped the Royal Air Force and industry partners carry out a world-first 100% sustainable fuel flight using a military aircraft of its size, and the first of any aircraft type in the UK.

Our Defence site at Bristol, UK became the first Rolls-Royce production facility to achieve net zero carbon status on operational emissions (excluding product test emissions) during the year. The site utilises a combination of rooftop solar and onsite ground source heat pumps, alongside the procurement of renewable electricity and gas. A small quantity (<10%) of independently verified carbon offsets were used to achieve net zero carbon status where there is no immediately viable alternative to mitigating residual emissions, such as diesel usage in emergency generators. We will apply learnings from the decarbonisation of operations at Bristol, UK, to the wider estate to help support our goal of reaching net zero facility emissions by 2030.

Outlook

Our Defence business is resilient, with many programmes already in place stretching out over future decades. Our order book is strong at £8.5bn, and order coverage is 86% for 2023. Increased government spending on military and defence applications provides confidence for the future, as we look to take an ever-increasing role in the protection of society, whilst pursuing lower carbon solutions for our customers.

Business review

Power Systems

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

UNDERLYING REVENUE	UNDERLYING OPERATING PROFIT	ORDER BACKLOG
£3,347m	**£281m**	**£4.0bn**
2021: £2,749m	2021: £242m	2021: £2.8bn

UNDERLYING REVENUE MIX	UNDERLYING REVENUE MIX BY SECTOR
OE: 65%	Power Generation: 34%
Services: 35%	Marine: 31%
	Industrial: 25%
	Defence: 10%

Market overview

The short-cycle nature of Power Systems relative to our Civil Aerospace and Defence businesses means there has been a greater degree of inventory build, due to supply chain disruption as well as to provide a buffer stock to minimise disruption to our customers as we work through our order backlog. We monitor our supply chain closely and expect these inventory levels to begin to unwind in 2023 as we balance financial health with meeting the needs of our customers.

Part of the Power Systems supply chain has been impacted by the Chinese economy closing and reopening through 2022. As a result of this, and industry-wide pressures on the supply chain, our Power Systems business suffered heightened disruption to its production and output. This led to a larger amount of inventory being held in our Power Systems business, as we waited for parts input to complete orders and ship these to our customers. The reopening of the Chinese economy and manufacturing facilities across Greater China towards the end of 2022 is a promising signal that disruption will be more limited going forward. We continue to monitor the situation closely and will take mitigating action to limit disruption to our customers, whilst maintaining appropriate levels of inventory across the business.

Financial performance

Order intake in our Power Systems business was £4.3bn, 29% higher than the prior year, a record level for the business. We saw strong demand in many of our end markets, notably Power Generation including mission critical backup power, and for our engine systems and services. As a result, we now have 76% order cover for 2023.

Underlying revenue was £3.3bn, up 23% and above the previous peak in 2019. Services revenues grew 16% as product utilisation increased in our end markets, and OE revenue rose by 26%. Sales were strongest in the industrial and power generation end markets, partly offset by lower activity in China.

Operating profit was £281m (8.4% margin) versus £242m (8.8% margin) in the prior year. The lower margin versus the prior year reflects higher costs associated with inflation and supply chain disruption, increased self-funded R&D, one-off charges including intangible asset impairments and write-downs of assets due to the Russia-Ukraine conflict, partly offset by the benefit of higher volumes.

Trading cash flow was £158m, a conversion ratio of 56% versus 90% last year. The lower conversion year on year reflects a higher level of inventories due to supply chain disruption and the pace of revenue growth, partly offset by increased customer advance payments.

Financial overview

£ million	**2022**	Organic change[1]	FX	2021	Change	Organic change[1]
Underlying revenue	**3,347**	**626**	**(28)**	**2,749**	**22%**	**23%**
Underlying OE revenue	2,187	462	(19)	1,744	25%	26%
Underlying services revenue	1,160	164	(9)	1,005	15%	16%
Underlying gross profit/(loss)	**918**	**148**	**(8)**	**778**	**18%**	**19%**
Gross margin %	*27.4%*			*28.3%*	*(0.9)%pt*	*(0.9)%pt*
Commercial and administrative costs	(441)	(62)	4	(383)	15%	16%
Research and development costs	(204)	(49)	2	(157)	30%	31%
Joint ventures and associates	8	4	-	4	-	-
Underlying operating profit/(loss)	**281**	**41**	**(2)**	**242**	**16%**	**17%**
Underlying operating margin %	***8.4%***			***8.8%***	***(0.4)%pt***	***(0.4)%pt***

	2022	2021	Change
Trading cash flow	**158**	219	(61)

[1] Organic change is the measure of change at constant translational currency applying full year 2021 average rates to 2022. All underlying income statement commentary is provided on an organic basis unless otherwise stated

Business review

Operational and strategic progress

We are focused on being the market leader for mission critical power and propulsion solutions, as we are transforming our business from supplying stand-alone engines to fully integrated products and services. Key contract wins strengthen our market position and secure future demand. Notable contract wins include more than 500 *mtu* engines for the UK's future Boxer tanks, a service partnership with the Royal Navy and the extension of a frame agreement with world leading luxury yacht manufacturer, Ferretti Group. These are in addition to the supply of a new large-scale battery storage system for Dutch energy supplier Semperpower.

Our pathway to net zero remains a priority. This year the world's first hybrid diesel-battery-electric regular passenger operation train ran from London to Aylesbury in the UK with mtu Hybrid PowerPacks, reducing CO2 emissions by up to 25%. We also took a 54% stake of German electrolyzer stack company Hoeller Elektrolyzer to develop mtu electrolyzers for producing green hydrogen. Furthermore, we announced the development of mtu methanol engines for large yachts and mtu hydrogen engines for power generation.

Last year, we pledged to prove that our most successful engine series can be used with sustainable fuels by the end of 2023. In 2022, we took significant steps towards meeting our net zero ambitions by reaching key milestones, including the achievement of our series 4000 and series 1600 engines having run on a range of sustainable synthetic fuels.

In 2022, we signed a contract with a solar park with 3.7 MWp capacity in southern Germany, which will generate around four million kilowatt hours of electricity per year for Power Systems. This power generation source saves 1,300 tonnes of CO2 per year compared to electricity available through the German grid network.

For our efforts to drive decarbonisation, Power Systems has been awarded the special global transition high potential prize which recognises companies that have taken practical steps in their strategies to prevent global warming by more than 1.5°C by the year 2100.

We are prepared to support the increasing customer demands for military products as a result of the shift in security policy. We will do this in a timely and reliable manner, ensuring that our Power Systems business contributes to global security. *mtu* solutions power many of the vehicles and vessels on which operational readiness depends.

Outlook

As customers look to ensure a continuous source of power for their applications, we are well placed to take advantage of increasing demand. Inventory unwind began in 2022 and will continue through 2023.

Business review

New Markets

New Markets are early-stage businesses. They leverage our existing, in-depth engineering expertise and capabilities to develop sustainable products for new markets, focused on the transition to net zero.

UNDERLYING REVENUE	UNDERLYING OPERATING LOSS	EMPLOYEES (FTE AT YEAR END)
£3m	**£(132)m**	**1,059**
2021: £2m	2021: £(70)m	**2021: >570**

VALUE R&D SPEND £108M

Rolls-Royce Electrical: 62%
Rolls-Royce SMR: 38%

Market overview

Our New Markets business is made up of our Rolls-Royce SMR (Small Modular Reactor) business and Rolls-Royce Electrical. As we develop greener solutions for future use, nuclear and electrification applications will play a pivotal role in our product mix and make-up. We continue to invest in these technologies along with our partners and we use our combined expertise to progress on the path to net zero.

Nuclear power will play a key role in producing sustainable zero carbon power. Our SMRs will enable the production of stable, secure supplies of power for grid scale electricity supply and off-grid energy intensive users. They are faster to build and more cost-efficient than conventional nuclear power stations. The modular design means that 90% of the manufacturing can take place in a factory environment, not subject to the productivity constraints of conventional large nuclear sites such as poor weather. While we await the first firm commitment to deploy an SMR, we continue to work in parallel through the UK generic design assessment (GDA) process, with a view to having the first SMRs on grid in the early 2030s.

Electrification will assist in the decarbonisation of the aviation industry and the technologies we develop here can be leveraged in our Civil Aerospace and Defence applications. We pursue solutions on multiple fronts, where small, all-electric aircraft can offer short journeys, with a more efficient, quieter and zero-emissions power source. As we look to increase the range of the aircraft, hybrid power systems, such as electric and SAF pairings can provide commercially viable alternative solutions to the traditional larger, regional aircraft market. Within Rolls-Royce Electrical we continue to build on existing relationships and create new ones, to collaborate with expert third parties to develop electric solutions as a means of air travel. We also use this engineering capability to support product development in Power Systems, where there is increased demand for hybrid systems which can leverage our electrical engineering capability in Rolls-Royce Electrical.

There was a tightening of the labour market in 2022, where job vacancies were higher, unemployment was lower and the availability of skilled workers was lower. As a result, our New Markets business faced greater challenges in filling some vacancies than our other business. Progress has been slower than anticipated, therefore, but not materially lower to impact our progression against key milestones.

The potential from our New Market products is significant and the technologies we develop in Rolls-Royce SMR and in Rolls-Royce Electrical can have alternative applications.

Financial performance

Underlying revenue of £3m came from Rolls-Royce Electrical sales relating to marine engineering services and propulsion systems. Both Rolls-Royce Electrical and Rolls-Royce SMR are early-stage businesses in their investment phase, with significant future revenue generating potential in the 2030s.

Underlying operating loss of £(132)m increased from the prior year comparative as we increased the pace of investment in both Rolls-Royce SMR and Rolls-Royce Electrical. R&D costs of £(108)m included £(41)m on the design development to ready our SMRs to enter the UK GDA process and £(67)m on electrical propulsion technology.

Financial overview

£ million	**2022**	Organic change [1]	FX	2021	Change	Organic change [1]
Underlying revenue	**3**	**1**	**-**	**2**	**50%**	**50%**
Underlying OE revenue	1	1	-	-	-	-
Underlying services revenue	2	-	-	2	-	-
Underlying gross profit	**(1)**	**(2)**	**-**	**1**	**nm**	**nm**
Gross margin %	*(33.3)%*			*50.0%*	*(83.3)%pt*	*(83.3)%pt*
Commercial and administrative	(23)	(20)	-	(3)	667%	667%
Research and development costs	(108)	(40)	-	(68)	59%	59%
Joint ventures and associates	-	-	-	-	-	-
Underlying operating profit	**(132)**	**(62)**	**-**	**(70)**	**89%**	**89%**
Underlying operating margin %						

	2022	2021	Change
Trading cash flow	**(57)**	(56)	(1)

1 Organic change is the measure of change at constant translational currency applying full year 2021 average rates to 2022. All underlying income statement commentary is provided on an organic basis unless otherwise stated

Business review

Operational and strategic progress

Collaboration will play a key role in our Rolls-Royce Electrical journey, and we look to partner with experts across the industry to further advance our technology and explore different avenues for net zero travel. We entered into partnership this year with EVE, an advanced air mobility (AAM) business created by Embraer S.A., to develop propulsion systems for their platform. Together with our existing propulsion partnership, Vertical Aerospace, we are well positioned to deliver differentiating power and propulsion solutions in this new AAM market.

In addition to the above, we have entered into an agreement with Hyundai Motor Group to bring all-electric propulsion and hydrogen fuel cell technology to the AAM market. The partnership will leverage our aviation and certification capabilities and Hyundai Motor Group's hydrogen fuel cell technologies and industrialisation capability. The benefits of using a hydrogen fuel cell system in an all-electric aircraft propulsion system is that it is a zero-emission, silent and reliable on-board power source that enables scalability in power offerings as well as long distance flight range. Jointly we will advance this technology into Hyundai's AAM vehicles and complete our all-electric and hybrid-electric power and propulsion system portfolio offerings.

Increased investment in Rolls-Royce Electrical is a key part of our net zero strategy. This year we announced the development of our turbogenerator technology. A new, small engine designed for hybrid-electric application, the turbogenerator, will extend platform range initially based upon SAFs and, at a later date, will be compatible with hydrogen fuel. The technology, currently being developed by experts in Germany, Norway and Hungary, is being part funded by the German Ministry for Economic Affairs and Climate Action.

We have shortlisted three possible sites which will be home to one of our major factories in the production of our SMR components and modules. Planning processes will be initiated to ensure we can work in parallel and construction will take place once certainty on a domestic deployment plan has been secured. In addition to factory locations, four nuclear sites have been identified across England and Wales that could host the first SMR units with sufficient land for around 15GW of SMR deployment across these sites. These are key milestones in the development of our SMR programme and support our ambitions to manufacture the first fully operational SMR in the early 2030s.

Outlook

In Rolls-Royce SMR, regulatory activities such as the GDA, factory development and siting plans will continue simultaneously as the work to secure a firm domestic commitment is secured. For Rolls-Royce Electrical, partnership and commercial opportunities will be developed, as we look to draw upon our own talent and the talent of others to bring our ambition to life.

Principal risks

Our risk and internal control system

The RRH Board has established procedures to manage risk and oversee the risk management system (RMS). The RRH 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 RRH 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 RRH Audit Committee, on behalf of the RRH Board, performs an annual review of our RMS and its effectiveness. During the year, the RRH Board completed a robust assessment of both our principal and emerging risks. Details of how our principal risks have changed over the year are described on page below.

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 RRH Board and RRH Board committee meetings.

At least once a year the RRH Audit Committee, on behalf of the RRH 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 75 in the RRH Annual Report 2022). 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 2022, we have continued to focus on improving our internal control environment for financial and non-financial controls and worked to embed these controls into our business processes. We expect this work to continue in 2023. It will be complimented by work to prepare for the changes set out in the BEIS proposals on 'restoring trust in audit and corporate governance'.

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 RRH Board or a RRH Board committee.

We have reviewed our principal risks over the course of the year and have updated them to reflect changes to the external environment and our existing plans. We will continue to monitor our principal risks in light of the strategic review.

Changes in our principal risk levels

We continue to review our principal risks and how we manage them to reflect their evolving nature. We have reviewed our risks in light of changes to the internal and external environment, in particular economic uncertainty, inflation, supply chain disruption and a tightening labour market; the current political situation including the Russia-Ukraine conflict and the subsequent cost and availability of electricity and natural gas and continuing disruptions to global supply chains. Despite the rigorous supply chain management, leaner manufacturing, strategic partnerships, application of contractual pricing protection, utilisation of our hedge book and continued focus on pricing, productivity and costs we believe the risk levels for financial shock, market shock, business continuity and political risk have increased since last year.

Increased risk: Financial shock

The rapidly changing external environment, in particular rising interest rates, inflation, energy costs and the changing value of sterling have heightened the risk of financial shocks to the Group. As planned, the proceeds of the ITP disposal being used towards repaying the £2bn UKEF loan facility has in part helped to mitigate this risk, as all remaining debt is currently at fixed interest rates.

We use derivative financial instruments to hedge net foreign currency cash flows, which are mainly denominated in USD. In 2022, the RRH Board agreed to update our hedging policy, reducing the hedging time horizon from ten to five years, which will allow us to react quicker to changes in the external environment.

Increased risk: Market shock

The likelihood of one or more macroeconomic risk occurring has increased over the past 12 months, with economic growth reducing and energy costs, government borrowing and long-term interest rates increasing. The combined effect could be to reduce economic growth and disposable income which in turn could reduce capital investment and the propensity to travel. In addition, high level of debt by national governments, in particular the UK and US, could, in the long run, temper their spending on defence and funding research and technology.

Increased risk: Business continuity

A combination of supply chain constraints, high inflation, slowing economic growth and the potential for energy shortages in Europe means the likelihood of supply shortages, or supplier failure, has increased over the year. We have responded by using rigorous supply chain management, leaner manufacturing, strategic partnerships, application of contractual pricing protection, increasing working capital and reviewing supplier health and where necessary offering support to key partners. For further information on supplier engagement, see our case study in the Section 172(1) Statement on page 37.

Principal risks

Increased risk: Political risk
The Russia-Ukraine conflict has resulted in heightened political risk to the Group. As outlined on page 10, we took the decision to stop doing business in Russia and to reduce the supply of titanium from Russia.

New and retired risks
In light of our transformation programme outlined on page 5, we have replaced our previous strategic transformation risk with a revised risk relating to the execution of this programme.

Other specific risks
Human capital: our approach to human capital is demonstrated in our 'Being' campaign set out on page 37.

Human trafficking and slavery: our approach is set out in our human rights policy.

Our current principal risks together with how we manage them, how we assure them (by activities and functions other than internal audit), the oversight provided by the RRH Board and/or RRH Board committees and how the risk levels have changed over the course of the year 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.

Principal risks

How we manage principal risks

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	BUSINESS MODEL	CHANGE
Safety Failure to: i) meet the expectations of our customers to provide safe products; or ii) create a place to work which minimises the risk of harm to our people, those who work with us, and the environment, would adversely affect our reputation and long-term sustainability.	**Product** • Our product safety management system includes controls designed to reduce our safety risks as far as is reasonably practicable and to meet or exceed relevant company, legal, regulatory and industry requirements. • We verify and approve product design. • We test adherence to quality standards during manufacturing. • We validate conformance to specification for our own products and those of our suppliers. • We mandate safety awareness training. • We use engine health monitoring to provide early warning of product issues. • We take out relevant and appropriate insurance.	Product safety assurance team Technical product life cycle audits	RRH Safety, Ethics & Sustainability Committee Product safety board	2, 3, 4, 5, 6, 7	Static
	People • Our HSE management system includes activities and controls designed to reduce our safety risks as far as is reasonably practicable and to meet or exceed relevant company, legal, regulatory and industry requirements. • We reinforce our journey to zero harm. • We use our crisis management framework.	People safety case interventions HSE audit team	RRH Safety, Ethics & Sustainability Committee	2, 3, 4	
Business continuity The major disruption of the Group's operations, which results in our failure to meet agreed customer commitments and damages our prospects of winning future orders. Disruption could be caused by a range of events, for example: extreme weather or natural hazards (for example earthquakes, floods) which could increase in severity or frequency given the impact of climate change; political events; financial insolvency of a critical supplier; scarcity of materials; loss of data; fire; or infectious disease. The consequences of these events could have an adverse impact on our people, our internal facilities or our external supply chain.	• We invest in capacity, equipment and facilities, dual sources of supply and in researching alternative materials. • We provide supplier finance in partnership with banks to enable our suppliers to access funds at low interest rates. • We hold safety stock. • We plan and 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	RRH Audit Committee	4, 5, 6, 7	Increased

Principal risks

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	BUSINESS MODEL	CHANGE
Climate change We 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. In addition, physical risks from extreme weather events (and/or natural hazards) could potentially materialise, which may result in disruption for Rolls-Royce.	• We invest in: i) reducing carbon impact of existing products; and ii) zero carbon technologies to replace our existing products. • Performance of climate scenario modelling and physical risk impact assessments. • We balance our portfolio of products, customers and revenue streams to reduce our dependence on any one product, customer or carbon emitting fuel source. • Communication of the actions we are taking to manage this risk, in order to demonstrate our alignment to societal expectations and global climate goals. • In June 2022, we developed and submitted new science-based decarbonisation targets to the Science-Based Targets initiative for validation.	Strategy reviews Technology reviews Investment reviews Group sustainability team	RRH Board and its committees Executive Team and its committees Climate steering committee	1, 2, 3, 4, 5, 6, 7	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 and we may have to absorb cost increases caused by high inflation. 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.	• We review product lifecycles. • *We make investment choices to* improve the quality, delivery and durability of our existing products and services and to develop new technologies and service offering to differentiate us competitively. • We protect our intellectual property (e.g. through patents). • We monitor our performance against plans. • We scan the horizon for emerging technology and other competitive threats, including through patent searches. • Inclusion of inflation clauses in our contracts to manage cost increases. • Investment in R&D opportunities, to support the development of new products or services to protect and sustain our future market.	Strategy *reviews* Technology reviews Investment reviews	RRH Board RRH Science & Technology Committee Investment review committee	1, 2, 3, 4, 5, 6, 7	Static

Principal risks

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	BUSINESS MODEL	CHANGE
Compliance Non-compliance by the Group with legislation or other regulatory requirements in the heavily regulated environment in which we operate (for example, export controls; data privacy; use of controlled chemicals and substances; anti-bribery and corruption; human rights; and tax and customs legislation). This could affect our ability to conduct business in certain jurisdictions and would potentially expose the Group to: reputational damage; financial penalties; debarment from government contracts for a period of time; and suspension of export privileges (including export credit financing), each of which could have a material adverse effect.	• We continuously develop and communicate a comprehensive suite of mandatory policies and processes and controls 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 and fraud risks • We classify data to meet internal and external requirements and standards	Compliance teams Financial controls team	RRH Safety, Ethics & Sustainability Committee	2, 3, 4, 5, 6, 7	Static
Cyber threat An attempt to cause harm to the Group, its customers, suppliers and partners through the unauthorised access, manipulation, corruption, or destruction of data, systems or products through cyberspace.	• We deploy web gateways, filtering, firewalls, intrusion, advanced persistent threat detectors and integrated reporting. • We test software. • We use our crisis management framework. • Application of our crisis management framework to govern our response to potential cyber security incidents and significant IT disruption.	Group cyber security team and security operations centre	RRH Audit Committee RRH Data security sub-committee	2, 3, 4, 6, 7	Static
Financial shock The Group is exposed to a number of financial risks, some of which are of a macroeconomic nature (for example foreign currency, interest rates, high inflation and commodity prices) and some of which are more specific to the Group (for example liquidity and credit risks). Significant extraneous market events could also materially damage the Group's competitiveness and/or creditworthiness and our ability to access funding. This would affect operational results or the outcomes of financial transactions.	• Our financial control framework activities are designed to reduce financial reporting risks. • Group strategic planning process. • We incorporate trends, demand and other dependencies in our financial forecasts. • We analyse currency and credit exposures and include in sourcing and funding decisions. • We develop, review and communicate treasury policies that are designed to hedge residual risks using financial derivatives (covering foreign exchange, interest rates and commodity price risk). • We raise finance through debt and equity programmes. All drawn debt is currently set at fixed interest rates.	Strategy reviews Finance risk committee Financial controls team	RRH Audit Committee	1, 7	Increased

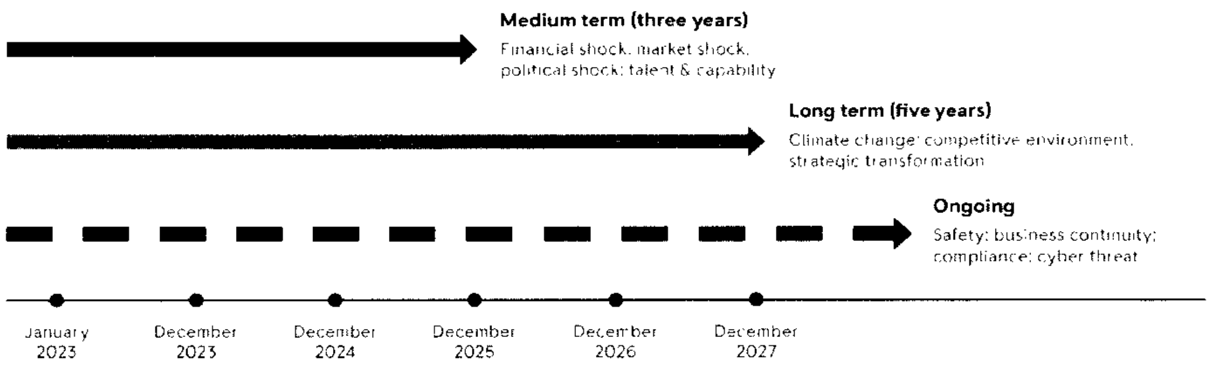
Principal risks

RISK	CONTROLS	ASSURANCE ACTIVITIES AND PROVIDERS	OVERSIGHT FORUM	BUSINESS MODEL	CHANGE
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.	• We monitor trends, market demand and future market forecasts and make investment choices to maximise the related opportunities. • We incorporate trends, demand and other dependencies in our financial forecasts. • We balance our portfolio with the sale of original equipment and aftermarket services, providing a broad product range and addressing diverse markets that have differing business cycles. • We execute our short, medium and longer-term plans.	Strategy reviews Technology reviews	RRH Board	1, 5, 6 ,7	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.	• We develop Group and country strategies and consider associated dependencies. • We horizon scan for political implications and dependencies. • We include diversification considerations in our investment and procurement choices.	Strategy reviews Technology reviews Supplier sourcing teams Government relations teams	RRH Board	1, 2, 5, 6, 7	Increased
Transformation Our transformation programme incorporating a strategic review, is outlined on page 5. Failure to execute the plan underpinning this programme will prevent us from achieving our longer-term ambitions.	• Completing internal and external assessments and benchmarking as part of the strategic review. • Financial modelling, scenario planning and sensitivity analysis. • Allocating cash and capital in accordance with our revised frameworks.	Strategy and business performance reviews	RRH Board	1, 2, 3, 4, 5, 6, 7	New risk
Talent and capability Inability to identify, attract, retain and apply the critical capabilities and skills needed in appropriate numbers to effectively organise, deploy and incentivise our people would threaten the delivery of our strategies.	• We undertake succession planning and monitor the talent pipeline. • We survey employee opinion. • We develop, implement and review strategic resourcing plans.	People leadership team	RRH Nominations & Governance Committee	1, 2, 3, 4, 5, 6, 7	Static

Principal risks

With consideration to the nature and potential impact of our principal risks, our associated level of exposure has been assessed, and accordingly our timeline of exposure determined. As per the summary below, each of our principal risks will continue to be monitored and managed in line with this determined timeline.

RISK EXPOSURE OVER A FIVE YEAR PLANNING PERIOD



Going concern statement

Overview

In adopting the going concern basis for preparing the consolidated and Company financial statements, the Directors have undertaken a review of the Group's cash flow forecasts and available liquidity, along with consideration of the principal risks and uncertainties over an 18-month period from the date of this report to August 2024. The Directors consider this 18-month period to be appropriate as it includes the maturity of £1bn of the Group's £5.5bn undrawn borrowing facilities in January 2024 and the repayment at maturity of a €550m (£484m) bond in May 2024.

The plans approved by the RRH Board are used as the basis for monitoring the Group's performance, incentivising employees and providing external guidance to shareholders.

The processes for identifying and managing risk are described on pages 27 to 33. As described on those pages, the risk management process and the going concern and viability statements are designed to provide reasonable but not absolute assurance.

Forecasts

Recognising the challenges of reliably estimating and forecasting the impact of external factors on the Group, the Directors have considered two forecasts in the assessment of going concern, along with a likelihood assessment of these forecasts. The base case forecast reflects the Directors current expectations of future trading. A stressed downside forecast has also been modelled, which envisages a 'stressed' or 'downside' situation that is considered severe but plausible.

The Group's base case forecast reflects a steady and ongoing recovery of trading towards pre-pandemic levels, especially in the civil aviation industry. Macro-economic assumptions have been modelled using externally available data based on the most likely forecasts, with inflation at 3%-4%, interest rates at 4%-6% and GDP growth at around 2%. In the base case forecast, Civil Aerospace large engine EFHs are expected to recover to pre-pandemic levels by the end of 2024.

The stressed downside forecast assumes no further recovery in Civil Aerospace large engines, with EFHs modelled at the average fourth quarter 2022 levels throughout the 18-month period to August 2024, reflecting slower GDP growth in this forecast when compared with the base case. It also assumes a more pessimistic view of inflation at around 6% higher than the base case covering a broad range of costs including energy, commodities and jet fuel. Interest rates in the stressed downside are 1%-2% higher than the base case. The stressed downside also considers lower demand and load reduction through our factories, and possible ongoing supply chain challenges.

The future impact of climate change on the Group has been considered through climate scenarios. Key variables include carbon prices based on the IEA Net Zero scenario, which assumes an increase from $46 per tonne of carbon in 2022 to $250 per tonne in 2050, commodity price trends temperature rises and GDP information derived from the Oxford Economics Global Climate Net Zero scenario aligned to IPCC SSPI-19. The climate scenarios modelled do not have a material impact on either the base case or downside forecast over the 18-month period to August 2024.

Liquidity and borrowings

The proceeds from the disposal of ITP Aero, which completed in September 2022, were used towards the repayment of a drawn £2bn UKEF loan which was due to mature in August 2025. A new £1bn UKEF facility was entered into in September 2022, which remains undrawn.

At 31 December 2022, the Group had liquidity of £8.1bn including cash and cash equivalents of £2.6bn and undrawn facilities of £5.5bn.

The Group's committed borrowing facilities at 31 December 2022 and 31 August 2024 are set out below. None of the facilities are subject to any financial covenants or rating triggers which could accelerate repayment.

£m	31 December 2022	31 August 2024
Issued Bond Notes [1]	3,995	3,511
UKEF £1bn loan (undrawn) [2]	1,000	1,000
UKEF £1bn loan (undrawn) [3]	1,000	1,000
Revolving Credit Facility (undrawn) [4]	2,500	2,500
Bank Loan Facility (undrawn) [5]	1,000	-
Total committed borrowing facilities	**9,495**	**8,011**

[1] The value of Issued bond notes reflects the impact of derivatives on repayments of the principal amount of debt. The bonds mature by May 2028
[2] The £1,000m UKEF loan matures in March 2026 (currently undrawn)
[3] The £1,000m UKEF loan matures in September 2027 (currently undrawn)
[4] The £2,500m revolving credit facility matures in April 2025 (currently undrawn)
[5] The £1,000m bank loan facility matures in January 2024 (currently undrawn)

Taking into account the maturity of these borrowing facilities, the Group has committed facilities of at least £8.0bn available throughout the period to 31 August 2024.

Conclusion

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

Viability statement

The viability assessment considers liquidity over a longer period than the going concern assessment. Our downside forecast uses the same assumptions as the going concern assessment for the first 18 months and in 2025 to 2027 assumes a slower recovery than assumed in our base case.

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

We have created severe but plausible scenarios that estimate the potential impact of our principal risks arising over the assessment period (descriptions of our principal risks and the controls in place to mitigate them can be found on pages 27 to 33). The risks chosen and scenarios used are as shown in the table below.

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

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

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

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

- the Group is able to refinance maturing debt facilities and drawdown existing available facilities as required. Debt maturities over the assessment period are as follows:
  - £1,000m bank loan facility maturing in 2024*
  - €550m bond maturing in 2024
  - £2,500m revolving credit facility maturing in 2025*
  - $1,000m bond maturing in 2025
  - £1,000m UKEF loan maturing in 2026*
  - £1,000m UKEF loan maturing in 2027*
  - €750m bond maturing in 2026
  - £375m bond maturing in 2026
  - $1bn bond maturing in 2027
  - £545m bond maturing in 2027;
- the Group has access to global debt markets and expects to be able to refinance these debt facilities on commercially acceptable terms;
- that implausible scenarios do not occur. Implausible scenarios include either multiple risks impacting at the same time or where management actions do not mitigate an individual risk to the degree assumed; and
- that in the event of one or more risks occurring (which has a particularly severe effect on the Group) all potential actions (such as but not limited to restricting capital and other expenditure to only committed and essential levels, reducing or eliminating discretionary spend, reinstating pay deferrals, raising additional funds through debt or equity raises, executing disposals and undertaking further restructuring) would be taken on a timely basis.

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

Principal risk	Scenario assumptions and impacts
Safety	Civil Aerospace product safety event resulting in aircraft being grounded, lower engine flying hour revenues, commercial penalties and additional costs (e.g. unplanned shop visits). The grounding time and number of shop visits required to exceed headroom are considered remote.
Business continuity	The loss of a key element of our supply chain resulting in an inability to fulfil Civil Aerospace large engine orders for 12 months. Reverse stress testing would require the time over which orders could not be fulfilled to be extended beyond what we consider plausible.
Climate change	This scenario is described in more detail against strategy part c of our TCFD disclosures as set out on page 33 in the RRH Annual Report 2022.
Competitive environment	A programme issue on a major programme of the same (proportionate) scale as Trent 1000. The extent to which engine life would need to be impacted to breach headroom is considered remote.
Compliance	A compliance breach resulting in fines (greater than those agreed as part of our DPAs) and loss of new business with governments and state-owned companies. The probability of the size of the fine required to exceed headroom is considered remote.
Cyber threat	A cyber attack resulting in loss and corruption of data and leading to the loss of EFHs. The time period over which EFHs would need to be affected to breach headroom is not considered plausible.
Financial shock	Inability to refinance debt when it matures (in combination with other risks).
Market shock	Captured in our downside forecast (described above).
Political risk	Sanctions imposed between major trading blocs resulting in supply chain disruption and a loss of sales in impacted markets. Reverse stress testing would require sanctions to persist over a period of time which is not considered plausible.

* currently undrawn facilities

Section 172 and stakeholder engagement

All of our Directors are briefed on their Companies Act 2006 duties during their induction. Our section 172 (s172) statement below sets out how the Directors have discharged their s172 duty. The Directors recognise the responsibility to all our different but interrelated stakeholder groups and wider society. We recognise that effective engagement with a broad range of our stakeholders is essential for the long-term success of the business and we aim to create value for our stakeholders every day by maintaining levels of business conduct that are aligned to our values and our purpose.

The likely consequences of any decision in the long term

During the year, the Directors considered the Group's strategic direction. This, in turn, creates long-term value for shareholders, recognising that the longer-term success of our business depends on the effects of our business activities on wider society. In a year marked by external shocks, both geopolitical and macro-economic, the RRH Board discussions focused on the labour environment, implications of supply chain disruption and the impact of the swift withdrawal from Russia, including the longer-term reliance on Russia for key materials such as titanium.

The interests of the Company's employees

The Directors recognise that the success of our business depends on attracting, retaining and motivating talented people. The Directors consider and assess the implications of decisions on our people, where relevant and feasible. The swift withdrawal from Russia resulted in employees being relocated and the Directors spoke with impacted colleagues during a site visit to Friedrichshafen, Germany. The Directors seek to ensure that the Company remains a responsible employer, including with respect to pay and benefits, health and safety issues, the workplace environment and engagement with the unions. A case study on our 'Being' campaign can be found on page 37.

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

Delivering our strategy requires a strong, mutual and beneficial relationship with suppliers, customers, governments and joint venture partners. The Directors receive updates on engagement across the Group. A case study on the impact of the Russia-Ukraine conflict on procurement can be found on page 38.

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

The Directors receive information through Group-level reviews on various topics to help the Directors make decisions relating to net zero ambitions and proposals to divest or invest. In addition, initiatives taken during the year, including one-off payments to employees in light of the economic climate were taken. A case study on the Unnati STEM programmes in India can be found on page 38.

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

The Directors review and approves our ethics and compliance frameworks. We updated our human rights policy during 2022. This, in conjunction with the Directors monitoring compliance with governance standards, helps to ensure that Board-level decisions and the actions of our subsidiaries promote high standards of business conduct. Our Code of Conduct, supplier code and modern slavery statements ensure high standards are approved and can be found on www.rolls-royce.com.

The need to act fairly between members of the Company

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

Examples of engagement with our key stakeholder groups

People

The Directors recognise that it is through our people that we fulfil our potential, achieve our vision and execute our strategy. During 2022, the RRH Board's Employee Champions, Beverly Goulet, Wendy Mars and Lee Hsien Yang, ensured the voice of our people was heard in the boardroom. The Employee Champions provide regular feedback to the RRH Board on topics of interest and/or concern. This provides a valuable link between our people and the Directors. We believe that these methods of engagement with our people are effective in building and maintaining trust and communication, whilst providing our people with a forum to influence change in relation to matters that affect them.

The Meet the Board event during 2022, enabled around 100 colleagues to ask the RRH Board questions relating to their personal experiences, work life balance and other cultural topics, including imposter syndrome. Feedback from both colleagues and the RRH Board was overwhelmingly positive.

The Employee Champions continue to meet regularly with the employee stakeholder engagement committee, which provides support for their focus on employee engagement. The Employee Champions also met with many of the employee resource groups (ERG) during the year. At the Asia-Pacific ERG there was active discussion on LGBTQ+, as well as debates on whether some cultures were not as open to everyone's differences. Culture was also a key theme at the North American ERG, with discussion on the importance of authentic and inclusive leaders. Feedback from the ERG sessions contributed to positive action being taken, including a dotted-line reporting route for ERGs into the global head of inclusion demonstrating leadership support. In addition, during 2022 there were several in-person and virtual site events, including a site visit to Friedrichshafen, Germany, in September. In addition, Wendy visited Indianapolis, US, to discuss diversity & inclusion with a focus on hybrid working with positive feedback shared on the Group's approach to flexible working. Wendy also visited Washington, UK, where employees discussed innovation and the automation of shop floor processes.

In addition, the RRH Board engaged with CCLA Investment Management on cost of living and mental health. During the year, the RRH Board received updates on ongoing matters with the unions across our operations, together with related strike action in Canada. These updates influenced Board discussion and debate. Given the current economic situation with social pressures and cost of living, it was agreed that a one-off payment would be made to employees in some of our larger locations.

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

Section 172 and stakeholder engagement

Customers
The Directors recognise that the quality of the Group's customer relationships is based on mutual trust as well as our engineering expertise. We recognise that we must retain and strengthen our focus on the transition to a net zero carbon global economy by creating the sustainable power that our customers require. We continue to focus on helping our customers deliver their own sustainability agendas, making products more sustainable, maintaining peace and providing protection for society. The Directors regularly receive operational updates, including customer metrics and feedback, from each of the businesses. During 2022, the Business Presidents presented their updates to the RRH Board. This greatly influences the RRH Board's deliberations and its support for the Executive Team when considering our strategy.

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 regularly considered as part of the Directors' discussions on manufacturing strategy and when reviewing specific projects. Our Executive Team work collaboratively with our suppliers and partners to continue to improve operational performance through various means. The RRH Board continued to receive updates from the businesses on supplier performance and supply chain disruption. The RRH Board received an update on the first in-person global supplier conference since the pandemic.

Communities
The Directors recognise the importance of our communities and understands that everything we do can have an impact on our local and global communities. The RRH Safety, Ethics & Sustainability Committee received updates during 2022 on community investments during the year. A key focus for 2022 was the Habitat for Humanity campaign to support refugees fleeing the Russia-Ukraine conflict.

Information on the Group's commitment and the matching of employee donations can be found on page 39 in the RRH Annual Report 2022.

In addition, Power Systems donated generators to maintain power to vital facilities. Colleagues in Friedrichshafen, Germany, donated €150,000, through their works council, which Power Systems matched, to support refugees arriving in the Lake Constance region.

Governing bodies and regulators
The Directors recognise 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 Directors are updated on the Group's engagement with the tax authorities and the related regulatory landscape is discussed by the Directors. In addition, meetings with ministers and senior officials are held, when relevant, throughout the year. The General Counsel provides regular updates to the Directors on compliance with regulation as well as receiving updates on the continuing dialogue and co-operation with prosecutors, regulators, and government agencies.

Investors
The investor relations team is the key interface between the investment community and the Directors, providing frequent dialogue and feedback. The Directors interact regularly with investors, most notably after our financial results, capital markets events and site visits and at conferences as well as at key points throughout the year.

The Directors attended a US roadshow, in which they met many of the large shareholders.

Case studies

'Being' campaign
Creating a more inclusive workplace where our people understand how we can all be at our best.

What we did and why we did it
- Insights told us that we needed to do more to be clear on what inclusion means at an individual and team level in our business.
- We wanted to deliver a global focus across Rolls-Royce on the inclusive behaviours that we need from all colleagues in order to perform as a business, both today and for the future, ensuring that our people, leaders and teams are at their best.
- Inclusion drives performance and innovation, both important for our customers; as well as creating a culture and environment that enables us to attract and retain the best diverse talent in a competitive market.
- Our 'Being' campaign was based on the belief that an inclusive workplace starts with how we all treat each other every day.

RRH Board and committee engagement
- In May, at the RRH Nominations & Governance Committee, a D&I update was provided which covered the refreshed 'leading inclusively' digital toolkit.
- The Chief Executive report at the June RRH Board meeting provided an update following the ELG conference, which focused on building upon our 'Being' campaign. The Chief Executive reported to the RRH Board that inclusive leadership was a key theme at the ELG conference.
- In November, the RRH Nominations & Governance Committee received an update on our 'Being' campaign. The Chief People Officer confirmed that feedback on the campaign had been extremely positive.
- In November, the RRH Nominations & Governance Committee received an update on the inclusion strategy.

Q1 2022
Initially we sought stakeholder engagement and buy-in from our leaders and influencers.

Q2 2022 and throughout 2022
Our high-profile campaign launched across all channels and workplaces globally, with a consistent use of our new inclusion narrative used throughout.
Including:
- launching our 2022 Group mandatory learning, including a module on microaggressions.
- a website page to enable colleagues to access many of our communications from their own devices.
- a new 'being included' video to engage hearts and minds.
- refreshed 'leading inclusively' resources in our digital leadership toolkit to enable self-led learning.

Section 172 and stakeholder engagement

Storytelling from our people
Storytelling from our people was also a core part of the campaign. We launched the campaign alongside a thought-leader session for our senior leaders on the power of inclusion and an expectation to lead inclusively.

Outcome-led approach
Our goal was to reach everyone, everywhere.

Our people and leaders understand and demonstrate the inclusive behaviours we expect of everyone.

Our external talent audiences understand how vital inclusion is to us, who we are and what we stand for.

Highlights
- A global internal and external campaign that focused attention and action across all business units, regions and sites.
- Prominent on our global communications channels and in our workplaces from May 2022.
- Built to reach the hard to reach (shop floor) enabling leaders, starting conversations, engaging and changing behaviours.
- An increase in our inclusion measure using our engagement survey (powered by Gallup).
- Understood and prioritised by our leaders as part of our ELG conference in June.
- Supported by a new global inclusion policy and mandatory learning (microaggressions).
- Sustained later in 2022 by our refreshed inclusion strategy.

Impact of the Russia-Ukraine conflict on procurement
Most components which go into an engine are bought from our suppliers. Power Systems has established a worldwide supply chain with 130 main suppliers (direct material) with a spend of approximately €1.4bn during 2022 (equalling 80% of the total direct material spend). This spend is managed by an international team of procurement and supply chain experts, located globally.

Strong risk management system
- Due to rising tensions prior to the conflict starting in 2022, Power Systems' risk management indicated a high risk from Ukraine suppliers and built up second sources for Ukraine-based suppliers.
- After qualification of the parts, procurement could guarantee the supply of parts through several independent sources, enabling Power Systems to run the assembly without any interruption during the conflict.

Supplier events
- Power Systems hosted two supplier expos during 2022, built around critical importance across the supply chain, possible gas and power shortages, the drive for zero defects and CO_2 reduction. Special focus was given to military rising demands and to securing the supply chain.
- At the beginning of 2022, Power Systems held an event to recognise their best suppliers.

RRH Board engagement
- During March, the RRH Board discussed the direct and indirect impact on the supply chain taking into account the situation in Russia and cost inflation pressure on margins.
- During May, the RRH Board discussed scenario planning around targeted sanctions and the proposed impact on non-sanctioned Power Systems customers.
- In September, the RRH Board received an update on the strong order position with customers making advance deposit payments to secure orders.

Collaboration
- To protect the supply chain from unforeseen difficulties, Power Systems require the supply chain to reduce gas dependencies and therefore require regular progress reports to get an overview of existing risk.
- A total of 146 European suppliers were contacted regarding potential energy and gas shortages. These included the top 60 suppliers as well as the energy-intensive suppliers. To minimise the risk, further evaluations were made regarding dual sourcing.
- Regular management meetings were held with key suppliers to secure the supply chain, strategic partnerships and capacity to cover order increase in Power Systems during 2023.

Improvement project
- The purpose was to stabilise the supply chain processes. It was a cross-Group effort, including logistics, quality and procurement to make the business more resilient and to focus all suppliers on supply chain resilience.
- State-of-the-art software solutions were implemented to allow Power Systems to detect supply chain risks at an early stage. Solutions included real time information for buyers and management, together with an established risk monitoring process.

Unnati STEM programmes in India
The Hindi word 'Unnati' means development and our Unnati community programmes aim to develop science, technology, engineering and maths (STEM) talent in India and increase diversity in these fields. Working with expert partners, we have identified social and economic barriers that prevent girls and women participating in STEM careers. We have developed a programme to address these barriers.

Developing Unnati Wings4Her
- Identified key societal issues with Charities Aid Foundation, India within the context of the STEM KPI which is to inspire 25 million of tomorrow's pioneers by 2030.
- Developed and funded pilot Wings4Her programme with four schools in Delhi during 2021 and 2022.
- Group charitable contributions and social sponsorships committee monitored progress.
- Pilot programme evaluated in partnership with Charities Aid Foundation, India.
- Wings4Her impact assessed against charitable contributions and social sponsorship policy criteria.
- Approved proposal to extend Wings4Her programme to Bangalore in 2023.
- Included in the annual review of community engagement by the RRH Safety, Ethics & Sustainability Committee.

Section 172 and stakeholder engagement

Social and economic factors

- Unnati Wings4Her was designed to bridge the gap in STEM education to empower girls facing social and economic challenges.
- Lack of study support to help girls through the tough level of high-school studies discourages many from continuing with STEM subjects.
- Financially disadvantaged families discontinue girls' education or lack resources to prepare them for competitive exams for undergraduate STEM courses.
- A lack of awareness of the variety of STEM careers drives the perception that these are unsuitable for girls.
- Crucial support from families to pursue STEM career ambitions can be lacking.

Interventions and success data

Wings4Her provides targeted support to make STEM studies more equitable. The pilot programme in four government schools in Delhi, working with 100 girls, resulted in 30% of the girls going on to study at under-graduate level, as well as scholarship support for 20 students to further their STEM studies. The programme included:

- career guidance to increase aspiration and enable informed choices.
- workshops for parents to create positive support for their daughters' career ambitions.
- scholarships for under-graduate study to enable continuing education.

RRH Board and committee engagement

- The RRH Board received an update on progress of the STEM programme more generally.
- The RRH Safety, Ethics & Sustainability Committee received an update on the STEM programmes in India, including Wings4Her and scholarships.
- The RRH Safety, Ethics & Sustainability Committee discussed the Wings4Her programme in light of the theory of societal change and received updates from the team on how these programmes align with national and governmental initiatives in India.

Strategic Report approved by the Board on 23 February 2023 and signed on its behalf by:

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Panos Kakoullis

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 2022.

Directors

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

Current Directors

Panos Kakoullis, Chief Financial Officer

Appointed 1 January 2023:
Tufan Erginbilgic, Chief Executive

Former Directors

Stepped down 31 December 2022:
Warren East, Chief Executive

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 its subsidiaries and for their directors and officers.

Dividends

The Directors do not recommend the payment of a dividend (2021: £nil).

Corporate governance

The Directors are responsible for the direction, management, performance and long-term sustainable success of the Company. The Board of RRH sets the Group's strategy and objectives and oversees and monitors internal controls, risk management, principal risks, governance and viability of the Group. It has established certain principal committees to assist in fulfilling its oversight responsibilities, providing dedicated focus on particular areas. RRH 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 RRH's compliance with the Code and the Group's policies, procedures and governance framework are set out in the RRH Annual Report 2022.

Risk management and internal control

The RRH Audit Committee oversees the Group's financial reporting, considering key accounting judgements and estimates; disclosures; compliance with regulations; and whether the Annual Report is fair, balanced and understandable. The RRH Audit Committee also monitors the effectiveness of the Group's risk management and internal control environment.

In addition, the RRH Audit 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 RRH Audit Committee spends much of its time reviewing the accounting policies and judgements implicit in the Group's financial results. In 2022, in addition to its scheduled workload, the RRH Audit Committee focused on the impact of the Russia-Ukraine conflict and the ongoing macro-economic challenges that exist globally. In particular, the RRH Audit Committee considered the implications of these circumstances on the Group's assumptions and key accounting judgements, including the recovery of Civil Aerospace engine flying hours, inflationary assumptions and discount rates. The RRH Audit Committee also reviewed the accounting judgements associated with the disposal of ITP Aero in September 2022. In addition, during 2022, the impact of the Group's climate strategy on the assumptions and scenarios used by management was considered.

The Directors have ensured that the disclosures in respect of all key areas of judgement are appropriate and balanced. They have continued to assess and consider the sensitivity of the estimates to changes in key assumptions which are summarised in note 1 of the Consolidated Financial Statements on page 55.

A summary of the principal matters considered by the RRH Audit Committee in respect of the 2022 Consolidated Financial Statements is set out below.

Area of focus	**Considerations**
Alternative Performance Measures (APMs)	Consistent with previous years, the RRH Audit Committee reviewed the clarity of the definitions and the reconciliation of each APM to its statutory equivalent. It concluded that there was no undue prominence of the APMs in this report. See page 158 for a reconciliation of APMs to their statutory equivalents.
Long-term contract accounting	The RRH Audit Committee considered the assessment of estimates of future revenue and costs on the Group's complex, long-term contractual arrangements. This has continued to be a particular focus for the Committee due to the impact of changing macro-economic conditions, in particular on our Civil Aerospace business. As part of our considerations, we reviewed onerous contracts and the carrying value and recoverability of tangible and intangible assets. We reviewed the disclosures and concluded these, together with the assessments, were appropriate. See note 1 in the Consolidated Financial Statements.
Deferred tax assets	The RRH Audit Committee discussed the recoverability of deferred tax assets and the forecasts, assumptions and sensitivities applied in order to ascertain the recoverability of the deferred tax assets. It discussed the basis for the recognition of the UK deferred tax assets and considered the judgements and estimates necessary to assess the recoverability of the UK deferred tax assets. The RRH Audit Committee confirmed the approach, which remained consistent with that taken in 2021, together with the disclosures set out in note 1 to the Consolidated Financial Statements.

Corporate Governance

Impact of climate change	The approach taken by management to assess the impact of climate change, the conclusions reached and the disclosures presented have been reviewed by the RRH Audit Committee, including considering the related TCFD recommendations. This included understanding and challenging the assumptions in the climate scenarios used by management to sensitise forecasts in respect of going concern, viability, long-term contract accounting, impairment assessments and deferred tax asset recognition. See note 1 in the Consolidated Financial Statements.
Sales of spare engines	Throughout the year, the RRH Audit Committee kept under review the assessment of whether the sales of spare engines, either to related or third parties, represented a sale and was at fair value. The Committee challenged management on the approach, the accounting and the reporting of these transactions.
Accounting for complex treasury instruments	The RRH Audit Committee considered numerous topics in relation to the complex treasury instruments including the GBP:USD hedge book and associated hedge book rates, the long term planning rate used by management beyond the hedge book period, and the deal contingent forward foreign exchange contracts entered into to hedge the proceeds from the ITP disposal. This included understanding and challenging management on the assumptions, the approach, the accounting and reporting.

Risk management and the internal control environment

The Executive Team focused on the effectiveness of risk mitigation, understanding our appetite for taking many of the risks as described on page 27, including in respect of business continuity activities following consideration of the lessons learned as a result of COVID-19 and more recent challenges caused by the Russia-Ukraine conflict. The Executive Team will continue to focus on risk mitigation effectiveness and risk appetite in 2023, embedding these more firmly as part of our routine processes and decision making, including in relation to strategic planning.

The Executive Team also satisfied itself that the processes for identifying and managing risks are appropriate and that all principal risks and mitigating actions had been subject, during the year, to a detailed review. Based on this and on its other activities, including consideration of the work of internal and external audit and attendance at the RRH Audit Committee by business and functional risk owners, the RRH Audit Committee reported to the RRH Board that a robust assessment of the principal risks and emerging risks facing RRH and the Group had been undertaken. Details of our principal risks are set out on pages 27 to 33.

Internal financial control

The RRH Audit Committee specifically reviews the Group's internal financial controls. During 2022, 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. It monitored progress against the 2022 financial controls programme to strengthen the financial reporting and compliance controls. It confirmed completion of identified key activities. It also considered the external auditor's observations on the financial control environment.

Effectiveness of risk management and internal control systems

The RRH Audit 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. Where opportunities for improvement were identified, action plans have been put in place and progress is monitored by the RRH Audit Committee.

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 working including, wherever possible, making adjustments to ways of working.

Employee engagement

We believe that highly engaged colleagues fuel business performance and that engagement is driven by leadership, a clear purpose and an environment where everyone can be at their best. Engagement is a key measure in our annual leadership incentive plans. Furthermore, we believe that listening to our colleagues provides opportunities to hear about what we do well and what areas we need to focus on and do better. Gallup became our employee engagement partner in 2019 and we outlined our ambition to achieve a grand mean (overall average) score of 3.97 by the end of 2023. Our 2022 results keep us on track to achieve this ambition as we achieved a 75% participation rate and a grand mean score of 3.85. This meaningful increase of +0.12 since 2021 represents our third consecutive year of sustained improvement (+0.32 since 2019).

We provide a variety of channels for communication and engagement including interactive learning sessions, newsletters and team briefings, as well as digital communication channels such as Yammer. We work closely with colleagues, elected employee representatives and with our employee resource groups (ERGs) to ensure we remain connected with our people. The ERGs are groups of colleagues organised primarily around a specific characteristic or life experience who provide personal and professional support to each other and run events for all to raise awareness of key issues and to help everyone to focus on inclusion.

In 2022, we held multiple leader-led sessions with our employees. Topics included our financial results, incentives, pay, wellbeing and inclusion. Our Executive Team also held regular virtual conversations (Teams Talks) where colleagues globally participated in live Q&A.

Financial instruments and risk management

Details of financial instruments and risk management are set out in note 19 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 25 to the Consolidated Financial Statements.

Disclosures in the Strategic Report

The Directors have 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;
- research and development activities; and
- engagement with suppliers, customers and others.

Disclosures in the Rolls-Royce Holdings plc Annual Report

The following disclosures are provided in the Company's parent entity annual report:

- greenhouse gas emissions (page 200 of RRH Annual Report 2022); and
- political donations (page 209 of RRH Annual Report 2022).

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.

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 UK-adopted international accounting standards and the Company Financial Statements in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 Reduced Disclosure Framework, and applicable law).

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

- select suitable accounting policies and then apply them consistently;
- state whether applicable UK-adopted international accounting standards have been followed for the Group Financial Statements and United Kingdom Accounting Standards, comprising FRS 101 have been followed for the Company Financial Statements, subject to any material departures disclosed and explained in the Financial Statements:
- make judgements and accounting estimates that are reasonable and prudent; and
- prepare the Financial Statements on the going concern basis unless it is inappropriate to presume that the Group and Company will continue in business.

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

The Directors are also responsible for keeping adequate accounting records that are sufficient to show and explain the Group's and Company's transactions and disclose with reasonable accuracy at any time the financial position of the Group and Company and enable them to ensure that the Financial Statements and the Directors' Remuneration Report comply with the Companies Act 2006.

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

Directors' confirmations

The Directors consider that the Annual Report and Accounts, taken as a whole, is fair, balanced and understandable and provides the information necessary for shareholders to assess the Group's and 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 their knowledge:

- the Group Financial Statements, which have been prepared in accordance with UK-adopted international accounting standards, give a true and fair view of the assets, liabilities, financial position and loss of the Group;
- the Company Financial Statements, which have been prepared in accordance with United Kingdom Accounting Standards, comprising FRS 101, give a true and fair view of the assets, liabilities and financial position of the Company; and
- the Strategic Report includes a fair review of the development and performance of the business and the position of the Group and Company, together with a description of the principal risks and uncertainties that it faces.

In the case of each Director in office at the date the Directors' Report is approved:

- so far as the Director is aware, there is no relevant audit information of which the Group's and Company's auditors are unaware; and
- they have taken all the steps that they ought to have taken as a Director in order to make themselves aware of any relevant audit information and to establish that the Group's and Company's auditors are aware of that information.

Directors' Report approved by the Board on 23 February 2023 and signed on its behalf by:

....

Panos Kakoullis

Director

Consolidated Financial Statements

Primary statements

Notes to the Consolidated Financial Statements

Company Financial Statements

Primary statements

Notes to the Company Financial Statements

CONSOLIDATED INCOME STATEMENT

For the year ended 31 December 2022

	Notes	2022 £m	2021 £m
Continuing operations			
Revenue	2	**13,520**	11,218
Cost of sales [1]		**(10,763)**	(9,082)
Gross profit	2	**2,757**	2,136
Commercial and administrative costs	2	**(1,077)**	(890)
Research and development costs	2, 3	**(891)**	(778)
Share of results of joint ventures and associates	11	**48**	45
Operating profit		**837**	513
Gain arising on disposal of businesses	26	**81**	56
Profit before financing and taxation		**918**	569
Financing income	4	**355**	229
Financing costs [2]	4	**(2,775)**	(1,092)
Net financing costs		**(2,420)**	(863)
Loss before taxation		**(1,502)**	(294)
Taxation	5	**308**	418
(Loss)/profit for the year from continuing operations		**(1,194)**	124
Discontinued operations			
Profit for the year from ordinary activities	26	**68**	36
Costs of disposal of discontinued operations	26	**-**	(39)
Loss on disposal of discontinued operations	26	**(148)**	-
Loss for the year from discontinued operations		**(80)**	(3)
(Loss)/profit for the year		**(1,274)**	121
Attributable to:			
Ordinary shareholders		**(1,269)**	120
Non-controlling interests (NCI)		**(5)**	1
(Loss)/profit for the year		**(1,274)**	121
Other comprehensive income		**522**	41
Total comprehensive (expense)/income for the year		**(752)**	162

[1] Cost of sales includes a net charge for expected credit losses of £73m (2021: £78m). Further details can be found in note 13

[2] Included within financing costs are fair value changes on derivative contracts. Further details can be found in notes 2, 4 and 19

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2022

	Notes	2022 £m	2021 £m
(Loss)/profit for the year		**(1,274)**	121
Other comprehensive income/(expense) (OCI)			
Actuarial movements on post-retirement schemes	21	**(156)**	254
Revaluation to fair value of other investments	11	**(4)**	(2)
Share of OCI of joint ventures and associates	11	**2**	1
Related tax movements	5	**89**	(79)
Items that will not be reclassified to profit or loss		**(69)**	174
Foreign exchange translation differences on foreign operations		**452**	(178)
Foreign exchange translation differences reclassified to income statement on disposal of businesses	26	**65**	(1)
Hedging reserves reclassified to income statement on disposal of businesses	26	**111**	-
NCI disposed of on disposal of businesses	26	**1**	-
Movement on fair values charged to cash flow hedge reserve		**(7)**	(32)
Reclassified to income statement from cash flow hedge reserve [1]		**(55)**	39
Costs of hedging		**10**	-
Share of OCI of joint ventures and associates	11	**-**	44
Related tax movements	5	**14**	(5)
Items that will be reclassified to profit or loss		**591**	(133)
Total other comprehensive income		**522**	41
Total comprehensive (expense)/income for the year		**(752)**	162
Attributable to:			
Ordinary shareholders		**(748)**	161
NCI		**(4)**	1
Total comprehensive (expense)/income for the year		**(752)**	162
Total comprehensive (expense)/income for the year attributable to ordinary shareholders arises from:			
Continuing operations		**(673)**	278
Discontinued operations		**(75)**	(117)
Total comprehensive (expense)/income for the year attributable to ordinary shareholders		**(748)**	161

[1] Includes £(52)m loss on the deal contingent forward reclassified to loss on disposal in the same period as the hedged cash flow proceeds. Further detail can be found in note 19 and 26

CONSOLIDATED BALANCE SHEET

As at 31 December 2022

	Notes	2022 £m	2021 £m
ASSETS			
Intangible assets	8	**4,098**	4,041
Property, plant and equipment	9	**3,936**	3,917
Right-of-use assets	10	**1,061**	1,203
Investments – joint ventures and associates	11	**422**	404
Investments – other	11	**36**	36
Other financial assets	19	**542**	361
Deferred tax assets	5	**2,731**	2,249
Post-retirement scheme surpluses	21	**613**	1,148
Non-current assets		**13,439**	13,359
Inventories	12	**4,708**	3,666
Trade receivables and other assets	13	**7,271**	5,717
Contract assets	14	**1,481**	1,473
Taxation recoverable		**127**	90
Other financial assets	19	**141**	46
Short-term investments	19	**11**	8
Cash and cash equivalents	15	**2,607**	2,621
Current assets		**16,346**	13,621
Assets held for sale	26	**–**	2,028
TOTAL ASSETS		**29,785**	29,008
LIABILITIES			
Borrowings and lease liabilities	16	**(358)**	(279)
Other financial liabilities	19	**(992)**	(664)
Trade payables and other liabilities	18	**(6,983)**	(6,017)
Contract liabilities	14	**(4,825)**	(3,599)
Current tax liabilities		**(104)**	(101)
Provisions for liabilities and charges	20	**(632)**	(475)
Current liabilities		**(13,894)**	(11,135)
Borrowings and lease liabilities	16	**(5,597)**	(7,497)
Other financial liabilities	19	**(3,230)**	(2,715)
Trade payables and other liabilities	18	**(2,364)**	(1,575)
Contract liabilities	14	**(7,337)**	(6,710)
Deferred tax liabilities	5	**(286)**	(451)
Provisions for liabilities and charges	20	**(1,701)**	(1,107)
Post-retirement scheme deficits	21	**(1,033)**	(1,373)
Non-current liabilities		**(21,548)**	(21,428)
Liabilities associated with assets held for sale	26	**–**	(723)
TOTAL LIABILITIES		**(35,442)**	(33,286)
NET LIABILITIES		**(5,657)**	(4,278)
EQUITY			
Called-up share capital	22	**338**	338
Share premium		**631**	631
Hedging reserves		**26**	(45)
Merger reserve		**–**	650
Translation reserve		**861**	342
Accumulated losses		**(7,547)**	(6,220)
Equity attributable to ordinary shareholders		**(5,691)**	(4,304)
NCI		**34**	26
TOTAL EQUITY		**(5,657)**	(4,278)

The Financial Statements on pages 45 to 112 were approved by the Board on 23 February 2023 and signed on its behalf by:

Tufan Erginbilgic
Chief Executive

Panos Kakoullis
Chief Financial Officer

CONSOLIDATED CASH FLOW STATEMENT
For the year ended 31 December 2022

	Notes	2022 £m	2021 £m
Reconciliation of cash flows from operating activities			
Operating profit from continuing operations		**837**	513
Operating profit/(loss) from discontinued operations	26	**86**	(43)
Operating profit		**923**	470
Loss on disposal of property, plant and equipment		**18**	9
Share of results of joint ventures and associates	11	**(48)**	(45)
Dividends received from joint ventures and associates	11	**73**	27
Amortisation and impairment of intangible assets	8	**287**	290
Depreciation and impairment of property, plant and equipment	9	**430**	462
Depreciation and impairment of right-of-use assets	10	**287**	257
Adjustment of amounts payable under residual value guarantees within lease liabilities [1]	17	**(3)**	(4)
Impairment of and other movements on investments	11	**75**	7
Decrease in provisions		**(197)**	(394)
Increase in inventories		**(887)**	(169)
Movement in trade receivables/payables and other assets/liabilities		**(58)**	(506)
Movement in contract assets/liabilities		**1,753**	(134)
Financial penalties paid [2]		**-**	(156)
Cash flows on other financial assets and liabilities held for operating purposes [3]		**(660)**	(85)
Interest received		**36**	9
Net defined benefit post-retirement cost recognised in profit before financing	21	**27**	23
Cash funding of defined benefit post-retirement schemes	21	**(81)**	(162)
Share-based payments	23	**48**	28
Net cash inflow/(outflow) from operating activities before taxation		**2,023**	(73)
Taxation paid		**(174)**	(185)
Net cash inflow/(outflow) from operating activities		**1,849**	(258)
Cash flows from investing activities			
Movement in other investments	11	**(5)**	(26)
Additions of intangible assets		**(237)**	(231)
Disposals of intangible assets	8	**8**	5
Purchases of property, plant and equipment		**(359)**	(328)
Disposals of property, plant and equipment		**48**	61
Disposal of businesses	26	**1,398**	99
Movement in investments in joint ventures and associates	11	**(24)**	–
Movement in short-term investments		**(3)**	(8)
Net cash inflow/(outflow) from investing activities		**826**	(428)
Cash flows from financing activities			
Repayment of loans [4]		**(2,024)**	(965)
Proceeds from increase in loans		**1**	2,005
Capital element of lease payments		**(218)**	(374)
Net cash flow from (decrease)/increase in borrowings and leases		**(2,241)**	666
Interest paid		**(235)**	(206)
Interest element of lease payments		**(68)**	(63)
Fees paid on undrawn facilities		**(49)**	(62)
Cash flows on settlement of excess derivative contracts [5]	4	**(326)**	(452)
Transactions with NCI [6]		**57**	30
NCI on formation of subsidiary		**-**	3
Dividends to NCI		**(3)**	(1)
Movement on balances with parent company		**-**	(4)
Net cash outflow from financing activities		**(2,865)**	(89)
Change in cash and cash equivalents		**(190)**	(775)
Cash and cash equivalents at 1 January		**2,639**	3,496
Exchange gains/(losses) on cash and cash equivalents		**156**	(82)
Cash and cash equivalents at 31 December [7]		**2,605**	2,639

1 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. To the extent that 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

2 Relates to penalties paid on agreements with investigating bodies

3 Predominately relates to cash settled on derivative contracts held for operating purposes

4 *Repayment of loans includes repayments of £2,000m relating to the loan supported by an 80% guarantee from UK Export Finance. Further details are provided in note 16*

5 During the year, the Group incurred a cash outflow of £326m (2021: £452m) as a result of settling foreign exchange contracts that were originally in place to sell $2,200m (2021: $3,184m) receipts. Further detail is provided in note 4

6 Relates to NCI investment received in the year, in respect of Rolls-Royce SMR Limited

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*

In deriving the consolidated cash flow statement, movement in balance sheet items have been adjusted for non-cash items. The cash flow in the year includes the sale of goods and services to joint ventures and associates – see note 25.

CONSOLIDATED CASH FLOW STATEMENT

For the year ended 31 December 2022

	2022 £m	2021 £m
Reconciliation of movements in cash and cash equivalents to movements in net debt		
Change in cash and cash equivalents	**(190)**	(775)
Cash flow from decrease/(increase) in borrowings and leases	**2,241**	(666)
Less: settlement of related derivatives included in fair value of swaps below	**-**	6
Cash flow from increase in short-term investments	**3**	8
Change in net debt resulting from cash flows	**2,054**	(1,427)
New leases and other non-cash adjustments on borrowings and lease liabilities	**(170)**	(86)
Exchange losses on net debt	**(150)**	(51)
Fair value adjustments	**70**	170
Debt disposed of on disposal of businesses	**53**	8
Reclassifications	**-**	19
Movement in net debt	**1,857**	(1,367)
Net debt at 1 January	**(5,194)**	(3,827)
Net debt at 31 December excluding the fair value of swaps	**(3,337)**	(5,194)
Fair value of swaps hedging fixed rate borrowings	**86**	37
Net debt at 31 December	**(3,251)**	(5,157)

CONSOLIDATED CASH FLOW STATEMENT

For the year ended 31 December 2022

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

	At 1 January £m	Funds flow £m	Net funds on disposal £m	Exchange differences £m	Fair value adjustments £m	Reclassifications[1] £m	Other movements £m	At 31 December £m
2022								
Cash at bank and in hand	**795**	**17**	**–**	**35**	**–**	**–**	**–**	**847**
Money market funds	**49**	**(15)**	**–**	**–**	**–**	**–**	**–**	**34**
Short-term deposits	**1,777**	**(171)**	**–**	**120**	**–**	**–**	**–**	**1,726**
Cash and cash equivalents (per balance sheet)	**2,621**	**(169)**	**–**	**155**	**–**	**–**	**–**	**2,607**
Cash and cash equivalents included within assets held for sale	**25**	**(26)**	**–**	**1**	**–**	**–**	**–**	**–**
Overdrafts	**(7)**	**5**	**–**	**–**	**–**	**–**	**–**	**(2)**
Cash and cash equivalents (per cash flow statement)	**2,639**	**(190)**	**–**	**156**	**–**	**–**	**–**	**2,605**
Short-term investments	**8**	**3**	**–**	**–**	**–**	**–**	**–**	**11**
Other current borrowings	**(2)**	**2**	**–**	**(1)**	**–**	**–**	**–**	**(1)**
Non-current borrowings	**(6,023)**	**2,000**	**–**	**(125)**	**72**	**–**	**(29)**	**(4,105)**
Borrowings included within liabilities held for sale	**(59)**	**21**	**40**	**–**	**(2)**	**–**	**–**	**–**
Lease liabilities	**(1,744)**	**217**	**–**	**(179)**	**–**	**–**	**(141)**	**(1,847)**
Lease liabilities included within liabilities held for sale	**(13)**	**1**	**13**	**(1)**	**–**	**–**	**–**	**–**
Financial liabilities	**(7,841)**	**2,241**	**53**	**(306)**	**70**	**–**	**(170)**	**(5,953)**
Net debt excluding the fair value of swaps	**(5,194)**	**2,054**	**53**	**(150)**	**70**	**–**	**(170)**	**(3,337)**
Fair value swaps hedging fixed rate borrowings[2]	**37**	**–**	**–**	**125**	**(76)**	**–**	**–**	**86**
Net debt	**(5,157)**	**2,054**	**53**	**(25)**	**(6)**	**–**	**(170)**	**(3,251)**
2021								
Cash at bank and in hand	940	(87)	–	(20)	–	(38)	–	795
Money market funds	669	(620)	–	–	–	–	–	49
Short-term deposits	1,843	–	–	(66)	–	–	–	1,777
Cash and cash equivalents (per balance sheet)	3,452	(707)	–	(86)	–	(38)	–	2,621
Cash and cash equivalents included within assets held for sale	51	(68)	–	4	–	38	–	25
Overdrafts	(7)	–	–	–	–	–	–	(7)
Cash and cash equivalents (per cash flow statement)	3,496	(775)	–	(82)	–	–	–	2,639
Short-term investments	–	8	–	–	–	–	–	8
Other current borrowings	(1,006)	950	–	1	35	18	–	(2)
Non-current borrowings	*(4,274)*	*(2,002)*	–	*38*	*136*	*88*	*(9)*	*(6,023)*
Borrowings included within liabilities held for sale	–	18	–	1	(1)	(77)	–	(59)
Lease liabilities	(2,043)	370	–	(9)	–	15	(77)	(1,744)
Lease liabilities included within liabilities held for sale	–	4	8	–	–	(25)	–	(13)
Financial liabilities	(7,323)	(660)	8	31	170	19	(86)	(7,841)
Net debt excluding fair value swaps	(3,827)	(1,427)	8	(51)	170	19	(86)	(5,194)
Fair value swaps hedging fixed rate borrowings[2]	251	(6)	–	(35)	(173)	–	–	37
Net debt	(3,576)	(1,433)	8	(86)	(3)	19	(86)	(5,157)

[1] Reclassifications during the year to 31 December 2021 included the transfer of ITP Aero to held for sale and fees of £29m paid in previous periods for the £2,000m loan (supported by an 80% guarantee from UK Export Finance) that have been reclassified to borrowings on the draw down of the facility during the prior period

[2] 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 (2022: £38m, 2021: £114m) and the element of fair value relating to exchange differences on the underlying principal of derivatives in cash flow hedges (2022: £48m, 2021: £(77)m)

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2022

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.

Hedging reserves – Cumulative gains and losses on hedging instruments deemed effective in cash flow hedges and cost of hedging reserve.

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.

		Attributable to ordinary shareholders								
	Notes	Share capital £m	Share premium £m	Hedging reserves [1] £m	Merger reserve £m	Translation reserve £m	Accumulated losses £m	Total £m	NCI £m	Total equity £m
At 31 December 2021 as previously reported		338	631	(45)	650	342	(6,220)	(4,304)	26	(4,278)
Adoption of amendment to IAS 37 (post-tax)	1	–					(729)	(729)	–	(729)
At 1 January 2022		**338**	**631**	**(45)**	**650**	**342**	**(6,949)**	**(5,033)**	**26**	**(5,007)**
Loss for the year		–	–	–	–	–	**(1,269)**	**(1,269)**	**(5)**	**(1,274)**
Foreign exchange translation differences on foreign operations		–	–	–	–	**452**	–	**452**	–	**452**
Hedging reserves reclassified to income statement on disposal of businesses	26	–	–	**111**	–	–	–	**111**	–	**111**
Foreign exchange translation differences reclassified to income statement on disposal of businesses	26	–	–	–	–	**65**	–	**65**	–	**65**
NCI disposed of on disposal of businesses	26	–	–	–	–	–	–	–	**1**	**1**
Actuarial movements on post-retirement schemes	21	–	–	–	–	–	**(156)**	**(156)**	–	**(156)**
Movement on fair value of cash flow hedges		–	–	**(7)**	–	–	–	**(7)**	–	**(7)**
Reclassified to income statement from cash flow hedge reserve		–	–	**(55)**	–	–	–	**(55)**	–	**(55)**
Cost of hedging		–	–	**10**	–	–	–	**10**	–	**10**
Revaluation to fair value of other investments	11	–	–	–	–	–	**(4)**	**(4)**	–	**(4)**
OCI of joint ventures and associates	11	–	–	–	–	–	**2**	**2**	–	**2**
Related tax movements	5	–	–	**12**	–	**2**	**89**	**103**	–	**103**
Total comprehensive income/(expense) for the year		–	–	**71**	–	**519**	**(1,338)**	**(748)**	**(4)**	**(752)**
Share-based payments – direct to equity [2]		–	–	–	–	–	**47**	**47**	–	**47**
Dividends to NCI		–	–	–	–	–	–	–	**(3)**	**(3)**
Transactions with NCI [3]		–	–	–	–	–	**42**	**42**	**15**	**57**
NCI on formation of subsidiary		–	–	–	–	–	–	–	–	–
Transfer to realised profit [4]		–	–	–	**(650)**	–	**650**	–	–	–
Related tax movements	5	–	–	–	–	–	**1**	**1**	–	**1**
Other changes in equity in the year		–	–	–	**(650)**	–	**740**	**90**	**12**	**102**
At 31 December 2022		**338**	**631**	**26**	–	**861**	**(7,547)**	**(5,691)**	**34**	**(5,657)**
At 1 January 2021		338	631	(94)	650	524	(6,588)	(4,539)	22	(4,517)
Profit for the year		–	–	–	–	–	120	120	1	121
Foreign exchange translation differences on foreign operations		–	–	–	–	(178)	–	(178)	–	(178)
Foreign exchange translation differences classified to income statement on disposal of businesses		–	–	–	–	(1)	–	(1)	–	(1)
Actuarial movements on post-retirement schemes	21	–	–	–	–	–	254	254	–	254
Movement on fair value of cash flow hedges		–	–	(32)	–	–	–	(32)	–	(32)
Reclassified to income statement from cash flow hedge reserve		–	–	39	–	–	–	39	–	39
Revaluation to fair value of other investments	11	–	–	–	–	–	(2)	(2)	–	(2)
OCI of joint ventures and associates	11	–	–	44	–	–	1	45	–	45
Related tax movements	5	–	–	(2)	–	(3)	(79)	(84)	–	(84)
Total comprehensive income/(expense) for the year		–	–	49	–	(182)	294	161	1	162
Share-based payments – direct to equity [2]		–	–	–	–	–	28	28	–	28
Dividends to NCI		–	–	–	–	–	–	–	(1)	(1)
Transactions with NCI [3]		–	–	–	–	–	29	29	1	30
NCI on formation of subsidiary		–	–	–	–	–	–	–	3	3
Related tax movements	5	–	–	–	–	–	17	17	–	17
Other changes in equity in the year		–	–	–	–	–	74	74	3	77
At 31 December 2021		338	631	(45)	650	342	(6,220)	(4,304)	26	(4,278)

1 Hedging reserves include the cash flow hedge reserve of £26m and the cost of hedging reserve of £nil. During the year, costs of hedging of £10m were recognised and reclassified to the income statement

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

3 Relates to NCI investment received in the year in respect of Rolls-Royce SMR Limited.

4 On disposal of ITP Aero on 15 September 2022, the premium recognised on issue of shares for the previous acquisition became realised on receipt of qualifying consideration. As such, the total merger reserve has been transferred to accumulated losses

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 2022 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 113 to 139 with the associated accounting policies from page 115.

The Consolidated Financial Statements have been prepared in accordance with UK adopted International Accounting Standards (IAS) in conformity with the requirements of Companies Act 2006 and interpretations issued by the IFRS Interpretations Committee (IFRS IC) applicable to companies reporting under UK adopted IFRS.

The Consolidated Financial Statements have been prepared on a going concern basis as described on page 34. 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 the 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

The Directors have undertaken a comprehensive going concern review. In adopting the going concern basis for preparing these Consolidated Financial Statements, the Directors have undertaken a review of the Group's cash flow forecasts and available liquidity, along with consideration of the principal risks and uncertainties over an 18-month period to August 2024. Recognising the challenges of reliably estimating and forecasting the impact of external factors on the Group, the Directors have considered two forecasts in the assessment of going concern, along with a likelihood assessment of these forecasts, being:

- base case, which reflects the Directors' current expectations of future trading of a steady and ongoing recovery of trading towards pre-pandemic levels; and
- severe but plausible downside forecast, which envisages a 'stress' or 'downside' situation.

The future impact of climate change on the Group has been considered through climate scenarios. The climate scenarios modelled do not have a material impact on the cash flow forecasts over the 18-month period to August 2024.

Further details are given in the going concern review on page 34. After reviewing the current liquidity position and the cash flow forecasts modelled under both the base case and stressed downside, the Directors consider that the Group has sufficient liquidity to continue in operational *existence for a period of at least 18 months from the date of this report and are therefore satisfied that it is appropriate to adopt the going concern* basis of accounting in preparing the Consolidated Financial Statements.

Climate change

In preparing the Consolidated Financial Statements the Directors have considered the potential impact of climate change, particularly in the context of the disclosures included in the Strategic Report and Climate Review this year and the stated decarbonisation strategy. Based on the Taskforce for Climate-related Financial Disclosures (TCFD) recommendations, the Group assesses the potential impact of climate-related risks which cover both transition risks and physical risks. The eight key risks and the opportunities considered in the climate scenarios prepared include extensive policy, legal, technological, and market changes and physical risks which could include direct damage to assets and supply chain disruption. Two of the assessed key transition risks have been identified as potentially having a high impact on the Group. These relate to the risk that regulatory changes could materially impact demand for our products and that addressing climate change will require shifting investment focus towards more sustainable products and solutions. Both of these risks are being actively addressed through the Group's decarbonisation strategy and the financial implications, as reflected in the quantified climate scenarios, have been considered when preparing the financial statements.

The Group has set its decarbonisation strategy and identified longer-term considerations in response to the climate challenge and is engaging proactively with external stakeholders to advocate for the conditions that society needs to achieve its net zero target. The Group's main short- and longer-term priorities include:

- achieving net zero greenhouse gas (GHG) emissions by 2030 from all energy purchased and consumed in the Group's offices, manufacturing and production activities (with the exception of product testing and development). This will be met through continued investment in onsite renewable energy installations; the procurement of renewable energy; and continued investment in energy efficiency improvements to reduce the Group's overall energy demands and operating costs. An estimate of the investment required to meet these scope 1 and 2 emission improvements is included in the forecasts that support these Consolidated Financial Statements;
- the scale up of sustainable fuels that will play a crucial role in reaching net zero carbon. To accelerate this, the Group are working to demonstrate that all the commercial aero engines produced, and the most popular reciprocating engines, representing 80% of the product portfolio, are compatible with sustainable fuels by the end of 2023 and working with our armed forces customers to achieve the same goals for the Rolls-Royce engines they use; and

1 Accounting policies

Climate change (continued)

- developing breakthrough new technologies, including investment in hybrid-electric solutions in Power Systems, continued development of the more efficient UltraFan aero engine, testing of sustainable aviation fuels, small modular reactors (SMRs) and hybrid and fully electric propulsion. New products will be compatible with net zero operation by 2030 and all products will be compatible with net zero operation by 2050. In the year, R&D costs of £(108)m (2021: £(68)m) within New Markets included design development to ready the SMRs to progress through the UK GDA process and investment in electrical propulsion technology. Future investment required to deliver these technologies is included in the forecasts that support the Consolidated Financial Statements.

The climate change scenarios previously prepared to assess the viability of our business strategy, decarbonisation plans and approach to managing climate-related risk have continued to develop over the last year as set out in our Climate Review. There remains inherent uncertainty over the assumptions used within these and how they will impact the Group's business operations, cash flows and profit projections. The Directors assess the assumptions on a regular basis to ensure that they are consistent with the risk management activities and the commitments made to investors and other stakeholders.

Assumptions used within the Consolidated Financial Statements in relation to areas such as revenue recognition for long-term contracts, impairment reviews of non-current assets and the carrying amount of deferred tax assets consider the findings from the climate scenarios prepared. Key variables include carbon pricing based on the IAE Net Zero scenario, which assumes an increase from $46 per tonne of carbon in 2022 to $250 per tonne in 2050, and commodity price, temperature rise and GDP information from the Oxford Economics Global Climate Service Net Zero scenario aligned to IPCC SSP1-19.

As details of what incremental specific future intervention measures will be taken by governments are not yet available, carbon pricing has been used to quantify the potential impact of future policy changes on the Group. To ensure revenue recognition or the carrying value of assets is not overstated it has been assumed that carbon pricing falls on our own manufacturing facilities and those of our supply chain. The Group will be able to mitigate an element of the financial impact as it reduces the scope 1 and 2 emissions from its offices, manufacturing and production activities, the costs of which have been incorporated into forecasts. The Group has made estimates in relation to decarbonisation in its external supply chain and the impact this may have on the Group's costs, whilst acknowledging in its financial modelling that this is complex and will therefore take some time. The financial modelling performed recognises the extent to which the Group's current supplier contracts offer protection from cost increases in the short to medium term where pricing is fixed or subject to capped escalation clauses. The Group has made a cautious assessment of whether higher costs would be passed on to customers in the short and medium term that considers the markets operated in and the pricing mechanisms in place. For example, in Civil Aerospace it is recognised that escalation caps within a number of its long-term service arrangement (LTSA) contracts would be triggered, meaning additional costs could remain within the business under current commercial arrangements until the end of existing contract periods.

When determining the amount of cumulative revenue recognised on long-term contracts, and the obligation in relation to onerous contracts, the assumptions above have been used to reflect the climate uncertainties. Changes in estimates have not had a significant impact on revenue catch-ups in the year (2021: £(17)m) or on contract loss provisions (2021: £(20)m). Increases in carbon and commodity price estimates over the term of the current contracts are estimated to be around 1% (2021: 1%). A sensitivity is presented within the key sources of estimation uncertainty (page 57) to disclose the impact of a further 1% cost increase that might arise from further unmitigated increases in carbon and/or commodity pricing.

Impairment testing of non-current assets including goodwill and programme assets has considered the above risks as well as assessing how the Group's 1.5°C and 3.6°C scenarios may change the demand for products over the medium and longer term. Given the headroom, the climate scenarios modelled do not indicate any potential impairment. Further information is provided in note 8.

Deferred tax assets are recognised to the extent it is probable that future taxable profits will be available, against which the unused tax losses and deductible temporary difference can be utilised. The weighted downside forecast includes the climate-related estimates and assumptions. Whilst carbon pricing illustrates pressure on costs, decarbonisation and new supplier and customer contracts offer the opportunity to receive value for more efficient and sustainable products. Further details are included in note 5 together with sensitivity analysis in the key sources of estimation uncertainty section below.

The climate-related estimates and assumptions that have been considered to be key areas of judgement or sources of estimation uncertainty for the year ended 31 December 2022 are those relating to the recoverable amount of non-current assets including goodwill, capitalised development costs, recovery of deferred tax assets, recognition and measurement of provisions and recognition of revenue on long-term contracts. These items are included within the key areas of judgement and key sources of estimation uncertainty summarised on page 57 and explained in detail throughout the significant accounting policies.

Items that may be impacted by climate-related risks, but which are not considered to be key areas of judgements or sources of estimation uncertainty in the current financial year are outlined below:

Useful lives of assets – The useful lives of property, plant and equipment and right-of-use assets could be reduced by climate-related matters, for example, as a result of physical risks, obsolescence or legal restrictions. The change in useful lives would have a direct impact on the amount of depreciation or amortisation recognised each year from the date of reassessment. The Directors' review of useful lives has taken into consideration the impacts of the Group's decarbonisation strategy and has not had a material impact on the results for the year. The Directors have also considered the remaining useful economics lives of material intangible assets, including the £1,826m and £250m capitalised development spend associated with the Trent and business aviation programmes disclosed in note 8. Given the measures the Group is taking, including the testing of engines for sustainable aviation fuels (SAF) compatibility and that all the commercial aero-engines and the most popular reciprocating engines that are currently produced will be compatible with sustainable fuels by the end of 2023, the Directors judge that no adjustment is required to the useful economic lives.

Inventory valuation – Climate-related matters may affect the value of inventories as a result of a decline in selling prices or they could become obsolete due to a reduction in demand. After consideration of the typical stock-turns of the inventory in relation to the rate of change in the market the Directors consider that inventory is appropriately valued.

1 Accounting policies

Climate change (continued)

Recoverability of trade receivables and contract assets – The impact of climate-related matters could have an impact on the Group's customers in the future, especially those customers in the Civil Aerospace business. No material climate-related issues have arisen during the year that have impacted the assessment of the recoverability of receivables. The Group's expected credit loss (ECL) provision uses credit ratings which inherently will include the market's assessment of the climate change impact on credit risk of the counter parties. Given the maturity time of trade receivables and the majority of contract assets, climate change is unlikely to cause a material increase on counter party credit risk in that time.

Share-based payments – Remuneration packages will be impacted and measured against a new sustainability metric from the 2023 financial year. This could impact the future amount and timing of the recognition of the share-based payment expense in the income statement once these metrics are included within the performance condition criteria of the share-based payment plans. This change has had no impact on the 2022 financial statements and is unlikely to have a material impact on the charge recognised in the next 12 months.

Defined benefit pension plans – Climate-related risks could affect the financial position of defined benefit pension plans. As a result, this could have implications on the expected return on plan assets and measurement of defined benefit liabilities in future years. The Trustee of the Rolls-Royce UK Pension Fund meets the climate-related regulatory requirements. When making decisions about the plan, its analysis is carried out in a way consistent with Taskforce on Climate-Related Financial Disclosures (TCFD). The Trustee has set a net zero target for the plan assets by 2050. Having assessed the risks and opportunities of climate change and considered the nature of the assets of the fund, climate change is unlikely to have a material impact on the position in the Consolidated Financial Statements.

Presentation of underlying results

The Group measures financial performance on an underlying basis and discloses this information as an alternative performance measure (APM). This is consistent with the way that financial performance is measured by the Directors 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 certain other items which are market driven and outside of the control of management. Further details are given in note 2. A reconciliation of APMs to the statutory equivalent is provided on page 158 to 161.

Revision to IFRS applicable in 2022

The Group adopted the amendment to IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* for Onerous Contracts – Cost of Fulfilling a Contract on 1 January 2022. The amendment clarifies the meaning of 'costs to fulfil a contract', explaining that the direct cost of fulfilling a contract comprises the incremental costs of fulfilling that contract (for example, direct labour and materials) and also an allocation of other costs that relate directly to fulfilling contracts. As a result of the amendment, the Group now includes additional allocated costs when determining whether a contract is onerous and in the quantification of the provision recognised in the event of a contract being onerous. These additional allocated costs primarily relate to (a) fixed overheads in our operational areas that are incurred irrespective of manufacturing load, (b) fixed overheads of providing services, including engine health monitoring and IT costs, and (c) depreciation of spare engines that the Group owns which are used to support the delivery of our contractual commitments to customers under LTSAs. The Group has assessed the impact of this amendment on its contracts and has included additional allocated costs that increased the total contract loss provision by £723m, as at 1 January 2022 (see note 21). All material elements impact Civil Aerospace contracts. Of this increase, £38m relates to current provisions and £685m to non-current provisions. A tax credit has not been recognised on the increase in the provision relating to the UK (see note 5 for details). As required by the transition arrangement in relation to the amendment, comparative information has not been restated. The cumulative effect of initially applying the amendment has been recognised as an adjustment to the opening balance of retained earnings as at 1 January 2022. It is estimated that the impact of the IAS 37 amendment has had a favourable immaterial impact on the 2022 income statement. Further information can be found in note 20.

There are no other new standards or interpretations issued by the IASB that had a significant impact on the Consolidated Financial Statements.

1 Accounting policies

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, and 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, together with sensitivities for key sources of estimation uncertainty where appropriate and practicable, are included within the significant accounting policies section of this note.

Area	Key judgements	Key sources of estimation uncertainty	Page
Revenue recognition and contract assets and liabilities	Whether Civil Aerospace 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. When revenue should be recognised in relation to spare engine sales.	Estimates of future revenue and costs of long-term contractual arrangements, including the impact of climate change.	57
Risk and revenue sharing arrangements	Determination of the nature of entry fees received.		58
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 recognised.	59
Discontinued operations and business disposals	The assets, liabilities and associated consolidation adjustments of the ITP Aero business to be recognised on disposal.		59
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.		61
Leases	Determination of the lease term.	Estimates of the payments required to meet residual value guarantees at the end of engine leases.	62
Impairment of non-current assets	Determination of cash-generating units for assessing impairment of goodwill.		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 high-pressure turbine (HPT) blade and estimates of the expenditure required to settle the obligation relating to Trent 1000 long-term contracts assessed as onerous. Estimates of the future revenues and costs to fulfil onerous contracts. Assumptions implicit within the calculation of discount rates.	64
Post-retirement benefits		Estimates of the assumptions for valuing the net defined benefit obligation.	65

1 Accounting policies

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 26.

Revenue recognition and contract assets and liabilities

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 that require the key estimates highlighted below to be made. 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. Consideration is received in the form of deposits and payments for completion of milestones or performance obligations. LTSA cash receipts are typically received based on EFHs.

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. 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 relevant Group undertaking, most significantly USD 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 LTSAs, 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.

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 (two to 13 years).

1 Accounting policies

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 inter-dependencies 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. 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 to be 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 20.

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. See note 25 for the value of sales to joint ventures during the year.

Key judgement – When revenue should be recognised in relation to spare engine sales

Revenue is recognised at the point in time when a customer obtains control of a spare engine. The customer could be a related party, an external operator or a spare engine service provider. Depending on the contractual arrangements, judgement is required on when the Group relinquishes control of spare engines and, therefore, when the revenue is recognised. The point of control passing has been concluded to correspond to the point of legal sale, even for instances where the customer is contracted to provide some future spare engine capacity to the Group to support its installed engine base. In such cases, the customer has responsibility for generating revenue from the engines and exposure to periods of non-utilisation; exposure to risk of damage or loss, risk from residual value movements, and will determine if and when profits will be made from disposal. The spare engine capacity that will be made available to the Group in the future does not consist of identified assets and the provider retains a substantive right to substitute the asset through the Group's period of use. It is, therefore, appropriate to recognise revenue from the sale of the spare engines at the point that title transfers. During 2022, of the total 44 (2021: 36) large spare engine sales delivered, 20 (2021: six) engines were sold to customers where contractual arrangement allows for some future spare engine capacity to be used by the Group. These sales contributed £454m (2021: £111m) to revenue for the year.

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 LTSAs in the Civil Aerospace business, with an average remaining term of around ten years. 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 (that includes the impact of inflation). The impact of climate change on EFHs and costs is also considered when making these estimates. Industry and customer data on expected levels of utilisation is included in the forecasts used. Across the length of the current Civil Aerospace LTSA contracts, allowance has been made for around a 1% (2021: 1%) projected cost increase resulting from carbon pricing and commodity price changes.

The sensitivities below demonstrate how changes in assumptions (including as a result of climate change) could impact the level of revenue recognised were assumptions to change. The Directors believe that the estimates used to prepare the Consolidated Financial Statements take account of the inherent uncertainties, constraining the expected level of revenue as appropriate.

Estimates of future LTSA revenue within Civil Aerospace are based upon future EFH forecasts, influenced by assumptions over the recovery of the civil aviation industry. Finally, 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 in relation to the Civil Aerospace LTSA contracts resulted in favourable catch-up adjustments to revenue of £360m (2021: £214m).

Based upon the stage of completion of all LTSA contracts within Civil Aerospace as at 31 December 2022, the following reasonably possible changes in estimates would result in catch-up adjustments being recognised in the period in which the estimates change (at underlying rates):

- A change in forecast EFHs of 1% over the remaining term of the contracts would impact LTSA income and to a lesser extent costs, resulting in an in-year impact of around £20m. This would be expected to be seen as a catch-up change in revenue or, to the extent it impacts onerous contracts, within cost of sales.
- A 2% increase or decrease in our pricing to customers over the life of the contracts would lead to a revenue catch-up adjustment in the next 12 months of around £260m.
- A 2% increase or decrease in shop visit costs over the life of the contracts would lead to a revenue catch-up adjustment in the next 12 months of around £100m.

1 Accounting policies

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 recognised 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.

Key judgement – Determination of the nature of entry fees received
RRSAs with key suppliers (workshare partners) are a feature of the civil aviation industry 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 the workshare partner 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 page 61.

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, which include the reversal of taxable temporary differences, will be available against which the assets can be utilised. Further details on the Group's tax position can be found on pages 78 and 79.

1 Accounting policies

Taxation (continued)

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 recognised

Deferred tax assets are only recognised to the extent it is probable that future taxable profits will be available, against which the deductible temporary difference can be utilised. On this basis a deferred tax asset of £2,040m is not recognised in respect of UK tax losses. Further details are included in note 5.

In addition to taking into account a severe but plausible downside forecast (see below), the climate-related estimates and assumptions (set out on pages 52 to 54) have also been considered when assessing the recoverability of the deferred tax assets. Recognising the longer terms over which these assets will be recovered, the Group has considered the risk that regulatory changes could materially impact demand for our products and shifting investment focus towards more sustainable products and solutions. The climate scenarios prepared do not indicate a significant deterioration in demand or profitability for Civil Aerospace programmes given that all commercial aero-engines will be compatible with sustainable fuels by the end of 2023.

While carbon and commodity pricing may put pressure on costs, decarbonisation and new supplier and customer contracts offer the opportunity to receive value for more efficient and sustainable products.

Macro-economic factors continue to result in uncertainty over the recovery of demand across the civil aviation industry. As explained in note 5, a 25% probability of there being a severe but plausible downside forecast in relation to the civil aviation industry has been taken into account in the assessment of the recovery of the UK deferred tax assets.

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. The following sensitivities have been modelled to demonstrate the impact of changes in assumptions on the recoverability of deferred tax assets.

- A 5% change in margin in the main Civil Aerospace large engine programmes.
- A 5% change in the number of shop visits driven by EFHs.
- Assumed future cost increases from climate change expected to pass through to customers at 100% are restricted to 90% pass through.

All of these could be driven by a number of factors, including the impact of climate change as explained on pages 52 to 54 and changes in foreign exchange rates.

A 5% change in margin or shop visits (which could be driven by fewer EFHs as a result of climate change) would result in an increase/ decrease in the deferred tax asset of around £130m.

If only 90% of assumed future cost increases from climate change are passed on to customers, this would result in a decrease in the deferred tax asset of around £50m, and if carbon prices were to double, this would be £80m.

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 prevail-ing 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.

Discontinued operations and business disposals

A discontinued operation is defined in IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations* as a component of an entity that has been disposed of or is classified as held for sale, represents a separate major line of business or geographical area of operations, is part of a single co-ordinated plan to dispose of such a line of business or is a subsidiary acquired exclusively with a view to resale. The results of discontinued operations are required to be presented separately in the income statement.

Assets and businesses are classified as held for sale when their carrying amounts will be recovered through sale rather than through continuing use.

Key judgement – The assets, liabilities and associated consolidation adjustments of the ITP Aero business to be recognised on disposal

In identifying the assets and liabilities that form part of the disposal group in relation to the ITP Aero business, the Group has considered whether the associated consolidation adjustments meet the criteria to be classified within the disposal group. The consolidation adjustments allocated to the disposal group are those that relate to the carrying value of the disposal group's assets and liabilities. Further detail can be found in note 26.

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 listed 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. The Company has elected to measure its listed investments at FVOCI.

1 Accounting policies

Financial instruments – Classification and measurement (continued)
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 ECLs on financial assets and contract assets resulting from transactions within the scope of IFRS 15. 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.

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 to the income statement in the same period or periods during which the hedged 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 net cumulative gain or loss on the hedging instrument recognised in SOCIE 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
In August 2020, Phase 2 of IBOR reform was published, effective from 1 January 2021. The amendments address issues that arise from the implementation of the reforms including the replacement of one benchmark with an alternative one. The Phase 2 amendments provide additional temporary reliefs from applying specific IAS 39 *Financial Instruments: Recognition and Measurement* and IFRS 9 hedge accounting requirements to hedging relationships directly affected by IBOR reform.

A number of the Group's lease liabilities are based on a LIBOR index. These are predominantly referencing USD LIBOR, which is not expected to cease until 2023, hence the change in relation to these contracts has not impacted the 2022 financial statements. Amendments to these contracts is in progress at the balance sheet date.

1 Accounting policies

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 UK-adopted International Accounting Standards 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.

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 the Directors).

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.

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 key judgement, as is the determination of when subsequent expenditure on the programme assets should be capitalised. During the year, £131m of development expenditure was capitalised.

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.

The Group continues to invest in new technologies as a result of its decarbonisation commitments. As these are new technologies, there is a higher level of uncertainty over potential outcomes and, therefore, this could impact the level of expenditure that is capitalised or recognised in the income statement in future years.

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 LTSAs, 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. The amortisation period of software assets is reviewed annually. In 2022, the amortisation period was changed from a maximum of five years to a maximum of ten years to reflect the expected useful lives of the assets. The change has been accounted for as a change in accounting estimate and has impacted a limited amount of assets with an immaterial impact on the results for the year. 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.

1 Accounting policies

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 23 years); and
  - no depreciation is provided on freehold land.
- Plant and equipment - two to 27 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 IFRS 16 *Leases* 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.

The Group did not adopt the amendment to IFRS 16 *Leases*, effective in 2022, which provides a practical expedient to not treat COVID-19 rent concessions as lease modifications.

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.

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 business often include clauses that require the engines to be returned to the lessor with specific levels of usable 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 £4m to the income statement. The lease liability at 31 December 2022 included £434m relating to the cost of meeting these residual value guarantees in the Civil Aerospace business. Up to £114m is payable in the next 12 months, £175m is due over the following four years and the remaining balance after five years.

1 Accounting policies

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 of disposal, 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 (or CGU). Fair value less costs of disposal (FVLCOD) reflects market inputs or inputs based on market evidence if readily available. If these inputs are not readily available, the fair value is estimated by discounting future cash flows modified for market participants views. The relevant local statutory tax rates have been applied in calculating post-tax to pre-tax discount rates.

Key judgement – Determination of CGUs for assessing impairment of goodwill

The Group conducts impairment reviews at the CGU level. As permitted by IAS 36, 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 and at an aggregated Rolls-Royce Power Systems AG level.

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.

The Group offers a supply chain financing (SCF) programme through 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. The election to utilise the programme is the sole decision of the supplier. As the Group continues to have a contractual obligation to pay its suppliers under commercial terms which are unaffected by any utilisation of the programme, 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 18.

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 57;
- 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.

1 Accounting policies

Provisions (continued)

Key judgement – Whether any costs should be treated as wastage

As described further on page 57, 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 LTSAs, 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 wastage costs at 31 December 2022 of £179m (2021: £157m). 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 2022 the Trent 1000 contract loss provisions and the Trent 1000 wastage cost provision are most sensitive to changes in estimates. A 12-month delay in the availability of the modified HPT blade could lead to around a £40–70m increase in the Trent 1000 wastage 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 2022 of £1,592m (1 January 2022: £1,568m).

An increase in Civil Aerospace large engine estimates of LTSA costs of 1% over the remaining term of the contracts could lead to around a £100–125m increase in the provision for contract losses across all programmes.

Key estimates – Assumptions implicit in the calculation of discount rates

The contract loss provisions for onerous contracts are sensitive to changes in the discount rate used to value the provisions. The rate used for each contract is derived from bond yields (i.e. risk-free rates) with a similar duration and currency to the contract that they are applied to. The rate is adjusted to reflect the specific inflation characteristics of the contracts. The forecast rates are determined from third-party market analysis and average 4%. A 1% change in the discount rates used could lead to around a £80-100m change in the provision.

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. Credit-based guarantees are disclosed as commitments or contingent liabilities dependent on whether aircraft have been delivered or not. The Group considers asset-value guarantees to be non-financial liabilities and provides for amounts required. As described on page 57, 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.

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.

UK pension obligations include the estimated impact of the obligation to equalise defined benefit pensions and transfer values for men and women.

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

1 Accounting policies

Post-retirement benefits (continued)

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

The Group's defined benefit pension schemes and similar arrangements are assessed annually in accordance with IAS 19. The valuations, which are based on assumptions determined with independent actuarial advice, resulted in a net deficit of £420m before deferred taxation being recognised on the balance sheet at 31 December 2022 (2021: deficit of £225m). 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, in the UK, 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 Bridging Pension Option. Following consultation, the UK scheme closed to future accrual on 31 December 2020.

A reduction in the discount rate of 0.25% from 4.80% could lead to an increase in the defined benefit obligations of the RR UK Pension Fund (RRUKPF) of approximately £205m. 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.

An increase in the assumed rate of inflation of 0.25% (RPI of 3.50% and CPI of 2.95%) could lead to an increase in the defined ben-efit obligations of the RRUKPF of approximately £70m.

A one-year increase in life expectancy from 21.9 years (male aged 65) and from 23.2 years (male aged 45) would increase the defined benefit obligations of the RRUKPF by approximately £215m.

Further details and sensitivities are included in note 21.

Share-based payments

The Group provides share-based payment arrangements to certain employees. 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 market-based performance conditions, such as the total shareholder return (TSR) performance condition in the long-term incentive plan (LTIP), where no adjustment is required as allowance for these performance conditions are 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 are expected to 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.

The cost of shares of Rolls-Royce Holdings plc held by the Group for the purpose of fulfilling obligations in respect of employee share plans is deducted from equity in the consolidated balance sheet. See note 23 for a further description of the share-based payment plans.

Revisions to IFRS not applicable in 2022

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.

IFRS 17 *Insurance Contracts*

IFRS 17 issued in May 2018, establishes the principles for the recognition, measurement, presentation and disclosure of insurance contracts within the scope of the Standard. The Standard is effective for years beginning on or after 1 January 2023 with a requirement to restate comparatives.

The Group has reviewed whether its arrangements meet the accounting definition of an insurance contract. While some contracts, including Civil LTSAs, may transfer an element of insurance risk, they relate to warranty and service type agreements that are issued in connection with the Group's sales of its goods or services and therefore will remain accounted for under the existing revenue and provision standards. The Directors have judged that such arrangements entered into after the original equipment sale remain sufficiently related to the original sale of the Group's goods and services.

The Group has identified that the Standard will impact the results of its captive insurance company as it issues insurance contracts, however, the impact is expected to largely consolidate out in the Consolidated Financial Statements. The Standard includes a simplified approach and modifications to its general measurement model that can be applied in certain circumstances. Given the coverage period of these insurance policies within the captive insurance company are 12 months or less, it is intended to make use of the 'premium allocation approach' for the recognition of premiums. The confidence level and risk adjustments have been calculated using a weighted average cost of capital calculation with discount rates based on the European Insurance and Occupational Pension Authority (EIOPA) risk-free interest rates. The opening balances on 1 January 2022, as well as the results for 2022, have been run under IFRS 17, and the expected impact on accumulated losses is less than £1m.

The Group is in the process of concluding its analysis of whether there is any further impact as a result of adopting the new Standard. This will conclude in the first half of 2023. At this time there is no further known or reasonably estimable information to disclose that is relevant to assessing the possible impact that application of the new IFRS will have on the Consolidated Financial Statements.

Post balance sheet events

The Group has taken the latest legal position in relation to any ongoing legal proceedings and reflected these in the 2022 results as appropriate.

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 (who acts as the Chief Operating Decision Maker as defined by IFRS 8). The Group's four businesses are set out below.

Civil Aerospace	development, manufacture, marketing and sales of commercial aero engines and aftermarket services
Defence	development, manufacture, marketing and sales of military aero engines, naval engines, submarine nuclear power plants and aftermarket services
Power Systems	development, manufacture, marketing and sales of integrated solutions for onsite power and propulsion
New Markets	development, manufacture and sales of small modular reactor (SMR) and new electrical power solutions

Other businesses include the trading results of the Bergen Engines AS business until the date of disposal on 31 December 2021 and the results of the Civil Nuclear Instrumentation & Control business until the date of disposal on 5 November 2021 and the trading results of the UK Civil Nuclear business.

Underlying results

The Group presents the financial performance of the 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 effective 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 effective hedge book is recorded within 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. Unrealised fair value gains/(losses) on foreign exchange contracts, which are recognised as they arise in the statutory 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 statutory basis to interest receivable/(payable) on an underlying basis, as if they were in an effective hedge relationship.

In the year to 31 December 2022, the Group was a net seller of USD at an achieved exchange rate GBP:USD of 1.50 (2021: In the first half of the year, the Group was a net purchaser of USD at an achieved exchange rate of GBP:USD 1.39. In the second half of 2021, the Group was a net seller of USD at an achieved exchange rate of GBP:USD 1.59) based on the USD hedge book.

Estimates of future USD cash flows have been determined using the Group's base-case forecast. These USD cash flows have been used to establish the extent of future USD hedge requirements. In 2020, the Group took action to reduce the size of the USD hedge book by $11.8bn across 2020-2026, resulting in an underlying charge of £1.7bn being recognised within underlying finance costs and the associated cash settlement costs occurring over the period 2020-2026. The derivatives relating to this underlying charge have been subsequently excluded from the hedge book, and therefore are also excluded from the calculation of the average exchange rate achieved in the current and future periods. This charge was reversed in arriving at 2020 statutory performance on the basis that the cumulative fair value changes on these derivative contracts are recognised as they arise.

Underlying performance also excludes the following:

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

Acquisition accounting, business disposals and impairment

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

Exceptional items

Items are classified as exceptional where the Directors believe that presentation of the results in this way is useful in providing an understanding of the Group's financial performance. Exceptional items are identified by virtue of their size, nature or incidence.

In determining whether an event or transaction is exceptional, the Directors consider 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 post-retirement schemes.

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 statutory 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 deferred tax or advance corporation tax recognised are also excluded.

2 Segmental analysis

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

	Civil Aerospace £m	Defence £m	Power Systems £m	New Markets £m	Other businesses £m	Corporate and Inter-segment £m	Total Underlying £m
Year ended 31 December 2022							
Underlying revenue from sale of original equipment	**1,982**	**1,634**	**2,187**	**1**	**-**	**(5)**	**5,799**
Underlying revenue from aftermarket services	**3,704**	**2,026**	**1,160**	**2**	**-**	**-**	**6,892**
Total underlying revenue	**5,686**	**3,660**	**3,347**	**3**	**-**	**(5)**	**12,691**
Gross profit/(loss)	**853**	**726**	**918**	**(1)**	**(29)**	**10**	**2,477**
Commercial and administrative costs	**(371)**	**(174)**	**(441)**	**(23)**	**(2)**	**(51)**	**(1,062)**
Research and development costs	**(452)**	**(122)**	**(204)**	**(108)**	**-**	**-**	**(886)**
Share of results of joint ventures and associates	**113**	**2**	**8**	**-**	**-**	**-**	**123**
Underlying operating profit/(loss)	**143**	**432**	**281**	**(132)**	**(31)**	**(41)**	**652**
Year ended 31 December 2021							
Underlying revenue from sale of original equipment	1,612	1,411	1,744	-	155	(11)	4,911
Underlying revenue from aftermarket services	2,924	1,957	1,005	2	148	-	6,036
Total underlying revenue	4,536	3,368	2,749	2	303	(11)	10,947
Gross profit /(loss)	474	721	778	1	32	(10)	1,996
Commercial and administrative costs	(297)	(161)	(383)	(3)	(20)	(35)	(899)
Research and development costs	(434)	(105)	(157)	(68)	(10)	-	(774)
Share of results of joint ventures and associates	85	2	4	-	-	-	91
Underlying operating (loss)/profit	(172)	457	242	(70)	2	(45)	414

2 Segmental analysis

Reconciliation to statutory results

	Total underlying £m	Underlying adjustments and adjustments to foreign exchange £m	Group statutory results £m
Year ended 31 December 2022			
Continuing operations			
Revenue from sale of original equipment	**5,799**	**474**	**6,273**
Revenue from aftermarket services	**6,892**	**355**	**7,247**
Total revenue	**12,691**	**829**	**13,520**
Gross profit	**2,477**	**280**	**2,757**
Commercial and administrative costs	**(1,062)**	**(15)**	**(1,077)**
Research and development costs	**(886)**	**(5)**	**(891)**
Share of results of joint venture and associates	**123**	**(75)**	**48**
Operating profit	**652**	**185**	**837**
Gain arising on disposal of businesses	**-**	**81**	**81**
Profit before financing and taxation	**652**	**266**	**918**
Net financing	**(446)**	**(1,974)**	**(2,420)**
Profit/(loss) before taxation	**206**	**(1,708)**	**(1,502)**
Taxation	**(48)**	**356**	**308**
Profit/(loss) for the year from continuing operations	**158**	**(1,352)**	**(1,194)**
Discontinued operations [1]	**67**	**(147)**	**(80)**
Profit/(loss) for the year	**225**	**(1,499)**	**(1,274)**
Attributable to:			
Ordinary shareholders	**230**	**(1,499)**	**(1,269)**
Non-controlling interests	**(5)**	**-**	**(5)**
Year ended 31 December 2021			
Continuing operations			
Revenue from sale of original equipment	4,911	152	5,063
Revenue from aftermarket services	6,036	119	6,155
Total revenue	10,947	271	11,218
Gross profit	1,996	140	2,136
Commercial and administrative costs	(899)	9	(890)
Research and development costs	(774)	(4)	(778)
Share of results of joint venture and associates	91	(46)	45
Operating profit	414	99	513
Gain arising on disposal of businesses	-	56	56
Profit before financing and taxation	414	155	569
Net financing	(378)	(485)	(863)
Profit/(loss) before taxation	36	(330)	(294)
Taxation	(26)	444	418
Profit for the year from continuing operations	10	114	124
Discontinued operations [1]	51	(54)	(3)
Profit for the year	61	60	121
Attributable to:			
Ordinary shareholders	60	60	120
Non-controlling interests	1	-	1

[1] Discontinued operations relate to the results of ITP Aero and are presented net of intercompany trading eliminations and related consolidation adjustments

2 Segmental analysis

Disaggregation of revenue from contracts with customers

Analysis by type and basis of recognition

	Civil Aerospace £m	Defence £m	Power Systems £m	New Markets £m	Other businesses £m	Corporate and Inter-segment £m	Total Underlying £m
Year ended 31 December 2022							
Original equipment recognised at a point in time	**1,982**	**689**	**2,155**	**1**	**-**	**(5)**	**4,822**
Original equipment recognised over time	**-**	**945**	**32**	**-**	**-**	**-**	**977**
Aftermarket services recognised at a point in time	**865**	**769**	**1,076**	**2**	**-**	**-**	**2,712**
Aftermarket services recognised over time	**2,772**	**1,257**	**84**	**-**	**-**	**-**	**4,113**
Total underlying customer contract revenue [1]	**5,619**	**3,660**	**3,347**	**3**	**-**	**(5)**	**12,624**
Other underlying revenue	**67**	**-**	**-**	**-**	**-**	**-**	**67**
Total underlying revenue	**5,686**	**3,660**	**3,347**	**3**	**-**	**(5)**	**12,691**
Year ended 31 December 2021							
Original equipment recognised at a point in time	1,612	604	1,720	–	142	(11)	4,067
Original equipment recognised over time	–	807	24	–	13	–	844
Aftermarket services recognised at a point in time	629	825	871	2	148	–	2,475
Aftermarket services recognised over time	2,223	1,132	134	–	–	–	3,489
Total underlying customer contract revenue [1]	4,464	3,368	2,749	2	303	(11)	10,875
Other underlying revenue	72	–	–	–	–	–	72
Total underlying revenue	4,536	3,368	2,749	2	303	(11)	10,947

1 Includes £367m, of which £360m relates to Civil LTSA contracts, (2021: £159m, of which £214m relates to Civil LTSA contracts) of revenue recognised in the year relating to performance obligations satisfied in previous years

	Total underlying £m	Underlying adjustments and adjustments to foreign exchange £m	Group statutory results [1] £m
Year ended 31 December 2022			
Original equipment recognised at a point in time	**4,822**	**474**	**5,296**
Original equipment recognised over time	**977**	**-**	**977**
Aftermarket services recognised at a point in time	**2,712**	**164**	**2,876**
Aftermarket services recognised over time	**4,113**	**176**	**4,289**
Total customer contract revenue	**12,624**	**814**	**13,438**
Other revenue	**67**	**15**	**82**
Total revenue	**12,691**	**829**	**13,520**
Year ended 31 December 2021			
Original equipment recognised at a point in time	4,067	152	4,219
Original equipment recognised over time	844	-	844
Aftermarket services recognised at a point in time	2,475	38	2,513
Aftermarket services recognised over time	3,489	75	3,564
Total customer contract revenue	10,875	265	11,140
Other revenue	72	6	78
Total revenue	10,947	271	11,218

1 During the year to 31 December 2022, revenue recognised within Civil Aerospace, Defence and Power Systems of £1,788m (2021: £1,634m) was received from a single customer

2 Segmental analysis

Analysis by geographical destination

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

	2022 £m	2021 £m
United Kingdom	**1,669**	1,497
Germany	**855**	737
Switzerland	**334**	164
Ireland	**328**	5
Turkey	**220**	146
Spain	**188**	106
France	**255**	332
Italy	**238**	187
Norway	**61**	146
Rest of Europe	**601**	629
Europe	**4,749**	3,949
United States	**4,334**	3,525
Canada	**267**	235
North America	**4,601**	3,760
South America	**168**	170
Central America	**91**	76
Saudi Arabia	**322**	271
Qatar	**231**	131
United Arab Emirates	**180**	126
Rest of Middle East	**164**	107
Middle East	**897**	635
China	**1,246**	1,245
Singapore	**317**	105
Japan	**276**	233
South Korea	**164**	137
India	**119**	140
Rest of Asia	**381**	359
Asia	**2,503**	2,219
Africa	**282**	213
Australasia	**229**	196
	13,520	11,218

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:

	2022			2021		
	Within five years £bn	**After five years £bn**	**Total £bn**	Within five years £bn	After five years £bn	Total £bn
Civil Aerospace	**25.7**	**22.0**	**47.7**	20.3	20.8	41.1
Defence	**7.8**	**0.7**	**8.5**	6.2	0.3	6.5
Power Systems	**3.7**	**0.3**	**4.0**	2.6	0.2	2.8
New Markets	**-**	**-**	**-**	-	-	-
Other businesses	**-**	**-**	**-**	0.2	-	0.2
	37.2	**23.0**	**60.2**	29.3	21.3	50.6

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 customers have placed where they retain a right to cancel. The Group's 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 and Power Systems will be recognised over the next two years as it is a short cycle business.

2 Segmental analysis

		2022				2021			
		Revenue £m	Profit before financing £m	Net financing £m	Taxation £m	Revenue £m	Profit before financing £m	Net financing £m	Taxation £m
Underlying performance		**12,691**	**652**	**(446)**	**(48)**	10,947	414	(378)	(26)
Impact of foreign exchange differences as a result of hedging activities on trading transactions [1]	A	**829**	**267**	**(358)**	**(81)**	271	(34)	62	33
Unrealised fair value changes on derivative contracts held for trading [2]	A	**-**	**(3)**	**(1,768)**	**451**	-	(6)	(618)	110
Unrealised net gain on closing future over-hedged position [3]	A	**-**	**-**	**-**	**-**	-	-	(8)	-
Realised net gain on closing over-hedged position [3]	A	**-**	**-**	**-**	**-**	-	-	(6)	-
Unrealised fair value change to derivative contracts held for financing [4]	A	**-**	**-**	**191**	**(47)**	-	-	79	(20)
Exceptional programme credits/(charges) [5]	B	**-**	**69**	**(3)**	**-**	-	105	-	(1)
Exceptional restructuring (charges)/credits [6]	B	**-**	**(47)**	**-**	**4**	-	45	-	1
Impairment (charges)/reversals [7]	C	**-**	**(65)**	**-**	**-**	-	9	-	-
Effect of acquisitions accounting [8]	C	**-**	**(58)**	**-**	**9**	-	(50)	-	12
Pension past-service credit [9]	B	**-**	**22**	**-**	**(2)**	-	47	-	(13)
Other [10]	D	**-**	**-**	**(36)**	**(69)**	-	(17)	6	(37)
Gains arising on disposals of businesses [11]	C	**-**	**81**	**-**	**(2)**	-	56	-	2
Impact of tax rate change [12]		**-**	**-**	**-**	**-**	-	-	-	327
Re-recognition of deferred tax assets [13]		**-**	**-**	**-**	**93**	-	-	-	30
Total underlying adjustments		**829**	**266**	**(1,974)**	**356**	271	155	(485)	444
Statutory performance per consolidated income statement		**13,520**	**918**	**(2,420)**	**308**	11,218	569	(863)	418

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

1 The impact of measuring revenues and costs at the average exchange rate during the year and the impact of valuation of assets and liabilities using the year 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 £829m (2021: increased by £271m) and increased profit before financing and taxation by £267m (2021: reduced profit by £34m). Underlying financing excludes the impact of revaluing monetary assets and liabilities at the year 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 2020, the Group took action to reduce the size of the USD hedge book by $11.8bn across 2020-2026, resulting in an underlying charge of £1.7bn at 31 December 2020. In 2021, this estimate was updated to reflect the actual cash cost and resulted in a £15m gain to underlying finance costs

4 Includes the gains on hedge ineffectiveness in the year of £1m (2021: losses of £1m) and net fair value gains of £190m (2021: gains of £80m) on any interest rate swaps not designated into hedging relationships for accounting purposes

5 During the year to 31 December 2022 and 2021, contract loss provisions previously recognised in respect of the Trent 1000 technical issues which were identified in 2019 have been reversed due to a reduction in the estimated cost of settling the obligation

6 During the year to 31 December 2022, the Group recorded an exceptional restructuring charge of £47m (2021: credit of £45m) which included £57m (2021: £93m) associated with initiatives to enable restructuring offset by £10m (2021: £138m) released from the provision

7 The Group has assessed the carrying value of its assets. Further details are provided in notes 8, 9, 10 and 11

8 The effect of acquisition accounting includes the amortisation of intangible assets arising on previous acquisitions

9 The past-service credit of £22m includes a £23m credit as a result of changes in the schemes in Power Systems, a settlement loss of £7m on the Rolls-Royce North America retirement scheme and a credit of £6m as a result of a constructive obligation recognised for the offering of the Bridging Pension Option (BPO) to other deferred members in the RRUKPF. Further details are provided in note 21

10 Includes £(14)m (2021: £14m) reclassification of amounts (received)/ paid on interest rate swaps which are not designated as hedge relationship for accounting purposes from interest payable on an underlying basis to fair value movement

11 Gains arising on the disposals of businesses are set out in note 26

12 The 2021 tax credit relates to the increase in the UK tax rate from 19% to 25%

13 The re-recognition of deferred tax assets relates to foreign exchange derivatives

2 Segmental analysis

Balance sheet analysis

	Civil Aerospace £m	Defence £m	Power Systems £m	New Markets £m	Total reportable segments £m
Year ended 31 December 2022					
Segment assets	**17,537**	**3,430**	**4,084**	**135**	**25,186**
Interests in joint ventures and associates	**387**	**4**	**31**	**-**	**422**
Segment liabilities	**(25,346)**	**(3,140)**	**(1,796)**	**(97)**	**(30,379)**
Net (liabilities)/assets	**(7,422)**	**294**	**2,319**	**38**	**(4,771)**
Investment in intangible assets, property, plant and equipment, right-of-use assets and joint ventures and associates	**415**	**146**	**177**	**16**	**754**
Depreciation, amortisation and impairment	**755**	**128**	**193**	**6**	**1,082**
Year ended 31 December 2021					
Segment assets	15,846	2,766	3,531	90	22,233
Interests in joint ventures and associates	378	9	16	-	403
Segment liabilities	(20,734)	(2,629)	(1,495)	(33)	(24,891)
Net (liabilities)/assets	(4,510)	146	2,052	57	(2,255)
Investment in intangible assets, property, plant and equipment, right-of-use assets and joint ventures and associates	323	97	187	15	622
Depreciation, amortisation and impairment	660	117	177	4	958

Reconciliation to the balance sheet

	2022 £m	2021 £m
Total reportable segment assets excluding held for sale	**25,186**	22,233
Other businesses	**19**	14
Corporate and Inter-segment	**(2,125)**	(1,921)
Interests in joint ventures and associates	**422**	403
Assets held for sale [1]	**-**	2,028
Cash and cash equivalents and short-term investments	**2,618**	2,629
Fair value of swaps hedging fixed rate borrowings	**194**	135
Deferred and income tax assets	**2,858**	2,339
Post-retirement scheme surpluses	**613**	1,148
Total assets	**29,785**	29,008
Total reportable segment liabilities excluding held for sale	**(30,379)**	(24,891)
Other businesses	**(34)**	(11)
Corporate and Inter-segment	**2,457**	2,138
Liabilities associated with assets held for sale [1]	**-**	(723)
Borrowings and lease liabilities	**(5,955)**	(7,776)
Fair value of swaps hedging fixed rate borrowings	**(108)**	(98)
Deferred and income tax liabilities	**(390)**	(552)
Post-retirement scheme deficits	**(1,033)**	(1,373)
Total liabilities	**(35,442)**	(33,286)
Net liabilities	**(5,657)**	(4,278)

[1] As at 31 December 2021, assets and liabilities relating to ITP Aero, the investment in Airtanker Holdings and other non-current assets related to the Group's site rationalisation activities were classified as held for sale. For further details see note 26

2 Segmental analysis

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

	2022 £m	2021 £m
United Kingdom	**5,202**	5,489
Germany	**2,151**	2,086
United States	**1,465**	1,282
Other	**735**	744
	9,553	9,601

3 Research and development

	2022 £m	2021 £m
Gross research and development costs	**(1,287)**	(1,179)
Contributions and fees [1]	**359**	366
Expenditure in the year	**(928)**	(813)
Capitalised as intangible assets	**131**	105
Amortisation and impairment of capitalised costs [2]	**(94)**	(70)
Net cost recognised in the income statement	**(891)**	(778)
Underlying adjustments relating to effects of acquisition accounting and foreign exchange	**5**	4
Net underlying cost recognised in the income statement	**(886)**	(774)

[1] Includes government funding

[2] See note 8 for analysis of amortisation and impairment. During the year, amortisation of £nil (2021: £5m) was incurred within the disposal group recognised as a discontinued operation

4 Net financing

	2022		2021	
	Statutory £m	**Underlying [1] £m**	Statutory £m	Underlying[1] £m
Interest receivable	**35**	**35**	7	7
Net fair value gains on foreign currency contracts	**-**	**-**	80	-
Net fair value gains on non-hedge accounted interest rate swaps [2]	**190**	**-**	-	-
Net fair value gains on commodity contracts	**106**	**-**	63	-
Financing on post-retirement scheme surpluses	**24**	**-**	17	-
Net foreign exchange gains	**-**	**-**	62	-
Realised net gains on closing over-hedged position [3]	**-**	**-**	-	6
Unrealised net gains on closing over-hedged position [3]	**-**	**-**	-	8
Financing income	**355**	**35**	229	21
Interest payable	**(343)**	**(320)**	(252)	(262)
Net fair value losses on foreign currency contracts	**(1,875)**	**-**	(681)	-
Foreign exchange differences and changes in forecast payments relating to financial RRSAs	**(7)**	**-**	(7)	-
Financing on post-retirement scheme deficits	**(26)**	**-**	(20)	-
Net foreign exchange losses	**(358)**	**-**	-	-
Cost of undrawn facilities	**(61)**	**(61)**	(62)	(62)
Other financing charges	**(105)**	**(100)**	(70)	(75)
Financing costs	**(2,775)**	**(481)**	(1,092)	(399)
Net financing costs	**(2,420)**	**(446)**	(863)	(378)
Analysed as:				
Net interest payable	**(308)**	**(285)**	(245)	(255)
Net fair value (losses)/gains on derivative contracts	**(1,579)**	**-**	(538)	14
Net post-retirement scheme financing	**(2)**	**-**	(3)	-
Net foreign exchange (losses)/gains	**(358)**	**-**	62	-
Net other financing	**(173)**	**(161)**	(139)	(137)
Net financing costs	**(2,420)**	**(446)**	(863)	(378)

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 fair value movements on these interest rates swaps to net interest payable

3 In 2020, the Group took action to reduce the size of the USD hedge book by $11.8bn across 2020-2026, resulting in an underlying charge of £1,689m at 31 December 2020. In 2021, this estimate was updated to reflect the actual cash settlement cost of £1,674m and resulted in a £15m gain to underlying finance costs in the year to 31 December 2021. The cash settlement costs of £1,674m covers the period 2020-2026, £326m was incurred in the year to 31 December 2022 (2021: £452m, 2020: £186m). The Group estimates that future cash outflows of £389m will be incurred in 2023 and £321m spread over 2024-2026

5 Taxation

	UK		Overseas		Total	
	2022 **£m**	2021 £m	**2022** **£m**	2021 £m	**2022** **£m**	2021 £m
Current tax charge for the year	**18**	17	**159**	151	**177**	168
Adjustments in respect of prior years	**(5)**	2	**(8)**	12	**(13)**	14
Current tax	**13**	19	**151**	163	**164**	182
Deferred tax credit for the year	**(427)**	(173)	**(61)**	(59)	**(488)**	(232)
Adjustments in respect of prior years	**4**	(15)	**12**	(26)	**16**	(41)
Deferred tax credit resulting from an increase in UK tax rates	**–**	(327)	**–**	–	**–**	(327)
Deferred tax	**(423)**	(515)	**(49)**	(85)	**(472)**	(600)
(Credited)/charged in the income statement	**(410)**	(496)	**102**	78	**(308)**	(418)

Other tax credits/(charges)

	OCI				Equity	
	Items that will not be reclassified		Items that will be reclassified			
	2022 **£m**	2021 £m	**2022** **£m**	2021 £m	**2022** **£m**	2021 £m
Deferred tax:						
Movement in post-retirement schemes	**89**	(79)	**–**	–	**–**	–
Cash flow hedge	**–**	–	**12**	(2)	**–**	–
Net investment hedge	**–**	–	**2**	(3)	**–**	–
Share-based payments – direct to equity	**–**	–	**–**	–	**1**	17
Other tax credits/(charges)	**89**	(79)	**14**	(5)	**1**	17

5 Taxation

Tax reconciliation on continuing operations

	2022 £m	2021 £m
Loss before taxation from continuing operations	**(1,502)**	(294)
Less share of results of joint ventures and associates (note 11)	**(9)**	(22)
Loss before taxation from continuing operations excluding joint ventures and associates	**(1,511)**	(316)
Nominal tax credit at UK corporation tax rate 19% (2021: 19%)	**(287)**	(60)
UK tax rate differential [1]	**(69)**	(33)
Overseas rate differences [2]	**18**	26
Exempt gain on disposal of businesses [3]	**(14)**	(15)
R&D credits	**(7)**	(10)
Other permanent differences	**23**	13
Benefit to deferred tax from previously unrecognised tax losses and temporary differences [4]	**(134)**	(47)
Tax losses and other temporary differences not recognised in deferred tax [5]	**159**	62
Adjustments in respect of prior years	**3**	(27)
Increase in closing deferred taxes resulting from a change in the UK tax rate [6]	**–**	(327)
	(308)	(418)
Underlying items (note 2)	**48**	26
Non-underlying items	**(356)**	(444)
	(308)	(418)

Tax on discontinued operations

	2022 £m	2021 £m
Tax charge/(credit) on profit/(loss) before taxation from discontinued operations	**10**	(34)
Tax credit on disposal of discontinued operations	**(31)**	–
	(21)	(34)

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

3 The exempt gain mainly relates to the disposal of Airtanker Holdings Ltd. The 2021 exempt gain mainly relates to the disposal of the Civil Nuclear Instrumentation and Control business

4 Benefit to deferred tax from previously unrecognised tax losses and temporary differences mainly relates to foreign exchange derivatives

5 Tax losses and other temporary differences not recognised mainly relate to the UK

6 The 2021 tax credit arising on the change in the UK tax rate represents the impact of re-measurement of the UK deferred tax asset balances from 19% to 25%

Deferred taxation assets and liabilities

	2022 £m	2021 £m
At 31 December (as previously reported)	1,798	1,332
Adoption of amendment to IAS 37	(6)	–
At 1 January	**1,792**	1,332
Amount credited to income statement	**495**	636
Amount credited/(charged) to OCI	**91**	(82)
Amount credited/(charged) to hedging reserves	**12**	(2)
Amount credited to equity	**1**	17
On disposal of businesses [1]	**28**	(4)
Transferred to assets held for sale [2]	**–**	(85)
Exchange differences	**26**	(14)
At 31 December	**2,445**	1,798
Deferred tax assets	**2,731**	2,249
Deferred tax liabilities	**(286)**	(451)
	2,445	1,798

1 The 2022 deferred tax relates to the disposal of ITP Aero. The 2021 deferred tax relates to the disposal of Bergen Engines AS and the Civil Nuclear Instrumentation and Control business

2 The 2021 deferred tax transferred to assets held for sale relates to ITP Aero

5 Taxation

The analysis of the deferred tax position is as follows:

	At 31 December (as previously reported) £m	On adoption of amendment to IAS 37	At 1 January £m	Recognised in income statement £m	Recognised in OCI £m	Recognised in equity £m	Disposals related activity £m	Transferred to held for sale £m	Exchange differences £m	At 31 December £m
2022										
Intangible assets	(464)	–	**(464)**	**29**	**–**	**–**	**–**	**–**	**(1)**	**(436)**
Property, plant and equipment	193	–	**193**	**33**	**–**	**–**	**6**	**–**	**(2)**	**230**
Other temporary differences [1]	471	(6)	**465**	**133**	**(1)**	**1**	**44**	**–**	**8**	**650**
Net contract liabilities	73	–	**73**	**(9)**	**–**	**–**	**–**	**–**	**–**	**64**
Pensions and other post-retirement scheme benefits	(140)	–	**(140)**	**(19)**	**89**	**–**	**–**	**–**	**13**	**(57)**
Foreign exchange and commodity financial assets and liabilities	362	–	**362**	**329**	**15**	**–**	**(22)**	**–**	**9**	**693**
Losses	1,085	–	**1,085**	**(12)**	**–**	**–**	**–**	**–**	**(1)**	**1,072**
R&D credit	56	–	**56**	**11**	**–**	**–**	**–**	**–**	**–**	**67**
Advance corporation tax	162	–	**162**	**–**	**–**	**–**	**–**	**–**	**–**	**162**
	1,798	(6)	**1,792**	**495**	**103**	**1**	**28**	**–**	**26**	**2,445**
Recognised in:										
Continuing operations				**472**						
Discontinued operations				**23**						
2021										
Intangible assets			(567)	(102)	–	–	–	188	17	(464)
Property, plant and equipment			34	145	–	–	–	23	(9)	193
Other temporary differences [1]			343	185	(12)	–	(4)	(49)	8	471
Net contract liabilities			56	17	–	–	–	–	–	73
Pensions and other post-retirement scheme benefits			(8)	(47)	(79)	–	–	–	(6)	(140)
Foreign exchange and commodity financial assets and liabilities			187	165	7	–	–	1	2	362
Losses			850	254	–	17	–	(33)	(3)	1,085
R&D credit			274	20	–	–	–	(215)	(23)	56
Advance corporation tax			163	(1)	–	–	–	–	–	162
			1,332	636	(84)	17	(4)	(85)	(14)	1,798
Recognised in:										
Continuing operations				600						
Discontinued operations				36						

[1] Other temporary differences mainly relate to the deferral of relief for interest expenses in the UK and revenue recognised earlier under local GAAP compared to IFRS in Germany

Unrecognised deferred tax assets

	2022 £m	2021 £m
Advance corporation tax	**19**	19
UK losses	**2,040**	1,563
Foreign exchange and commodity financial assets and liabilities	**218**	392
Losses and other unrecognised deferred tax assets	**33**	73
Deferred tax not recognised on unused tax losses and other items on the basis that future economic benefit is uncertain	**2,310**	2,047

5 Taxation

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

2022

	Total gross losses and deductible temporary differences £m	UK losses £m	Foreign exchange and commodity financial assets and liabilities £m	Other losses £m	Other deductible temporary differences £m
Expiry within 5 years	**83**	**–**	**–**	**83**	**–**
Expiry within 6 to 30 years	**265**	**–**	**–**	**265**	**–**
No expiry	**9,057**	**8,157**	**871**	**27**	**2**
	9,405	**8,157**	**871**	**375**	**2**

2021

	Total gross losses and deductible temporary differences £m	UK losses £m	Foreign exchange and commodity financial assets and liabilities £m	Other losses £m	Other deductible temporary differences £m
Expiry within 5 years	4	–	–	4	–
Expiry within 6 to 30 years	282	–	–	282	–
No expiry	7,992	6,251	1,567	66	108
	8,278	6,251	1,567	352	108

In addition to the gross balances shown above, advance corporation tax of £19m (2021: £19m) has not been recognised. Advance corporation tax has no expiry.

Of the total deferred tax asset of £2,731m, £2,183m (2021: £1,736m) relates to the UK and is made up as follows:

- £1,054m (2021: £1,054m) relating to tax losses;
- £668m (2021: £339m) arising on unrealised losses on derivative contracts;
- £162m (2021: £162m) of advance corporation tax; and
- £299m (2021: £181m) relating to other deductible temporary differences, in particular tax depreciation and relief for interest expenses.

The UK deferred tax assets primarily arise in Rolls-Royce plc and 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 deductible temporary differences can be utilised.

Most of the UK tax losses relate to the Civil Aerospace large engine 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 are typically in excess of 30 years.

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 large engine business, to assess the level of future taxable profits.

The recoverability of deferred tax assets has been assessed on the following basis:

- using the most recent UK profit forecasts 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 major large engine programmes which is typically in excess of 30 years from initial investment to retirement of the fleet, including the aftermarket revenues earned from airline customers;
- taking into account the risk that regulatory changes could materially impact demand for our products and shifting investment focus towards more sustainable products and solutions;
- consideration that all commercial aero-engines will be compatible with sustainable fuels by the end of 2023;
- a 25% probability of the severe but plausible downside forecast materialising in relation to the civil aviation industry; 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. In addition, management's assumptions relating to the amounts and timing of future taxable profits include the impact of macroeconomic factors and climate change on existing large engine programmes. Based on this assessment, the Group has recognised a total UK deferred tax asset of £2,183m. 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 can be utilised.
- Based on current forecasts and using various scenarios these losses and other deductible temporary differences will be used in full within the expected large engine programme lifecycles. An explanation of the potential impact of climate change on forecast profits and sensitivity analysis can be found in note 1.

5 Taxation

The Group has not recognised a deferred tax asset in respect of 2022 UK tax losses. This includes the impact of the IAS 37 amendment.

The other significant deferred tax asset arises in Rolls-Royce Deutschland Ltd & Co KG, where the main activity is business aviation. The total net deferred tax asset is £284m (2021: £254m), which has been recognised in full. The deferred tax asset relates to revenue being recognised and taxed earlier under local tax rules resulting in a benefit when revenue is recognised in the accounts.

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

The temporary differences associated with investments in subsidiaries, joint ventures and associates, for which a deferred tax liability has not been recognised, aggregate to £1,062m (2021: £957m). 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.

The Group is reviewing the impact of the OECD Pillar Two (global minimum tax) rules and the associated UK draft legislation, which was released on 20 July 2022. These rules will apply to the Group from 2024.

6 Auditors' remuneration

	2022 £m	2021 £m
Fees payable to the Company's auditors and its associates for the audit of the Parent company and consolidated financial statements	**6.4**	5.8
Fees payable to the Company's auditor and its associates for the audit of the Company's subsidiaries pursuant to legislation	**5.5**	5.7
Total fees payable for audit services	**11.9**	11.5
Fees payable to the Company's auditor and its associates for other services:		
Audit related assurance services [1]	**1.3**	1.7
Other assurance services [2]	**0.2**	0.2
Total fees payable to the Company's auditor and its associates [3]	**13.4**	13.4
Fees payable in respect of the Group's pension schemes:		
Audit	**0.1**	0.1

1 This includes £0.7m (2021: £0.7m) for the review of the half-year report, £0.6m (2021: £0.8m) in respect of the audit of grant claims and £nil (2021: £0.2m) for a non-statutory audit of Bergen Engines

2 This includes £0.1m in respect of agreed upon procedures in respect of levies payable to BEIS (Department of Business, Energy and Industrial Strategy) (2021: £0.1m) and £0.1m in respect of sustainability assurance work (2021: £nil)

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

7 Employee information

	2022 Number	2021 Number
United Kingdom	**19,900**	19,700
Germany	**9,700**	9,500
United States	**5,000**	5,000
Spain	**1,800**	2,700
Italy	**900**	900
Singapore	**700**	900
Canada	**700**	700
India	**500**	600
France	**100**	600
Nordics	**-**	700
Rest of world	**2,500**	2,700
Monthly average number of employees	**41,800**	44,000

	2022 Number	2021 Number
Civil Aerospace	**17,700**	17,900
Defence	**11,000**	11,100
Power Systems	**9,400**	9,100
New Markets	**800**	400
Other businesses [1]	**-**	1,400
Corporate [2]	**100**	100
Monthly average number of employees excluding discontinued operations	**39,000**	40,000
ITP Aero (classified as discontinued operation) [3]	**2,800**	4,000
Monthly average number of employees	**41,800**	44,000

	2022			2021		
	Continuing operations	**Discontinued operations**	**Total**	Continuing operations	Discontinued operations	Total
	£m	**£m**	**£m**	£m	£m	£m
Wages, salaries and benefits	**2,629**	**117**	**2,746**	2,392	154	2,546
Social security costs	**378**	**27**	**405**	343	36	379
Share-based payments (note 23)	**47**	**-**	**47**	28	-	28
Pensions and other post-retirement scheme benefits (note 21)	**268**	**2**	**270**	250	3	253
Group employment costs [4]	**3,322**	**146**	**3,468**	3,013	193	3,206

1 Other businesses are set out in note 2 on page 66

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

3 ITP Aero was disposed of on 15 September 2022. The monthly average number of employees over the nine months to disposal was 4,200

4 Remuneration of key management personnel is shown in note 25

8 Intangible assets

	Goodwill £m	Certification costs £m	Development expenditure £m	Customer relationships £m	Software [1] £m	Other £m	Total £m
Cost:							
At 1 January 2021	1,112	963	3,564	1,403	968	893	8,903
Additions	-	1	104	-	83	35	223
Transferred to assets held for sale [2]	-	(6)	(179)	(868)	(15)	(59)	(1,127)
Disposals	(4)	(22)	-	-	(51)	(2)	(79)
Reclassifications [3]	-	-	-	-	(2)	8	6
Exchange differences	(48)	(3)	(96)	(60)	(5)	(42)	(254)
At 31 December 2021	1,060	933	3,393	475	978	833	7,672
Additions	**-**	**-**	**131**	**-**	**78**	**21**	**230**
Disposals	**-**	**-**	**-**	**-**	**(90)**	**(1)**	**(91)**
Exchange differences	**75**	**2**	**80**	**37**	**12**	**33**	**239**
At 31 December 2022	**1,135**	**935**	**3,604**	**512**	**978**	**886**	**8,050**
Accumulated amortisation and impairment:							
At 1 January 2021	38	429	1,803	478	607	403	3,758
Charge for the year [4]	-	21	75	59	97	29	281
Impairment	-	-	-	-	1	8	9
Transferred to assets held for sale [2]	-	(4)	(51)	(176)	(10)	-	(241)
Disposals	(4)	(21)	-	-	(48)	(1)	(74)
Reclassifications [3]	-	-	(1)	-	6	1	6
Exchange differences	-	-	(66)	(19)	(3)	(20)	(108)
At 31 December 2021	34	425	1,760	342	650	420	3,631
Charge for the year [4]	**-**	**21**	**77**	**35**	**86**	**33**	**252**
Impairment	**-**	**-**	**17**	**-**	**13**	**5**	**35**
Disposals	**-**	**-**	**-**	**-**	**(82)**	**(1)**	**(83)**
Exchange differences	**2**	**1**	**58**	**29**	**8**	**19**	**117**
At 31 December 2022	**36**	**447**	**1,912**	**406**	**675**	**476**	**3,952**
Net book value at:							
At 31 December 2022	**1,099**	**488**	**1,692**	**106**	**303**	**410**	**4,098**
At 31 December 2021	1,026	508	1,633	133	328	413	4,041

[1] Includes £93m (2021: £115m) of software under course of construction which is not amortised

[2] ITP Aero was classified as a disposal group held for sale at 30 June 2021

[3] Includes reclassifications within intangible assets or from property, plant and equipment when available for use

[4] Charged to cost of sales and commercial and administrative costs except development costs, which are charged to research and development costs

At 31 December 2022, the Group had expenditure commitments for software of £37m (2021: £49m).

8 Intangible assets

Goodwill
In accordance with the requirements of IAS 36, goodwill is allocated to the Group's 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:

Cash-generating unit (CGU) or group of CGUs

	Primary operating segment	2022 £m	2021 £m
Rolls-Royce Power Systems AG	Power Systems	**818**	760
Rolls-Royce Deutschland Ltd & Co KG	Civil Aerospace	**241**	229
Other	Various	**40**	37
		1,099	1,026

Goodwill has been tested for impairment during 2022 on the following basis:

- The carrying values of goodwill have been assessed by reference to the recoverable amount, being the higher of value in use or fair value less costs of disposal (FVLCOD).
- The recoverable amount has been estimated using cash flows from the most recent forecasts prepared by the Directors, which are consistent with past experience and external sources of information on market conditions. These forecasts generally cover the next five years. Growth rates for the period not covered by the forecasts are based on growth rates of 1% to 2% which reflects the products, industries and countries in which the relevant CGU or group of CGUs operate. Inflation has been included based on contractual commitments where relevant. Where general inflation assumptions have been required, these have been estimated based on externally sourced data. General inflation assumptions of 3% to 4% have been included in the forecasts, depending on the nature and geography of the flows.
- The key forecast assumptions for the impairment tests are the discount rate and the cash flow projections, in particular the programme assumptions (such as sales volumes and product costs), the impact of foreign exchange rates on the relationship between selling prices and costs, and growth rates. Impairment tests are performed using prevailing exchange rates.
- The Group believe there are significant business growth opportunities to come from Rolls-Royce playing a leading role in the transition to net zero, whilst at the same time climate change poses potentially significant risks. The assumptions used by the Directors are based on past experience and external sources of information. The main climate-related areas that have been considered are the risk that regulatory changes could materially impact demand for its products (and hence the utilisation of the products whilst in service and their useful lives) and shifting investment focus towards more sustainable products and solutions. Based on the climate scenarios prepared, the forecasts do not assume a significant deterioration of demand for Civil Aerospace (including Rolls-Royce Deutschland) programmes given that all commercial aero-engines will be compatible with sustainable fuels by the end of 2023. Similarly, the most popular reciprocating engines in Power Systems will be compatible with sustainable fuels by the end of 2023. The investment required to ensure our new products will be compatible with net zero operation by 2030, and to achieve net zero scope 1 and 2 GHG emissions is reflected in the forecasts used.

A 1.5°C scenario has been prepared using key data points from external sources including Oxford Economics, Global Climate Service and Databank and the International Energy Agency. This scenario has been used as the basis of a sensitivity. It is assumed that governments adopt stricter product and behavioural standards and measures that result in higher carbon pricing. Under these conditions it is assumed that markets are willing to pay for low carbon solutions and that there is an economic return form strategic investments in low carbon alternatives. The sensitivity has considered the likelihood of demand changes for our products based on their relative fuel efficiency in the marketplace and the probability of alternatives being introduced earlier than currently expected. The sensitivity also reflects the impact of a broad range of potential costs imposed by policy or regulatory interventions (through carbon pricing). This sensitivity does not indicate the need for an impairment charge.

The principal assumptions for goodwill balances considered to be individually significant are:

Rolls-Royce Power Systems AG
- Recoverable amount represents fair value less costs of disposal (FVLCOD) to reflect the future strategy of the business. Whilst there are no indicators of impairment under the value in use method presented in 2021, the Directors consider that disclosing information prepared on a FVLCOD basis is a more useful representation of the recoverable amount when considering the future strategy of the business, including the impact of climate-related risks and opportunities. Due to the unavailability of observable market inputs or inputs based on market evidence, the fair value is estimated by discounting future cash flows (Level 3 as defined by IFRS 13 Fair Value Measurement) modified for market participants views;
- 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;
- Severe but plausible downside scenario in relation to macro-economic factors included with a 20% weighting;
- Cash flows beyond the five-year forecasts that are assumed to grow at 1.0% (2021: 2.0%); and
- Nominal post-tax discount rate of 10.0% (2021: 8.2%).

The Directors do not consider that any reasonably possible changes in the key assumptions (including taking consideration of the climate-related risks above) would cause the would cause the FVLCOD of the business to fall below its carrying value of goodwill.

8 Intangible assets

Rolls-Royce Deutschland Ltd & Co KG

- Recoverable amount represents the value in use of the assets in their current condition;
- 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;
- Severe but plausible downside scenario in relation to macro-economic factors included with a 25% weighting;
- Cash flows beyond the five-year forecasts are assumed to grow at 2.0% (2021: 2.0%); and
- Nominal pre-tax discount rate 13.2% (2021: 11.9%).

The Directors do not consider that any reasonably possible changes in the key assumptions (including taking consideration of the climate-related risks above) would cause the value in use of the goodwill to fall below its carrying value.

Other CGUs

Goodwill balances across the Group that are not considered to be individually significant were also tested for impairment, resulting in no impairment charge (2021: no impairment charge) being recognised at 31 December 2022.

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

	Residual life [1]	Net book value	
		2022	2021
		£m	£m
Trent programme intangible assets [2]	3-15 years	**1,826**	1,787
Business aviation programme intangible assets [3]	12-15 years	**250**	237
Intangible assets related to Power Systems [4]		**466**	491
		2,542	2,515

[1] Residual life reflects the remaining amortisation period of those assets where amortisation has commenced. As per page 61, the amortisation period of 15 years will commence on those assets which are not being amortised as the units are delivered

[2] Included within the Trent programmes are the Trent 1000, Trent 7000 and Trent XWB

[3] Included within business aviation are the Pearl 700 and Pearl 15

[4] Includes £114m (2021: £108m) in respect of a brand intangible asset which is not amortised. Remaining assets are amortised over a range of three to 20 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.

Other intangible assets (including programme intangible assets) have been reviewed for impairment in accordance with IAS 36. Assessments have considered potential triggers of impairment such as external factors including climate change, significant changes with an adverse effect on a programme and by analysing latest management forecasts against those prepared in 2021 to identify any deterioration in performance.

Where a trigger event has been identified, an impairment test has been carried out. Where an impairment was required the test was performed on the following basis:

- The carrying values have been assessed by reference to value in use. These have been estimated using cash flows from the most recent forecasts prepared by the Directors, which are consistent with past experience and external sources of information on market conditions over the lives of the respective programmes; and
- The key assumptions underlying cash flow projections are based on estimates of product performance related estimates, future market share and pricing and cost for uncontracted business. Climate-related risks are considered when making these estimates consistent with the assumptions above.

There have been no (2021: none) individually material impairment charges or reversals recognised during the year.

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 2021	1,994	5,442	1,025	451	8,912
Additions	19	120	6	154	299
Transferred to assets held for sale [1]	(200)	(305)	(22)	(8)	(535)
Disposals/write-offs	(59)	(264)	(11)	(23)	(357)
Reclassifications [2]	144	75	53	(271)	1
Exchange differences	(33)	(82)	(5)	(3)	(123)
At 31 December 2021	1,865	4,986	1,046	300	8,197
Additions	**34**	**127**	**26**	**162**	**349**
Disposals/write-offs	**(38)**	**(142)**	**(81)**	**(1)**	**(262)**
Reclassifications [2]	**3**	**82**	**(3)**	**(82)**	**-**
Exchange differences	**72**	**172**	**11**	**21**	**276**
At 31 December 2022	**1,936**	**5,225**	**999**	**400**	**8,560**
Accumulated depreciation and impairment:					
At 1 January 2021	679	3,336	374	8	4,397
Charge for the year [3]	70	312	57	-	439
Impairment	1	18	-	-	19
Transferred to assets held for sale [1]	(74)	(127)	(5)	-	(206)
Disposals/write-offs	(48)	(254)	(1)	-	(303)
Reclassifications [2]	(7)	11	(10)	-	(6)
Exchange differences	(7)	(52)	(1)	-	(60)
At 31 December 2021	614	3,244	414	8	4,280
Charge for the year [3]	**79**	**296**	**55**	**-**	**430**
Impairment [4]	**5**	**(5)**	**-**	**-**	**-**
Disposals/write-offs	**(24)**	**(142)**	**(57)**	**-**	**(223)**
Reclassifications [2]	**(2)**	**5**	**(3)**	**-**	**-**
Exchange differences	**23**	**109**	**4**	**1**	**137**
At 31 December 2022	**695**	**3,507**	**413**	**9**	**4,624**
Net book value at:					
At 31 December 2022	**1,241**	**1,718**	**586**	**391**	**3,936**
At 31 December 2021	1,251	1,742	632	292	3,917

[1] ITP Aero and certain property, plant and equipment related to the Group's site rationalisation activities were classified as a disposal group or assets held for sale during the year to 31 December 2021

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

[3] Depreciation is charged to cost of sales and commercial and administrative costs or included in the cost of inventory as appropriate

[4] The carrying values of property, plant and equipment have been assessed during the year in line with IAS 36. Material items of plant and equipment and aircraft and engines are assessed for impairment together with other assets used in individual programmes - see assumptions in note 8. Land and buildings are generally used across multiple programmes and are considered based on future expectations of the use of the site, which includes any implications from climate-related risks as explained in note 8. As a result of this assessment, there are no individually material impairment charges or reversals in the year. The reversal in the year relates to an element of the non-underlying impairments recorded in 2020 in Civil Aerospace for site rationalisation where there has been a subsequent change in strategy to continue production on those sites

Property, plant and equipment includes:

	2022 £m	2021 £m
Assets held for use in leases where the Group is the lessor:		
Cost	**779**	808
Depreciation	**(343)**	(311)
Net book value	**436**	497
Capital expenditure commitments	**221**	121
Cost of fully depreciated assets	**2,184**	2,001

The Group's share of equity accounted entities' capital commitments is £34m (2021: £22m).

10 Right-of-use assets

	Land and buildings £m	Plant and equipment £m	Aircraft and engines £m	Total £m
Cost:				
At 1 January 2021	447	150	1,833	2,430
Additions/modifications of leases	37	15	30	82
Transferred to assets held for sale [1]	(16)	(2)	-	(18)
Disposals	(8)	(16)	(66)	(90)
Reclassifications to PPE	-	-	(8)	(8)
Exchange differences	(4)	(4)	(4)	(12)
At 31 December 2021	456	143	1,785	2,384
Additions/modifications of leases	**52**	**34**	**59**	**145**
Disposals	**(30)**	**(19)**	**(22)**	**(71)**
Exchange differences	**28**	**4**	**5**	**37**
At 31 December 2022	**506**	**162**	**1,827**	**2,495**
Accumulated depreciation and impairment:				
At 1 January 2021	159	60	806	1,025
Charge for the year	43	30	199	272
Impairment [2]	(2)	(6)	(7)	(15)
Transferred to assets held for sale [1]	(4)	(1)	-	(5)
Disposals	(8)	(16)	(66)	(90)
Reclassifications to PPE	-	-	(1)	(1)
Exchange differences	(2)	(1)	(2)	(5)
At 31 December 2021	186	66	929	1,181
Charge for the year	**43**	**37**	**190**	**270**
Impairment [2]	**(2)**	**(1)**	**20**	**17**
Disposals	**(13)**	**(19)**	**(22)**	**(54)**
Exchange differences	**16**	**1**	**3**	**20**
At 31 December 2022	**230**	**84**	**1,120**	**1,434**
Net book value at:				
At 31 December 2022	**276**	**78**	**707**	**1,061**
At 31 December 2021	270	77	856	1,203
Right-of-use assets held for use in operating leases where the Group is the lessor				
Cost	**6**	**-**	**1,827**	**1,833**
Depreciation	**(3)**	**-**	**(1,120)**	**(1,123)**
Net book value at 31 December 2022	**3**	**-**	**707**	**710**
Cost	2	1	1,785	1,788
Depreciation	(1)	(1)	(929)	(931)
Net book value at 31 December 2021	1	-	856	857

[1] ITP Aero was classified as a disposal group held for sale at 30 June 2021

[2] The carrying values of right-of-use assets have been assessed during the year in line with IAS 36. Material items of plant and equipment and aircraft and engines are assessed for impairment together with other assets used in individual programmes - see assumptions in note 8. Land and buildings are generally used across multiple programmes and are considered based on future expectations of the use of the site (which includes any implications from climate-related risks as explained in note 8). During the year, a reversal was recognised relating to an element of the non-underlying impairments recorded in 2020 in Civil Aerospace for site rationalisation where there has been a subsequent change in strategy to continue production on those sites. In addition, a charge of £20m was recognised due to the current sanctions applicable over assets in Russia. At the balance sheet date the Group could not access the assets that were on lease and it is not known when this situation would be resolved to enable the Group to generate a recoverable amount

11 Investments

Composition of the Group

The entities contributing to the Group's financial results are listed on pages 140 to 145.

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.

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

Equity accounted and other investments

	Equity accounted			Other [1]
	Joint ventures £m	Associates £m	Total £m	£m
At 1 January 2021	393	1	394	19
Additions	2	1	3	27
Disposals	-	-	-	(1)
Impairment	(2)	-	(2)	(5)
Share of retained profit/(loss) [2]	19	(1)	18	-
Reclassification of deferred profit to deferred income [3]	(24)	-	(24)	-
Transferred to assets held for sale [4]	(35)	-	(35)	-
Repayment of loans	(3)	-	(3)	-
Revaluation of other investments accounted for at FVOCI	-	-	-	(2)
Exchange differences	8	-	8	(2)
Share of OCI [5]	45	-	45	-
At 1 January 2022	**403**	**1**	**404**	**36**
Additions [6]	**29**	**-**	**29**	**7**
Disposals	**-**	**(1)**	**(1)**	**(2)**
Impairment [7]	**(74)**	**-**	**(74)**	**(1)**
Share of retained loss [2]	**(25)**	**-**	**(25)**	**-**
Reclassification of deferred profit to deferred income [3]	**(4)**	**-**	**(4)**	**-**
Repayment of loans	**(5)**	**-**	**(5)**	**-**
Revaluation of other investments accounted for at FVOCI	**-**	**-**	**-**	**(4)**
Exchange differences	**96**	**-**	**96**	**-**
Share of OCI	**2**	**-**	**2**	**-**
At 31 December 2022	**422**	**-**	**422**	**36**

[1] Other investments includes unlisted investments of £26m (2021: £29m) and listed investments of £10m (2021: £7m)

[2] See table below

[3] 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

[4] The Group's investment in Airtanker Holdings Limited has been classified as a non-current asset held for sale since 13 September 2021. Further detail can be found in note 26

[5] Up to 13 September 2021 when Airtanker Holdings Limited was transferred to held for sale, the Group recognised share of OCI relating to cash flow hedges of £43m

[6] During the year, additions to investments of £29m include the following significant transactions: On 20 June 2022, the Group acquired a 54% investment in Hoeller Electrolyzer. Although the Group has acquired a 54% stake, the Group has considered whether the majority stake constitutes a subsidiary as per the basis of consolidation on page 107. Based on key decisions requiring consent from both shareholders, the Group has concluded that Hoeller Electrolyser is jointly controlled and is equity accounted in the Consolidated Financial Statements. On 1 September 2022, Rolls-Royce and Air China established a joint venture called Beijing Aero Engine Services Company Limited

[7] During the year, one of the Group's investments in its Civil Aerospace joint venture repair and overhaul facilities has been impaired by £74m. This reflects the Directors' updated judgement of the recoverable amount from that investment when measured on a value in use basis by discounting expected future dividends at 12.4% (cost of equity for the Civil Aerospace business). The charge in the year reflects a higher discount rate and revised assumptions taking into account the impact of inflation and interest rates on that business, reflecting current market conditions

Reconciliation of share of retained (loss)/profit to the income statement and cash flow statement:

	2022 £m	2021 £m
Share of results of joint ventures and associates	**9**	22
Adjustments for intercompany trading [1]	**39**	23
Share of results of joint ventures and associates to the Group	**48**	45
Dividends paid by joint ventures and associates to the Group (cash flow statement)	**(73)**	(27)
Share of retained (loss)/profit attributable to continuing operations (above)	**(25)**	18

[1] During the year, the Group sold spare engines to Rolls-Royce & Partners Finance, a joint venture and subsidiary of Alpha Partners Leasing Limited. 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 2022 and 2021, profit deferred on the sale of engines was lower than the release of that deferred in prior years

11 Investments

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	
	2022 £m	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m
Revenue	**310**	278	**2,388**	1,605	**2,012**	1,057
Profit/(loss) and total comprehensive income/(expense) for the year	**55**	(16)	**72**	51	**31**	20
Dividends paid during the year	**(22)**	–	**(66)**	(46)	**–**	–
Profit/(loss) for the year included the following:						
Depreciation and amortisation	**(190)**	(165)	**(13)**	(14)	**(21)**	(20)
Interest income	**–**	–	**–**	–	**1**	–
Interest expense	**(89)**	(65)	**(2)**	(1)	**(3)**	(3)
Income tax expense	**(13)**	(77)	**(14)**	(10)	**(2)**	–
Current assets	**375**	314	**886**	533	**865**	676
Non-current assets	**3,199**	2,978	**98**	90	**154**	151
Current liabilities	**(480)**	(287)	**(716)**	(343)	**(687)**	(554)
Non-current liabilities	**(2,389)**	(2,401)	**(26)**	(73)	**(60)**	(65)
Net assets	**705**	604	**242**	207	**272**	208
Included in the above:						
Cash and cash equivalents	**239**	239	**6**	30	**61**	105
Current financial liabilities [1]	**(411)**	(217)	**(135)**	–	**–**	–
Non-current financial liabilities [1]	**(2,003)**	(2,048)	**(17)**	(67)	**(60)**	(65)
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	**353**	302	**121**	104	**136**	104
Goodwill	**–**	–	**38**	34	**11**	78
Adjustments for intercompany trading	**(353)**	(302)	**(2)**	(1)	**–**	–
Included in the balance sheet	**–**	–	**157**	137	**147**	182

[1] Excluding trade payables and other liabilities

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

	Individually material joint ventures (above)		Other joint ventures [1]		Associates		Total	
	2022 £m	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m
Assets:								
Non-current assets	**1,726**	1,610	**199**	205	**–**	–	**1,925**	1,815
Current assets	**1,063**	762	**327**	316	**–**	1	**1,390**	1,079
Liabilities: [2]								
Current liabilities	**(942)**	(592)	**(245)**	(232)	**–**	–	**(1,187)**	(824)
Non-current liabilities	**(1,237)**	(1,270)	**(58)**	(84)	**–**	–	**(1,295)**	(1,354)
Group adjustment for goodwill	**49**	112	**–**	–	**–**	–	**49**	112
Adjustment for intercompany trading	**(355)**	(303)	**(105)**	(121)	**–**	–	**(460)**	(424)
Included in the balance sheet	**304**	319	**118**	84	**–**	1	**422**	404
[2] Liabilities include borrowings of:	**(1,313)**	(1,198)	**(84)**	(534)	**–**	–	**(1,397)**	(1,732)

[1] The aggregate value of the Group's share of profit/(loss) and total comprehensive (expense)/income of individually immaterial joint ventures is £(68)m (2021: £39m)

12 Inventories

	2022 **£m**	2021 £m
Raw materials	**479**	376
Work in progress	**1,633**	1,135
Finished goods	**2,593**	2,146
Payments on account	**3**	9
	4,708	3,666

Inventories stated at net realisable value	**209**	215
Amount of inventory write-down	**85**	92
Reversal of inventory write-down	**27**	26

13 Trade receivables and other assets

	Current		Non-current		Total	
	2022 **£m**	2021 £m	**2022** **£m**	2021 £m	**2022** **£m**	2021 £m
Trade receivables [1, 2]	**2,376**	2,140	**43**	52	**2,419**	2,192
Prepayments	**886**	572	**893**	378	**1,779**	950
Receivables due on RRSAs [2]	**928**	702	**255**	67	**1,183**	769
Amounts owed by joint ventures and associates	**632**	598	**16**	1	**648**	599
Amounts due from parent undertakings	**335**	335	**-**	–	**335**	335
Other taxation and social security receivable	**147**	197	**9**	8	**156**	205
Costs to obtain contracts with customers [3]	**12**	13	**67**	41	**79**	54
Other receivables [4]	**617**	593	**55**	20	**672**	613
	5,933	5,150	**1,338**	567	**7,271**	5,717

Trade receivables and other assets are analysed as follows:		
Financial instruments (note 19):		
Trade receivable and similar items	**4,482**	3,801
Other non-derivative financial assets	**775**	704
Non-financial instruments	**2,014**	1,212
	7,271	5,717

[1] Non-current trade receivables relate to amounts not expected to be received in the next 12 months from customers on payment plans

[2] Includes receivables due from ITP Aero that were previously eliminated on consolidation

[3] These are amortised over the term of the related contract in line with engine deliveries, resulting in amortisation of £11m (2021: £9m) in the year. There were no impairment losses

[4] Other receivables includes unbilled recoveries relating to completed overhaul activity where the right to consideration is unconditional

Amounts due from group undertakings are unsecured, interest-free, have no fixed date of repayment and are repayable on demand.

The Group has adopted the simplified approach to provide for ECLs, measuring the loss allowance at a probability weighted amount incorporated by using credit ratings which are publicly available, or through internal risk assessments derived using the customer's latest available financial information.

The ECLs for trade receivables and other assets has increased by £87m to £346m (31 December 2021: increased by £7m to £259m). This movement is mainly driven by the Civil Aerospace business of £90m, of which £83m relates to specific customers and £7m relates to updates to the recoverability of other receivables.

The assumptions and inputs used for the estimation of the ECLs are shown in the table below:

	2022			2021 [1]		
	Trade receivables and other financial assets **£m**	**Loss allowance** **£m**	**Average ECL rate** **%**	Trade receivables and other financial assets £m	Loss allowance £m	Average ECL rate %
Investment grade [2]	**1,972**	**(177)**	**9%**	1,630	(68)	4%
Non-investment grade	**124**	**(16)**	**13%**	48	(2)	4%
Without credit rating	**3,507**	**(153)**	**4%**	3,086	(189)	6%
	5,603	**(346)**	**6%**	4,764	(259)	5%

[1] During the year, the presentation of ECLs has been analysed in greater detail. This has resulted in comparative balances being represented in more appropriate line items. Trade receivables and other financial assets that are classified as investment grade has increased by £204m, with is a decrease of £99m and £105m to those classified as non-investment grade and without credit rating respectively. The loss allowance against assets classified as investment grade has increased by £41m with the respective decrease in the loss allowance for those without a credit rating. The total amount of trade receivables and other financial assets and loss allowance as at 31 December 2021 has remained unchanged

[2] Counterparties with a credit rating of 'C' or above are classified as investment grade

13 Trade receivables and other assets

The movements of the Group's ECLs provision are as follows:

	2022 £m	2021 £m
At 1 January	**(259)**	(252)
Increases in loss allowance recognised in the income statement during the year	**(118)**	(124)
Loss allowance utilised	**22**	46
Releases of loss allowance previously provided	**45**	46
Transferred to assets held for sale	**–**	2
Exchange differences	**(36)**	23
At 31 December	**(346)**	(259)

14 Contract assets and liabilities

	Current		Non-current [1]		Total [2]	
	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m
Contract assets						
Contract assets with customers	**621**	586	**617**	641	**1,238**	1,227
Participation fee contract assets	**28**	27	**215**	219	**243**	246
	649	613	**832**	860	**1,481**	1,473

[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 are 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

The balance includes £885m (2021: £915m) of Civil Aerospace LTSA assets, with most of the remaining balance relating to Defence. The decrease in the Civil Aerospace balance is due to collection of higher cash receipts than revenue recognised in relation to completion of performance obligations on those contracts with a contract asset balance. Revenue recognised relating to performance obligations satisfied in previous years was £26m in Civil Aerospace. No impairment losses in relation to these contract assets (2021: none) have arisen during the year.

Participation fee contract assets have reduced by £3m (2021: £188m) due to amortisation exceeding additions by £7m, offset by foreign exchange on consolidation of £4m.

The absolute value of ECLs for contract assets has increased by £6m to £21m (2021: £15m).

	Current		Non-current		Total	
	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m
Contract liabilities	**4,825**	3,599	**7,337**	6,710	**12,162**	10,309

Contract liabilities are analysed as follows:		
Financial instruments (note 19)	**420**	264
Non-financial instruments	**11,742**	10,045
	12,162	10,309

During the year £3,321m (2021: £2,713m) of the opening contract liability was recognised as revenue.

Contract liabilities have increased by £1,853m. The movement in the Group balance is as a result of increases in Civil Aerospace of £1,395m and Defence of £324m. The main reason for the Civil Aerospace increase is a growth in LTSA liabilities of £1,128m to £8,257m (2021: £7,129m) driven by growth in customer payments as engine flying hours continue to recover from the COVID-19 pandemic and price escalation. There have also been additional buy-in fees received in relation to new contracts. This has been partly offset by revenue being recognised in relation to performance obligations satisfied in previous years of £334m as contract performance improves, which decreases the contract liability. An increase in Defence is from the receipt of deposits in advance of performance obligations being completed.

15 Cash and cash equivalents

	2022 £m	2021 £m
Cash at bank and in hand	**847**	795
Money-market funds	**34**	49
Short-term deposits	**1,726**	1,777
Cash and cash equivalents per the balance sheet	**2,607**	2,621
Cash and cash equivalents included within assets held for sale (note 26)	**–**	25
Overdrafts (note 16)	**(2)**	(7)
Cash and cash equivalents per cash flow statement (page 48)	**2,605**	2,639

Cash and cash equivalents at 31 December 2022 includes £235m (2021: £89m) that is not available for general use by the Group. This balance includes £40m which is held in an account that is exclusively for the general use of Rolls-Royce Submarines Limited and £138m which is held exclusively for the use of *Rolls-Royce Saudi Arabia 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.

16 Borrowings and lease liabilities

	Current		Non-current		Total	
	2022 £m	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m
Unsecured						
Overdrafts	**2**	7	**–**	–	**2**	7
Bank loans [1]	**1**	2	**–**	1,975	**1**	1,977
0.875% Notes 2024 €550m [2]	**–**	–	**472**	471	**472**	471
3.625% Notes 2025 $1,000m [2]	**–**	–	**801**	781	**801**	781
3.375% Notes 2026 £375m [3]	**–**	–	**351**	394	**351**	394
4.625% Notes 2026 €750m [4]	**–**	–	**661**	624	**661**	624
5.75% Notes 2027 $1,000m [4]	**–**	–	**825**	735	**825**	735
5.75% Notes 2027 £545m	**–**	–	**541**	540	**541**	540
1.625% Notes 2028 €550m [2]	**–**	–	**444**	493	**444**	493
Other loans	**–**	–	**10**	10	**10**	10
Total unsecured	**3**	9	**4,105**	6,023	**4,108**	6,032
Lease liability – Land and buildings	**46**	46	**400**	365	**446**	411
Lease liability – Aircraft and engines	**278**	198	**1,047**	1,053	**1,325**	1,251
Lease liability – Plant and equipment	**31**	26	**45**	56	**76**	82
Total lease liabilities	**355**	270	**1,492**	1,474	**1,847**	1,744
Total borrowings and lease liabilities	**358**	279	**5,597**	7,497	**5,955**	7,776

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

[1] On 16 September 2022, the Group repaid the £2,000m loan maturing in 2025 (supported by an 80% guarantee from UK Export Finance)

[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. 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

[3] 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

[4] 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 ended 31 December 2022, the Group entered into a new £1,000m sustainability-linked facility, maturing in 2027 (supported by an *80% guarantee from UK Export Finance. The facility was undrawn at 31 December 2022.*

At 31 December 2022, the Group had total undrawn facilities of £5,500m (2021: £4,500m).

17 Leases

Leases as lessee

The net book value of lease right-of-use assets at 31 December 2022 was £1,061m (2021: £1,203m), with a lease liability of £1,847m (2021: £1,744m), per notes 10 and 16 respectively. Leases that have not yet commenced to which the Group is committed have a future liability of £39m and consist of mainly plant and equipment, and properties. The consolidated income statement shows the following amounts relating to leases:

	2022 £m	2021 £m
Land and buildings depreciation and impairment [1]	**(41)**	(41)
Plant and equipment depreciation and impairment [2]	**(36)**	(24)
Aircraft and engines depreciation and impairment [3]	**(210)**	(192)
Total depreciation and impairment charge for right-of-use assets	**(287)**	(257)
Adjustment of amounts payable under residual value guarantees within lease liabilities [3,4]	**3**	4
Expense relating to short-term leases of 12 months or less recognised as an expense on a straight-line basis [2]	**(28)**	(16)
Expense relating to variable lease payments not included in lease liabilities [3,5]	**(2)**	(2)
Total operating costs	**(314)**	(271)
Interest expense [6]	**(68)**	(63)
Total lease expense	**(382)**	(334)
Income from sub-leasing right-of-use assets	**32**	35
Total amount recognised in income statement	**(350)**	(299)

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 dependent upon utilisation rather than a periodic charge

6 Included in financing costs

The total cash outflow for leases in 2022 was £316m (2021: £448m). Of this £286m related to leases reflected in the lease liability, £28m to short-term leases where lease payments are expensed on a straight-line basis and £2m 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 and restoration costs that are recognised within depreciation over the term of the lease, the most significant amounts relate to engine leases.

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 lessees 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 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.

	2022 £m	2021 £m
Operating lease income – credited within revenue from aftermarket services [1,2]	**84**	80

1 Includes variable lease payments received of £73m (2021: £71m) 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

Total non-cancellable future operating lease rentals (undiscounted) of £95m (2021: £58m) are receivable over the next 12 years. £12m (2021: £9m) is due within one year, £45m (2021: £28m) between one to five years and £38m (2021: £21m) after five years.

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 2022, the total undiscounted lease payments receivable is £39m (2021: £19m) on annual lease income of £4m (2021: £2m). The discounted finance lease receivable at 31 December 2022 is £32m (2021: £17m). There was £nil (2021: £nil) finance income recognised during the year.

18 Trade payables and other liabilities

	Current		Non-current		Total	
	2022	2021	**2022**	2021	**2022**	2021
	£m	£m	**£m**	£m	**£m**	£m
Trade payables [1]	**1,735**	1,272	**-**	-	**1,735**	1,272
Accruals	**1,477**	1,361	**199**	192	**1,676**	1,553
Customer concession credits [2]	**616**	1,106	**864**	399	**1,480**	1,505
Payables due on RRSAs [1]	**1,392**	739	**-**	-	**1,392**	739
Deferred receipts from RRSA workshare partners	**32**	23	**829**	484	**861**	507
Amounts owed to joint ventures and associates	**567**	486	**-**	-	**567**	486
Warranty credits	**212**	201	**152**	161	**364**	362
Government grants [3]	**21**	28	**41**	39	**62**	67
Other taxation and social security	**88**	40	**-**	-	**88**	40
Other payables [4]	**843**	761	**279**	300	**1,122**	1,061
	6,983	6,017	**2,364**	1,575	**9,347**	7,592

Trade payables and other liabilities are analysed as follows [5]:		
Financial instruments (note 19):		
Trade payables and similar items	**5,739**	4,409
Other non-derivative financial liabilities	**2,385**	2,403
Non-financial instruments	**1,223**	780
	9,347	7,592

1 Includes payables due to ITP Aero that were previously eliminated on consolidation
2 Customer concession credits are a form of discount and are reported within revenue as set out on page 56
3 During the year, £20m, including £5m in discontinued operations, (2021: £13m) of government grants were released to the income statement
4 Other payables includes parts purchase obligations, payroll liabilities, HM Government UK levies and payables associated with business disposals
5 During the year, the classification between financial instruments and non-financial instruments has been reviewed and resulted in an increase to the classification of trade payables and other liabilities disclosed as financial instruments of £364m

The Group's payment terms with suppliers vary on the products and services being sourced, the competitive global markets the Group operates in and other commercial aspects of suppliers' relationships. Industry average payment terms vary between 90-120 days. The Group offers reduced payment terms for smaller suppliers, so that they are paid in 30 days. In line with aerospace industry practice, the Group offers a SCF programme in partnership with banks to enable suppliers, including joint ventures, who are on standard 75-day payment terms to receive their payments sooner. The SCF programme is available to suppliers at their discretion and does not change rights and obligations with suppliers nor the timing of payment of suppliers. At 31 December 2022 suppliers had drawn £422m under the SCF scheme (2021: £540m).

19 Financial instruments

Carrying values and fair values of financial instruments

			Assets			Liabilities		Total
	Notes	Basis for determining fair value	FVPL £m	FVOCI £m	Amortised cost £m	FVPL £m	Other £m	£m
2022								
Other non-current asset investments	11	A	**26**	**10**	–	–	–	**36**
Trade receivables and similar items	13	B/C	–	**10**	**4,472**	–	–	**4,482**
Other non-derivative financial assets	13	B		–	**775**	–	–	**775**
Other assets		D	**35**	–	–	–	–	**35**
Derivative financial assets [1]		C	**648**	–	–	–	–	**648**
Short-term investments		B	–	–	**11**	–	–	**11**
Cash and cash equivalents	15	B	**34**	–	**2,573**	–	–	**2,607**
Borrowings	16	E/F	–	–	–	–	**(4,108)**	**(4,108)**
Lease liabilities	16	G	–	–	–	–	**(1,847)**	**(1,847)**
Derivative financial liabilities [1]		C	–	–	–	**(4,099)**	–	**(4,099)**
Financial RRSAs		H	–	–	–	–	**(22)**	**(22)**
Other liabilities		H	–	–	–	–	**(101)**	**(101)**
Trade payables and similar items	18	B	–	–	–	–	**(5,739)**	**(5,739)**
Other non-derivative financial liabilities	18	B	–	–	–	–	**(2,385)**	**(2,385)**
Contract liabilities	14	B	–	–	–	–	**(420)**	**(420)**
			743	**20**	**7,831**	**(4,099)**	**(14,622)**	**(10,127)**
2021								
Other non-current asset investments	11	A	36	–	–	–	–	36
Trade receivables and similar items	13	B/C	–	17	3,784	–	–	3,801
Other non-derivative financial assets	13	B	–	–	704	–	–	704
Other assets		D	28	–	–	–	–	28
Derivative financial assets [1]		C	379	–	–	–	–	379
Short-term investments		B	–	–	8	–	–	8
Cash and cash equivalents	15	B	49	–	2,572	–	–	2,621
Borrowings	16	E/F	–	–	–	–	(6,032)	(6,032)
Lease liabilities	16	G	–	–	–	–	(1,744)	(1,744)
Derivative financial liabilities [1]		C	–	–	–	(3,292)	–	(3,292)
Financial RRSAs		H	–	–	–	–	(12)	(12)
Other		H	–	–	–	–	(75)	(75)
Trade payables and similar items [2]	18	B	–	–	–	–	(4,409)	(4,409)
Other non-derivative financial liabilities	18	B	–	–	–	–	(2,403)	(2,403)
Contract liabilities	14	B	–	–	–	–	(264)	(264)
			492	17	7,068	(3,292)	(14,939)	(10,654)

[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 £8m (2021: £nil) and liabilities £3,459m (2021: £2,913m)

[2] During the year, trade payables and similar items have been analysed in greater detail and consequently have been represented to include items previously classified as non-financial instruments

19 Financial instruments

Fair values equate to book values for both 2022 and 2021, with the following exceptions:

	Basis for determining fair value	2022 Book value £m	2022 Fair value £m	2021 Book value £m	2021 Fair value £m
Borrowings	E	**(4,095)**	**(3,812)**	(4,038)	(4,106)
Borrowings	F	**(13)**	**(15)**	(1,994)	(2,122)
Financial RRSAs	H	**(22)**	**(22)**	(12)	(13)

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. There have been no transfers during the year from or to Level 3 valuation. 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. Listed investments are valued using Level 1 methodology
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)
D Other assets are included on the balance sheet at fair value, derived from observable market prices or latest forecast (Level 2/Level 3). At 31 December 2022, Level 3 assets totalled £25m (2021: £15m)
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)
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)*
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)
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)

IFRS 13 *Fair Value Measurement* defines a three level valuation hierarchy:
Level 1 – quoted prices for similar instruments;
Level 2 – directly observable market inputs other than Level 1 inputs; and
Level 3 – inputs not based on observable market data.

Carrying value of other financial assets and liabilities

	Foreign exchange contracts £m	Commodity contracts £m	Interest rate contracts[1] £m	Total derivatives £m	Financial RRSAs £m	Other £m	Total £m
2022							
Non-current assets	**58**	**25**	**436**	**519**	**-**	**23**	**542**
Current assets	**87**	**40**	**2**	**129**	**-**	**12**	**141**
Assets	**145**	**65**	**438**	**648**	**-**	**35**	**683**
Current liabilities	**(966)**	**(1)**	**(2)**	**(969)**	**(8)**	**(15)**	**(992)**
Non-current liabilities	**(3,030)**	**(2)**	**(98)**	**(3,130)**	**(14)**	**(86)**	**(3,230)**
Liabilities	**(3,996)**	**(3)**	**(100)**	**(4,099)**	**(22)**	**(101)**	**(4,222)**
	(3,851)	**62**	**338**	**(3,451)**	**(22)**	**(66)**	**(3,539)**
2021							
Non-current assets	159	11	176	346	-	15	361
Current assets	12	21	-	33	-	13	46
Assets	171	32	176	379	-	28	407
Current liabilities	(629)	-	-	(629)	(7)	(28)	(664)
Non-current liabilities	(2,581)	-	(82)	(2,663)	(5)	(47)	(2,715)
Liabilities	(3,210)	-	(82)	(3,292)	(12)	(75)	(3,379)
	(3,039)	32	94	(2,913)	(12)	(47)	(2,972)

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

19 Financial instruments

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 [1]		Interest rate instruments – non-hedge accounted		Total	
	2022 £m	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m
At 1 January	**(3,039)**	(2,871)	**32**	(11)	**57**	233	**37**	(57)	**(2,913)**	(2,706)
Movements in fair value hedges	**-**	-	**-**	-	**(74)**	(143)	**-**	-	**(74)**	(143)
Movements in cash flow hedges	**(56)**	(13)	**-**	4	**142**	(2)	**-**	-	**86**	(11)
Movements in other derivative contracts [2]	**(1,875)**	(681)	**106**	63	**-**	-	**190**	80	**(1,579)**	(538)
Contracts settled	**1,119**	538	**(76)**	(9)	**-**	(31)	**(14)**	14	**1,029**	512
Reclassification to held for sale	**-**	(12)	**-**	(15)	**-**	-	**-**	-	**-**	(27)
At 31 December	**(3,851)**	(3,039)	**62**	32	**125**	57	**213**	37	**(3,451)**	(2,913)

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

[2] Included in net financing

Financial RRSAs and other financial assets and 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	
	2022 £m	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m
At 1 January	**(12)**	(81)	**15**	15	**(75)**	(73)
Exchange adjustments included in OCI	**(2)**	4	**2**	-	**(4)**	4
Additions	**(6)**	-	**11**	-	**(35)**	(9)
Financing charge [1]	**-**	-	**-**	-	**(4)**	(1)
Excluded from underlying profit/(loss):						
Changes in forecast payments [1]	**(7)**	(7)	**-**	-	**-**	-
Cash paid	**5**	3	**(3)**	-	**8**	3
Other	**-**	-	**-**	-	**9**	1
Reclassification to held for sale	**-**	69	**-**	-	**-**	-
At 31 December	**(22)**	(12)	**25**	15	**(101)**	(75)

[1] Included in financing

19 Financial instruments

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 [2]						
	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* [3] £m	Weighted *average* FX rate	Weighted average *interest* rate
At 31 December 2022											
Sterling	**(375)**	**43**	**24**	**(351)**	**375**	**-**	**(24)**	**(43)**	**-**	**1.00**	**SONIA +0.89**
USD	**(658)**	**(20)**	**(143)**	**(801)**	**658**	**134**	**-**	**18**	**(2)**	**1.52**	**SONIA +1.47**
Euro	**(968)**	**49**	**52**	**(916)**	**968**	**-**	**(72)**	**(51)**	**(2)**	**1.14**	**SONIA +0.92**
At 31 December 2021											
Sterling	(375)	27	(19)	(394)	375	19	-	(27)	-	1.00	SONIA +0.89
USD	(658)	19	(125)	(781)	658	116	-	(20)	(1)	1.52	SONIA +1.47
Euro	(968)	91	1	(965)	968	-	(21)	(90)	1	1.14	SONIA +0.92

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.

During the year to 31 December 2022, the Group entered into deal contingent forwards with a nominal amount of €1,500m to manage the foreign exchange risk in Euro proceeds expected from the disposal of ITP Aero (hedged item). These contracts were designated as the hedging instrument in cash flow hedges with hedge ratio of 1:1. At inception, the existence of an economic relationship between the hedged item and the hedging instrument is verified. Both the spot component and the contingent element were designated as the hedging instrument.

At deal completion these contracts had a fair value of £(56)m based on the weighted average foreign exchange rate of 1.1992 £52m was reclassified to loss on disposal in the income statement from hedging reserves (£62m from hedging reserve and £(10)m from cost of hedging reserve). There was ineffectiveness of £4m recognised in net financing during the year. The forward element and basis were excluded from the hedging instrument designation and are separately accounted for in the equity reserve for cost of hedging.

The impact of cash flow hedges on the financial position and performance of the Group is as follows:

	Hedged item		Hedging instrument [1]						Hedging reserves		
	Nominal £m	FV movement in the *period* £m	*Nominal* £m	Carrying amount asset/ *(liability)* £m	FV movement in the *period* £m	Hedge ineffectiveness *in the period* £m	Weighted *average* FX rate	Weighted average *interest* rate	Amount recognised *in OCI* £m	Recycled to net *financing* £m	Closing cash flow hedge *reserve* £m
At 31 December 2022											
USD	**(772)**	**(104)**	**772**	**89**	**109**	**5**	**1.29**	**5.33**	**(111)**	**96**	**(25)**
Euro	**(677)**	**(35)**	**677**	**(2)**	**35**	**-**	**1.11**	**5.45**	**(27)**	**28**	**(9)**
At 31 December 2021											
USD	(772)	(35)	772	(20)	35	-	1.29	5.33	(36)	10	(10)
Euro	(677)	32	677	(37)	(32)	(1)	1.11	5.45	39	(51)	(10)

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

19 Financial instruments

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 USD, 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.

During the year the Board approved a revised FX hedging policy reducing the time horizon from 10 years to 5 years. The Group economically hedges its GBP/USD exposure by forecasting highly probable net USD receipts up to five years forward. Hedges are taken out within prescribed maximum and minimum hedge positions set out in the Group FX policy. Transition of the existing hedge book to the levels stated with the new policy will be completed in the near term. The maximum and minimum policy bands decline gradually over the five-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.

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; and multiple smaller entities for Power Systems. 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 EUR, GBP and USD 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.

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.

19 Financial instruments

Derivative financial instruments

The nominal amounts, analysed by year of expected maturity, and fair values of derivative financial instruments are as follows:

	Nominal amount £m	Expected maturity: Within one year £m	Expected maturity: Between one and two years £m	Expected maturity: Between two and five years £m	Expected maturity: After five years £m	Fair value: Assets £m	Fair value: Liabilities £m
At 31 December 2022							
Foreign exchange contracts:							
Non-hedge accounted	**22,844**	**9,539**	**4,180**	**8,898**	**227**	**145**	**(3,996)**
Interest rate contracts:							
Fair value hedges	**2,001**	**-**	**484**	**1,033**	**484**	**135**	**(97)**
Cash flow hedges	**1,449**	**-**	**-**	**1,449**	**-**	**89**	**(2)**
Non-hedge accounted	**2,001**	**-**	**484**	**1,033**	**484**	**214**	**(1)**
Commodity contracts:							
Non-hedge accounted	**219**	**97**	**79**	**43**	**-**	**65**	**(3)**
	28,514	**9,636**	**5,227**	**12,456**	**1,195**	**648**	**(4,099)**
At 31 December 2021							
Foreign exchange contracts:							
Non-hedge accounted	28,767	6,975	8,139	12,471	1,182	171	(3,210)
Interest rate contracts:							
Fair value hedges	2,001	-	-	1,517	484	135	(21)
Cash flow hedges	1,449	-	-	677	772	-	(57)
Non-hedge accounted	2,001	-	-	1,517	484	41	(4)
Commodity contracts:							
Non-hedge accounted	179	85	60	34	-	32	-
	34,397	7,060	8,199	16,216	2,922	379	(3,292)

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: Sterling £m	USD £m	Euro £m	Other £m	Total £m
At 31 December 2022					
Currencies sold forward:					
Sterling	**-**	**4,321**	**45**	**146**	**4,512**
USD	**16,246**	**-**	**1,578**	**253**	**18,077**
Euro	**30**	**160**	**-**	**40**	**230**
Other	**-**	**8**	**17**	**-**	**25**
At 31 December 2021					
Currencies sold forward:					
Sterling	-	5,479	-	250	5,729
USD	19,916	-	2,430	325	22,671
Euro	-	263	-	46	309
Other	2	41	14	1	58

The nominal value of interest rate and commodity contracts are denominated in the following currencies:

	2022 £m	2021 £m
Sterling	**2,376**	2,376
USD	**1,629**	1,600
Euro	**1,665**	1,654

19 Financial instruments

Non-derivative financial instruments are denominated in the following currencies:

	Sterling £m	USD £m	Euro £m	Other £m	Total £m
At 31 December 2022					
Other non-current investments	**10**	**16**	**10**	**-**	**36**
Trade receivables and similar items	**566**	**3,270**	**565**	**81**	**4,482**
Other non-derivative financial assets	**61**	**666**	**33**	**15**	**775**
Other assets	**-**	**24**	**11**	**-**	**35**
Short-term investments	**-**	**-**	**11**	**-**	**11**
Cash and cash equivalents	**398**	**897**	**1,155**	**157**	**2,607**
Assets	**1,035**	**4,873**	**1,785**	**253**	**7,946**
Borrowings	**(893)**	**(1,627)**	**(1,587)**	**(1)**	**(4,108)**
Lease liabilities	**(181)**	**(1,401)**	**(49)**	**(216)**	**(1,847)**
Financial RRSAs	**-**	**(7)**	**(15)**	**-**	**(22)**
Other liabilities	**(11)**	**(90)**	**-**	**-**	**(101)**
Trade payables and similar items	**(690)**	**(4,315)**	**(675)**	**(59)**	**(5,739)**
Other non-derivative financial liabilities	**(271)**	**(1,941)**	**(129)**	**(44)**	**(2,385)**
Contract liabilities	**-**	**(420)**	**-**	**-**	**(420)**
Liabilities	**(2,046)**	**(9,801)**	**(2,455)**	**(320)**	**(14,622)**
	(1,011)	**(4,928)**	**(670)**	**(67)**	**(6,676)**
At 31 December 2021					
Other non-current investments	12	23	1	-	36
Trade receivables and similar items	511	2,776	450	64	3,801
Other non-derivative financial assets	16	640	30	18	704
Other assets	-	28	-	-	28
Short-term investments	-	-	8	-	8
Cash and cash equivalents	700	673	1,135	113	2,621
Assets	1,239	4,140	1,624	195	7,198
Borrowings	(2,915)	(1,518)	(1,598)	(1)	(6,032)
Lease liabilities	(188)	(1,300)	(48)	(208)	(1,744)
Financial RRSAs	-	-	(12)	-	(12)
Other liabilities	(17)	(58)	-	-	(75)
Trade payables and similar items [1]	(503)	(3,399)	(444)	(63)	(4,409)
Other non-derivative financial liabilities	(287)	(1,957)	(113)	(46)	(2,403)
Contract liabilities	-	(264)	-	-	(264)
Liabilities	(3,910)	(8,496)	(2,215)	(318)	(14,939)
	(2,671)	(4,356)	(591)	(123)	(7,741)

[1] During the year, trade payables and similar items have been analysed in greater detail and consequently have been represented to include items previously classified as non-financial instruments

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	USD £m	Euro £m	Other £m	Total £m
At 31 December 2022					
Sterling	**-**	**-**	**1**	**4**	**5**
USD	**(7)**	**-**	**(2)**	**7**	**(2)**
Euro	**(1)**	**-**	**-**	**-**	**(1)**
Other	**108**	**26**	**86**	**-**	**220**
At 31 December 2021					
Sterling	-	1	1	(4)	(2)
USD	(8)	-	-	4	(4)
Euro	1	(4)	-	3	-
Other	82	14	51	2	149

19 Financial instruments

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 2022					
Other non-current asset investments	**36**	**-**	**-**	**-**	**36**
Trade receivables and similar items	**3,981**	**219**	**169**	**113**	**4,482**
Other non-derivative financial assets	**755**	**9**	**10**	**1**	**775**
Other assets	**35**	**-**	**-**	**-**	**35**
Derivative financial assets	**648**	**-**	**-**	**-**	**648**
Short-term investments	**11**	**-**	**-**	**-**	**11**
Cash and cash equivalents	**2,607**	**-**	**-**	**-**	**2,607**
	8,073	**228**	**179**	**114**	**8,594**
At 31 December 2021					
Other non-current asset investments	36	-	-	-	36
Trade receivables and similar items	3,084	369	211	137	3,801
Other non-derivative financial assets	698	-	5	1	704
Other assets	28	-	-	-	28
Derivative financial assets	379	-	-	-	379
Short-term investments	8	-	-	-	8
Cash and cash equivalents	2,621	-	-	-	2,621
	6,854	369	216	138	7,577

Contractual maturity analysis of non-derivative financial liabilities

	Gross values				
	Within one year £m	Between one and two years £m	Between two and five years £m	After five years £m	Carrying value £m
At 31 December 2022					
Borrowings	**(168)**	**(653)**	**(3,612)**	**(510)**	**(4,108)**
Lease liabilities	**(435)**	**(311)**	**(886)**	**(734)**	**(1,847)**
Financial RRSAs	**(10)**	**(7)**	**(1)**	**(5)**	**(22)**
Other liabilities	**(15)**	**(10)**	**(30)**	**(46)**	**(101)**
Trade payables and similar items	**(5,352)**	**(147)**	**(107)**	**(133)**	**(5,739)**
Other non-derivative financial liabilities	**(1,367)**	**(427)**	**(234)**	**(357)**	**(2,385)**
Contract liabilities	**(420)**	**-**	**-**	**-**	**(420)**
	(7,767)	**(1,555)**	**(4,870)**	**(1,785)**	**(14,622)**
At 31 December 2021					
Borrowings	(259)	(265)	(4,806)	(1,849)	(6,032)
Lease liabilities	(322)	(261)	(724)	(852)	(1,744)
Financial RRSAs	(6)	(5)	(2)	-	(12)
Other liabilities	(27)	(9)	(24)	(15)	(75)
Trade payables and similar items [1]	(4,019)	(33)	(131)	(226)	(4,409)
Other non-derivative financial liabilities	(1,812)	(83)	(207)	(301)	(2,403)
Contract liabilities	(264)	-	-	-	(264)
	(6,709)	(656)	(5,894)	(3,243)	(14,939)

[1] During the year, trade payables and similar items have been analysed in greater detail and consequently have been represented to include items previously classified as non-financial instruments

19 Financial instruments

Expected maturity analysis of derivative financial instruments

	Gross values				
	Within one year £m	Between one and two years £m	Between two and five years £m	After five years £m	Carrying value £m
At 31 December 2022					
Derivative financial assets:					
Cash inflows	**3,002**	**551**	**3,179**	**-**	
Cash outflows	**(2,907)**	**(540)**	**(2,886)**	**-**	
Other net cash flows [1]	**131**	**90**	**98**	**7**	
	226	**101**	**391**	**7**	**648**
Derivative financial liabilities:					
Cash inflows	**6,658**	**4,238**	**8,290**	**722**	
Cash outflows	**(8,019)**	**(5,162)**	**(10,604)**	**(745)**	
Other net cash flows [1]	**(10)**	**(10)**	**(4)**	**-**	
	(1,371)	**(934)**	**(2,318)**	**(23)**	**(4,099)**
At 31 December 2021					
Derivative financial assets:					
Cash inflows	840	1,051	3,145	456	
Cash outflows	(811)	(1,017)	(2,922)	(445)	
Other net cash flows [1]	26	27	43	2	
	55	61	266	13	379
Derivative financial liabilities:					
Cash inflows	6,246	7,198	11,441	1,987	
Cash outflows	(6,917)	(8,022)	(13,200)	(2,314)	
Other net cash flows [1]	(2)	(1)	–	–	
	(673)	(825)	(1,759)	(327)	(3,292)

[1] Derivative financial assets and liabilities that are settled on a net cash basis

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.

	2022			2021		
	Fixed rate £m	**Floating rate £m**	**Total £m**	Fixed rate £m	Floating rate £m	Total £m
Short-term investments	**-**	**11**	**11**	–	8	8
Cash and cash equivalents [1]	**-**	**2,607**	**2,607**	–	2,621	2,621
Borrowings	**(4,096)**	**(12)**	**(4,108)**	(4,041)	(1,991)	(6,032)
Lease liabilities	**(1,235)**	**(612)**	**(1,847)**	(1,084)	(660)	(1,744)
	(5,331)	**1,994**	**(3,337)**	(5,125)	(22)	(5,147)
Weighted average interest rates						
Borrowings	**3.7%**	**4.7%**		3.7%	4.1%	
Lease liabilities [2]	**3.9%**	**6.3%**		4.0%	2.0%	

[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

None (2021: £8m (including borrowings classified as held for sale)) of the Group's borrowings are subject to the Group meeting certain obligations, including customary financial covenants. 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.

£111m (2021: £99m) 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 2022 none (2021: none) of these were in breach.

19 Financial instruments

Sensitivity Analysis

Sensitivities at 31 December (all other variables held constant) – impact on profit after tax and equity	2022 £m	2021 £m
Sterling 10% weaker against the USD	**(1,600)**	(1,687)
Sterling 10% stronger against the USD	**1,309**	1,382
Euro 10% weaker against the USD	**(46)**	(227)
Euro 10% stronger against the USD	**38**	185
Sterling 10% weaker against the Euro	**(17)**	(15)
Sterling 10% stronger against the Euro	**14**	12
Commodity prices 10% lower	**(21)**	(17)
Commodity prices 10% higher	**21**	17
Interest rates 50 basis points lower	**(65)**	(67)
Interest rates 50 basis points higher	**64**	65

20 Provisions for liabilities and charges

	At 31 December 2021 as previously reported £m	On adoption of amendment to IAS 37 £m	At 1 January 2022 £m	Charged to income statement [1] £m	Reversed £m	Utilised £m	Exchange differences £m	At 31 December 2022 £m
Contract losses	845	723	**1,568**	**520**	**(395)**	**(106)**	**5**	**1,592**
Warranty and guarantees	305	-	**305**	**98**	**(20)**	**(87)**	**21**	**317**
Trent 1000 wastage costs	157	-	**157**	**106**	**-**	**(84)**	**-**	**179**
Insurance	52	-	**52**	**15**	**(20)**	**(7)**	**-**	**40**
Employer liability claims	47	-	**47**	**3**	**(14)**	**(3)**	**-**	**33**
Restructuring	21	-	**21**	**-**	**(10)**	**(6)**	**1**	**6**
Customer financing	17	-	**17**	**-**	**(7)**	**(10)**	**-**	**-**
Tax related interest and penalties	14	-	**14**	**3**	**(2)**	**-**	**1**	**16**
Other	124	-	**124**	**47**	**(18)**	**(7)**	**4**	**150**
	1,582	723	**2,305**	**792**	**(486)**	**(310)**	**32**	**2,333**
Current liabilities	475		**513**					**632**
Non-current liabilities	1,107		**1,792**					**1,701**

[1] The charge to the income statement includes £33m (2021: £32m) as a result of the unwinding of the discounting of provisions previously recognised

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. As a result of the amendment to IAS 37 for Onerous Contracts, from 1 January 2022 provisions for contract losses have been measured on a fully costed basis resulting in a £723m increase of the total contract loss provision as at 1 January 2022 (see note 1 for details). During the year, additional contract losses for the Group of £520m have been recognised as a result of changes in future cost estimates, primarily in relation to LTSA shop visits, exchange rate movements and also includes £157m which arose from the sale of ITP Aero resulting in the recognition of the additional costs which were previously eliminated on consolidation. Contract losses of £395m previously recognised have been reversed following improvements to cost estimates across various large engine programmes as a result of operational improvements and updates to the discount rate. The Group continues to monitor the contract loss provision for changes in the market and revises the provision as required. The value of the remaining contract loss provisions reflect, in each case, the single most likely outcome. The provisions are expected to be utilised over the term of the customer contracts, typically within 8 to 16 years.

Warranty and guarantees

Provisions for warranty and guarantees primarily relate to products sold and are calculated based on an assessment of the remediation costs related to future claims based on past experience. The provision generally covers a period of up to three years.

Trent 1000 wastage 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. During the year, the Group has utilised £84m of the Trent 1000 wastage costs provision. This represents customer disruption costs and remediation shop visit costs. During the year, additional Trent 1000 costs of £106m relating to wastage have been recognised reflecting delays in certification which have led to revised cost and timing estimates. The value of the remaining provision reflects the single most likely outcome and is expected to be utilised over the period 2023-2024.

20 Provisions for liabilities and charges

Insurance
The Group's captive insurance company retains a portion of the exposures it insures on behalf of the remainder of the Group which include policies for aviation claims, employer liabilities and healthcare claims. Significant delays can 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 if the frequency or severity of claims differs from estimated. Provisions for outstanding claims are established to cover the outstanding expected liability as well as claims incurred but not yet reported.

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.

Customer financing
Customer financing provisions are made to cover guarantees provided for asset value and/or financing where it is probable that a payment will be made. 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. The values of aircraft providing security are based on advice from a specialist aircraft appraiser. There were no provisions for Customer financing provisions at 31 December 2022 (2021: £17m). The Group has contingent liabilities for customer financing arrangements where the payment is not probable. See note 24.

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.

Other
During the year, £47m of other provisions have been charged to the income statement. The items that make up the charge in the year are individually immaterial and predominately relate to claims. At 31 December 2022, other provisions includes those items as well as others (predominantly supplier claims), where the related legal proceedings are ongoing and utilisation will depend upon their resolution. The value of the provision reflects the single most likely outcome in each case.

21 Post-retirement 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 UK trust. The scheme closed to future accrual on 31 December 2020 for all active members and there are no new defined benefit accruals in the UK scheme. As at 31 December 2022 the scheme was estimated to be funded at 109% on the Technical Provisions basis.
- The Group also operates a large trust based defined contribution scheme for current employees in the UK (RRRST). Pension contributions are generally paid as a salary sacrifice 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 (2021: £45m) in the year.
- 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 healthcare 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 2022.

Changes to the UK defined benefit scheme
As at 31 December 2022, a constructive obligation has been recognised for the extension of the Bridging Pension Option (BPO) to other deferred members in RRUKPF. As a result, a past service credit of £6m has been recognised within non-underlying operating profit.

The Rolls-Royce North America salaried plan was closed to future accruals in 2021. On 1 December 2022, the remaining assets and liabilities were transferred to Legal and General America Group as a bulk annuity purchase and were derecognised from the balance sheet. This resulted in a settlement loss of £7m.

During the year, Power Systems replaced a number of their existing defined benefit schemes with a new company pension scheme to offer payment options at time of retirement. The new system, which is similar in structure to a defined contribution scheme with a guarantee from the Company in accordance with German legislation, significantly reduces interest risks and longevity risks for the employer for future commitments. Invested assets for the scheme will be managed by Swiss Life. A past service credit of £23m has been recognised within non-underlying operating profit.

21 Post-retirement benefits

Amounts recognised in the income statement

	2022 UK schemes £m	2022 Overseas schemes £m	2022 Total £m	2021 UK schemes £m	2021 Overseas schemes £m	2021 Total £m
Defined benefit schemes:						
Current service cost and administrative expenses	**8**	**44**	**52**	10	61	71
Past-service credit and settlement loss	**(6)**	**(19)**	**(25)**	(15)	(33)	(48)
	2	**25**	**27**	(5)	28	23
Defined contribution schemes	**154**	**87**	**241**	146	81	227
Operating cost	**156**	**112**	**268**	141	109	250
Net financing (credit)/charge in respect of defined benefit schemes	**(21)**	**23**	**2**	(16)	19	3
Total income statement charge	**135**	**135**	**270**	125	128	253

The operating cost is charged as follows:

	Defined benefit 2022 £m	Defined benefit 2021 £m	Defined contribution 2022 £m	Defined contribution 2021 £m	Total 2022 £m	Total 2021 £m
Cost of sales	**37**	50	**168**	158	**205**	208
Commercial and administrative costs	**(17)**	(38)	**38**	32	**21**	(6)
Research and development costs	**7**	11	**33**	35	**40**	46
	27	23	**239**	225	**266**	248
Discontinued operations	**–**	–	**2**	2	**2**	2
	27	23	**241**	227	**268**	250

Net financing comprises:

	2022 UK schemes £m	2022 Overseas schemes £m	2022 Total £m	2021 UK schemes £m	2021 Overseas schemes £m	2021 Total £m
Financing on scheme obligations	**149**	**46**	**195**	137	41	178
Financing on scheme assets	**(170)**	**(23)**	**(193)**	(153)	(22)	(175)
Net financing (income)/charge in respect of defined benefit schemes	**(21)**	**23**	**2**	(16)	19	3
Financing income on scheme surpluses	**(21)**	**(3)**	**(24)**	(16)	(1)	(17)
Financing cost on scheme deficits	**–**	**26**	**26**	–	20	20

Amounts recognised in OCI in respect of defined benefit schemes

	2022 UK schemes £m	2022 Overseas schemes £m	2022 Total £m	2021 UK schemes £m	2021 Overseas schemes £m	2021 Total £m
Actuarial gains and losses arising from:						
Demographic assumptions [1]	**19**	**–**	**19**	(101)	(2)	(103)
Financial assumptions [2]	**3,423**	**602**	**4,025**	416	159	575
Experience adjustments [3]	**(235)**	**(7)**	**(242)**	(88)	12	(76)
Return on scheme assets excluding financing income [2]	**(3,751)**	**(207)**	**(3,958)**	(112)	(30)	(142)
	(544)	**388**	**(156)**	115	139	254

1 For the UK Scheme, this reflects the 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 Actuarial gains and losses arising from financial assumptions arise primarily due to changes in interest rates and inflation

3 This reflects realised inflation being higher than expected in the period, resulting in increases in actual pension increases and deferred pension expectations

21 Post-retirement benefits

Amounts recognised in the balance sheet in respect of defined benefit schemes

	2022 UK schemes £m	2022 Overseas schemes £m	2022 Total £m	2021 UK schemes £m	2021 Overseas schemes £m	2021 Total £m
Present value of funded obligations	**(4,621)**	**(944)**	**(5,565)**	(8,010)	(863)	(8,873)
Fair value of scheme assets	**5,215**	**493**	**5,708**	9,128	861	9,989
Net asset/(liability) on funded schemes	**594**	**(451)**	**143**	1,118	(2)	1,116
Present value of unfunded obligations	**-**	**(563)**	**(563)**	-	(1,341)	(1,341)
Net asset/(liability) recognised in the balance sheet	**594**	**(1,014)**	**(420)**	1,118	(1,343)	(225)
Post-retirement scheme surpluses [1]	**594**	**19**	**613**	1,118	30	1,148
Post-retirement scheme deficits	**-**	**(1,033)**	**(1,033)**	-	(1,373)	(1,373)

[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:

	2022 Assets £m	2022 Obligations £m	2022 Net £m	2021 Assets £m	2021 Obligations £m	2021 Net £m
Canada	**187**	**(226)**	**(39)**	245	(275)	(30)
Germany	**10**	**(638)**	**(628)**	2	(883)	(881)
US pensions schemes	**296**	**(308)**	**(12)**	614	(643)	(29)
US healthcare schemes	**-**	**(333)**	**(333)**	-	(400)	(400)
Other	**-**	**(2)**	**(2)**	-	(3)	(3)
Net asset/(liability) recognised in the balance sheet	**493**	**(1,507)**	**(1,014)**	861	(2,204)	(1,343)

Defined benefit schemes

Assumptions

Significant actuarial assumptions for UK schemes at the balance sheet date were as follows:

	2022	2021
Discount rate	**4.80%**	1.90%
Inflation assumption (RPI)	**3.50%**	3.60%
Inflation assumption (CPI)	**2.95%**	3.05%
Transfer assumption (employed deferred/deferred)	**50%/40%**	50%/40%
Bridging Pension Option assumption	**30%**	25%
Life expectancy from age 65: current male pensioner	**21.9 years**	21.8 years
future male pensioner currently aged 45	**23.2 years**	23.2 years
current female pensioner	**23.7 years**	23.6 years
future female pensioner currently aged 45	**25.5 years**	25.4 years

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.

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 2021 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.

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:

	2022	2021
Discount rate	**4.70%**	2.20%
Inflation assumption	**2.30%**	2.10%
Long-term healthcare cost trend rate	**4.75%**	4.75%
Male life expectancy from age 65: current pensioner	**20.5 years**	20.7 years
future pensioner currently aged 45	**22.4 years**	22.5 years

21 Post-retirement benefits

Changes in present value of defined benefit obligations

	2022			2021		
	UK schemes £m	**Overseas schemes £m**	**Total £m**	UK schemes £m	Overseas schemes £m	Total £m
At 1 January	**(8,010)**	**(2,204)**	**(10,214)**	(8,879)	(2,463)	(11,342)
Exchange differences	**-**	**(165)**	**(165)**	-	49	49
Current service cost	**(4)**	**(43)**	**(47)**	(4)	(60)	(64)
Past-service cost	**6**	**24**	**30**	15	33	48
Finance cost	**(149)**	**(49)**	**(198)**	(137)	(41)	(178)
Contributions by employees	**-**	**(4)**	**(4)**	-	(2)	(2)
Benefits paid out	**329**	**102**	**431**	768	101	869
Disposal of businesses	**-**	**-**	**-**	-	12	12
Actuarial gains	**3,207**	**599**	**3,806**	227	169	396
Transfers	**-**	**(2)**	**(2)**	-	(2)	(2)
Settlement	**-**	**235**	**235**	-	-	-
At 31 December	**(4,621)**	**(1,507)**	**(6,128)**	(8,010)	(2,204)	(10,214)
Funded schemes	**(4,621)**	**(944)**	**(5,565)**	(8,010)	(863)	(8,873)
Unfunded schemes	**-**	**(563)**	**(563)**	-	(1,341)	(1,341)

The defined benefit obligations are in respect of:						
Active plan participants [1]	**(1,681)**	**(693)**	**(2,374)**	(3,451)	(1,193)	(4,644)
Deferred plan participants	**(1,172)**	**(93)**	**(1,265)**	(2,258)	(176)	(2,434)
Pensioners	**(1,768)**	**(721)**	**(2,489)**	(2,301)	(835)	(3,136)
Weighted average duration of obligations (years)	**17**	**13**	**16**	22	15	21

[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 assets

	2022			2021		
	UK schemes £m	**Overseas schemes £m**	**Total £m**	UK schemes £m	Overseas schemes £m	Total £m
At 1 January	**9,128**	**861**	**9,989**	9,762	894	10,656
Exchange differences	**-**	**77**	**77**	-	12	12
Administrative expenses	**(4)**	**(1)**	**(5)**	(6)	(1)	(7)
Financing	**170**	**23**	**193**	153	22	175
Return on plan assets excluding financing	**(3,751)**	**(207)**	**(3,958)**	(112)	(30)	(142)
Contributions by employer	**1**	**80**	**81**	99	63	162
Contributions by employees	**-**	**4**	**4**	-	2	2
Benefits paid out	**(329)**	**(102)**	**(431)**	(768)	(101)	(869)
Settlement	**-**	**(242)**	**(242)**	-	-	-
At 31 December	**5,215**	**493**	**5,708**	9,128	861	9,989
Total return on scheme assets	**(3,581)**	**(184)**	**(3,765)**	41	(8)	33

21 Post-retirement benefits

Fair value of scheme assets at 31 December

	2022			2021		
	UK schemes £m	**Overseas schemes £m**	**Total £m**	UK schemes £m	Overseas schemes £m	Total £m
Sovereign debt	**3,574**	**120**	**3,694**	5,756	217	5,973
Corporate debt instruments	**1,492**	**257**	**1,749**	3,122	389	3,511
Interest rate swaps	**196**	**-**	**196**	54	-	54
Inflation swaps	**212**	**-**	**212**	106	-	106
Cash and similar instruments [1]	**(1,066)**	**-**	**(1,066)**	(811)	144	(667)
Liability driven investment (LDI) portfolios [2]	**4,408**	**377**	**4,785**	8,227	750	8,977
Listed equities	**-**	**78**	**78**	-	101	101
Unlisted equities	**40**	**-**	**40**	54	-	54
Synthetic equities [3]	**(8)**	**-**	**(8)**	43	4	47
Sovereign debt	**-**	**-**	**-**	-	4	4
Corporate debt instruments	**772**	**-**	**772**	802	-	802
Cash	**-**	**5**	**5**	-	2	2
Other	**3**	**33**	**36**	2	-	2
At 31 December	**5,215**	**493**	**5,708**	9,128	861	9,989

[1] UK cash and similar instruments include repurchase agreements on UK Government bonds amounting to £(1,221)m (2021: £(1,087)m). The latest maturity date for these short-term borrowings is April 2024

[2] A portfolio of gilt and swap contracts, backed by investment-grade credit instruments and diversified liquidity funds, 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 £344m (2021: £550m)

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 2022, there was no indirect holding of the Group's financial instruments (2021: none).

The liquidity of the UK scheme was not significantly impacted by the rapid rise in UK Government bond yields in the second half of 2022. The UK scheme (and its predecessor schemes) benefited from prudent cash funding from the Group in previous financial years coupled with long-term liability hedging programmes. These factors have resulted in the scheme being relatively well funded and consequently enabled it to keep leverage relatively low. Throughout 2022 the UK scheme maintained adequate levels of liquidity and eligible collateral to service its leveraged positions.

Future contributions

The Group expects to contribute approximately £70m to its overseas defined benefit schemes in 2023 (2022: £66m).

In the UK, any cash funding of RRUKPF is based on a statutory triennial funding valuation process. The Group and the Trustee negotiate and agree the actuarial assumptions used to value the liabilities (Technical Provisions); assumptions 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 2020 valuation) rather than being based on yields of AA corporate bonds. Once each valuation is signed, a Schedule of Contributions (SoC) must be agreed which sets out the cash contributions to be paid. The most recent valuation, as at 31 March 2020, agreed by the Trustee in June 2021, showed that RRUKPF was estimated to be 105% funded on the Technical Provisions basis (estimated to be 109% at 31 December 2022). All cash due has been paid in full and the current SoC does not require any cash contributions to be made by the Group. The current SoC does include an agreement for contributions between 2024 to 2027 (capped at £145m in total) if the Technical Provisions funding position is below 107% at 31 March 2023.

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 2022, 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.

		2022 £m	2021 £m
Reduction in the discount rate of 0.25% [1]	Obligation	**(205)**	(460)
	Plan assets (LDI portfolio)	**235**	484
Increase in inflation of 0.25% [1]	Obligation	**(70)**	(210)
	Plan assets (LDI portfolio)	**91**	147
Increase of 1% in transfer value assumption	Obligations	**(30)**	(55)
Increase of 5% of transfers instead of BPO	Obligations	**(5)**	(30)
One year increase in life expectancy	Obligations	**(165)**	(365)

[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

22 Share capital

	Equity	
	Ordinary shares of 20p each Millions	Nominal value £m
Issued and fully paid		
At 1 January 2021 and 31 December 2021	1,691	338
At 31 December 2022	**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.

23 Share-based payments

Effect of share-based payment transactions on the Group's results and financial position

	2022 £m	2021 £m
Total expense recognised for equity-settled share-based payment transactions	**47**	28
Total cost recognised for cash-settled share-based payment transactions	**1**	-
Share-based payments recognised in the consolidated income statement	**48**	28
Liability for cash-settled share-based payment transactions	**1**	-

A description of the share-based payment plans is included below.

Movements in the Group's share-based payment plans during the year

	ShareSave		LTIP	DSBP
	Number Millions	Weighted average exercise price Pence	Number Millions	Number Millions
Outstanding at 1 January 2021	49.6	239	67.6	1.4
Granted	56.8	97	33.8	0.1
Forfeited	(31.3)	239	(14.3)	(0.1)
Exercised	-	-	(10.1)	(0.6)
Outstanding at 31 December 2021	75.1	132	77.0	0.8
Granted	**0.1**	**104**	**47.2**	**12.3**
Forfeited	**(9.6)**	**161**	**(13.4)**	**(0.2)**
Exercised	**-**	**-**	**(17.8)**	**(0.7)**
Outstanding at 31 December 2022	**65.6**	**127**	**93.0**	**12.2**
Exercisable at 31 December 2022	**-**	**-**	**-**	**-**
Exercisable at 31 December 2021	-	-	-	-

The weighted average share price at the date share options were exercised was 95p (2021: 119p). The closing price at 31 December 2022 was 93p (2021: 123p).

The weighted average remaining contractual life for the share options as at 31 December 2022 was two years (2021: two years) and the range of exercise prices for the share options as at 31 December 2022 was 97p to 261p.

Fair values of share-based payment plans
The weighted average fair value per share of equity-settled share-based payment plans granted during the year, estimated at the date of grant, are as follows:

	2022	2021
LTIP	**90p**	104p
ShareSave - three-year grant	**n/a**	67p
DSBP	**91p**	105p

Long-term incentive plans (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 decreases the fair value of the award relative to the share price at the date of grant.

ShareSave
The fair value of the options granted is calculated using a 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.

Deferred Share Bonus Plan (DSBP)
The fair value of shares awarded under DSBP is calculated as the share price on the date of the award, excluding expected dividends (or equivalent).

24 Contingent liabilities

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. The terms of both DPAs have now expired. The Company continues to co-operate with the Controller General, Brazil (CGU) under the terms of a two-year leniency agreement signed in October 2021 relating to the same historical matters. 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 other parties, including customers and customers' financiers and the Company's current and former investors, including certain potential claims in respect of the Group's historical ethics and compliance disclosures which have been notified to the Company. 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 (including with tax authorities) 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.

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 $1.2bn (2021: $1.7bn) (on a discounted basis) to provide facilities to enable customers to purchase aircraft (of which approximately $0.9bn could be called during 2023). 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, 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.

The Group has responded appropriately to the Russia-Ukraine conflict to comply with international sanctions and export control regime, and also to implement our business decision to exit from Russia. The Group could be subject to action by impacted customers and other contract parties.

While the outcome of the above 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.

25 Related party transactions

	2022 £m	2021 £m
Sale of goods and services [1]	**5,074**	3,548
Purchases of goods and services [1]	**(4,915)**	(3,677)
Lease payments to joint ventures and associates	**(163)**	(225)
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	**73**	27
Other income received from joint ventures and associates	**2**	3

[1] Sales of goods and services to related parties and purchases of goods and services from related parties, including joint ventures and associates, are included at the average exchange rate, consistent with the statutory income statement

Included in sales of goods and services to related parties are sales of spare engines amounting to £19m (2021: £157m). Profit recognised in the year on such sales amounted to £50m (2021: £47m), including profit on current year sales and recognition of profit deferred on similar sales in previous years. Cash receipts relating to the sale of spare engines amounted to £40m (2021: £181m).

The aggregated balances with joint ventures and the parent company are shown in notes 13 and 18. Transactions with Group pension schemes are shown in note 21.

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 members of the Executive Team (both described on page 40). Remuneration for key management personnel is shown below:

	2022 £m	2021 £m
Salaries and short-term benefits	**17**	19
Post-retirement schemes	**-**	-
Share-based payments	**10**	4
	27	23

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 77 to 95. 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 Payment*, rather than when the shares vest, which is the basis used in the Directors' Remuneration Report.

26 Disposals, held for sale and discontinued operations

Disposals

On 13 September 2021, the Group signed an agreement with Equitix Investment Management Limited to dispose its 23.1% shareholding in AirTanker Holdings Ltd for a cash consideration of £189m. In accordance with IFRS 5, the Group had classified £47m of the AirTanker assets as held for sale at 31 December 2021. The sale completed on 9 February 2022 for a value of £189m. On disposal, the Group has recycled the Group's share of cash flow hedge reserve through the income statement during the year.

On 27 September 2021, the Group signed an agreement for the sale of ITP Aero to Bain Capital for £1.3bn. In accordance with IFRS 5, at 31 December 2021, the Group had classified the net assets of the ITP Aero disposal group of £1.2bn as held for sale. The sale completed on 15 September 2022 for a value of £1.3bn. On disposal, the Group has recycled the Group's share of hedging reserve and the cumulative currency translation reserve through the income statement during the year. In addition, as part of the disposal, costs have been recognised in loss on disposal for continuing obligations (£157m), in particular where previous amounts were eliminated on consolidation in the Group's results. ITP Aero was acquired in 2017 resulting in a gain on bargain purchase of £303m recognised in 2018. The consideration for the acquisition was settled by issue of shares and the premium on the share issues, of £650m, recognised as merger reserve. As a result of the sale of ITP Aero for qualifying consideration, the merger reserve arising has been realised in accumulated losses.

	ITP Aero – Total subsidiaries £m	Airtanker £m	Total £m
Proceeds			
Cash consideration at prevailing exchange rate	1,387	189	1,576
Impact of deal contingent forward	(52)	–	(52)
Cash consideration at effective hedged rate	1,335	189	1,524
Cash and cash equivalents disposed	(60)	–	(60)
Net cash consideration	1,275	189	1,464
Intangible assets	912	–	912
Property, plant and equipment	338	–	338
Right-of-use assets	13	–	13
Investments	1	34	35
Deferred tax assets	57	–	57
Inventory	283	–	283
Trade receivables and other assets [1]	768	14	782
Borrowings and lease liabilities	(53)	–	(53)
Trade payables and other liabilities [1]	(1,148)	–	(1,148)
Provisions for liabilities and charges	(22)	–	(22)
Less: Net assets disposed	1,149	48	1,197
Profit on disposal before disposal costs and accounting adjustments	126	141	267
Disposal costs	(33)	(3)	(36)
De-recognition of NCI	(1)	–	(1)
Cumulative current translation loss	(65)	–	(65)
Cumulative hedging reserves loss	(49)	(62)	(111)
Impact of disposal on consolidated position of onerous contracts [2]	(157)	–	(157)
(Loss)/profit before taxation	(179)	76	(103)
Tax on disposal	31	–	31
(Loss)/profit on disposal of business after taxation	(148)	76	(72)

[1] As at 15 September 2022, trading balances that ITP Aero held with other group undertakings, that were previously eliminated on consolidation, have been reclassified as external balances and are included in the net assets disposed

[2] Reflects increased future costs in Civil Aerospace in respect of amounts charged by ITP Aero that were previously eliminated on consolidation. These future costs relate to onerous contract provisions and have therefore crystallised on disposal as a result of the ongoing trading with ITP Aero no longer being classified as intra-group

26 Disposals, held for sale and discontinued operations

Reconciliation of profit on disposal of businesses in continuing operations to the income statement:

	Total £m
Profit before taxation on disposal (see above)	**76**
Adjustment to consideration on disposals completed in prior periods	**5**
Profit on disposal of businesses per income statement	**81**

Reconciliation of cash flow on disposal of businesses to the cash flow statement:

	Total £m
Proceeds on disposal (see above)	**1,464**
Disposal costs paid	**(45)**
Cash outflow on disposals completed in prior periods	**(21)**
Cash flow on disposal of businesses per cash flow statement	**1,398**

Discontinued operations

ITP Aero represents a separate major line of business and was classified as a disposal group held for sale up to the date of disposal. Therefore, in line with IFRS 5, the financial results of ITP Aero up to disposal have been classified as a discontinued operation.

The financial performance and cash flow information presented reflects the operations for the year that have been classified as discontinued operations.

	2022 £m	2021 £m
Revenue	**275**	365
Operating profit/(loss) [1]	**86**	(4)
Profit before taxation [1]	**78**	2
Income tax (charge)/credit [1]	**(10)**	34
Profit for the year from discontinued operations on ordinary activities	**68**	36
Costs of disposal of discontinued operations [2]	**–**	(39)
Loss on disposal of discontinued operations (see above)	**(148)**	-
Loss for the year from discontinued operations	**(80)**	(3)
Net cash inflow from operating activities [2]	**85**	12
Net cash outflow from investing activities [2]	**(67)**	(32)
Net cash outflow from financing activities	**(25)**	(25)
Exchange gain	**–**	4
Net change in cash and cash equivalents	**(7)**	(41)

1 Profit/(loss) from discontinued operations on ordinary activities is presented net of intercompany trading eliminations and related consolidation adjustments

2 Cash flows from investing activities include £42m (2021: cash flows from operating activities include £39m) costs of disposal paid during the year to 31 December 2022 that are not a movement in the cash balance of the disposal group as they were borne centrally

27 Derivation of summary funds flow statement

Reconciliation of profit/(loss) on disposal of businesses in continuing operations to the income statement:

	2022					2021
	Cash flow £m	Impact of hedge book £m	Impact of acquisition accounting £m	Impact of other non-underlying items £m	Funds flow £m	Funds flow £m
Operating profit	**837**	**(264)**	**58**	**21**	**652**	414
Operating profit/(loss) from discontinued operations	**86**	**-**	**-**	**-**	**86**	(43)
Depreciation, amortisation and impairment	**1,076**	**-**	**(58)**	**(65)**	**953**	971
Movement in provisions	**(197)**	**91**	**-**	**83**	**(23)**	(136)
Movement in Civil LTSA balance	**1,158**	**(366)**	**-**	**-**	**792**	66
Loss on disposal of property, plant and equipment	**18**	**-**	**-**	**-**	**18**	9
Joint venture trading	**25**	**-**	**-**	**-**	**25**	(18)
Interest received	**36**	**-**	**-**	**-**	**36**	9
Contributions to defined benefit schemes in excess of underlying operating profit charge	**(54)**	**-**	**-**	**22**	**(32)**	(92)
Share-based payments	**48**	**-**	**-**	**-**	**48**	28
Other	**-**	**(53)**	**-**	**-**	**(53)**	(26)
Cash flow before working capital and taxation	**3,033**	**(592)**	**-**	**61**	**2,502**	1,182
Increase in inventories	**(887)**	**-**	**-**	**-**	**(887)**	(169)
Movement in trade receivables/payables and other assets/liabilities	**(388)**	**(348)**	**-**	**(19)**	**(755)**	(468)
Movement in contract assets/liabilities (excluding Civil LTSA)	**595**	**297**	**-**	**-**	**892**	(289)
Revaluation of trading assets (excluding exceptional items) [1]	**(407)**	**(114)**	**-**	**-**	**(521)**	32
Realised derivatives in financing [1]	**737**	**-**	**-**	**-**	**737**	85
Cash flows on other financial assets and liabilities held for operating purposes	**(660)**	**737**	**-**	**-**	**77**	(85)
Income tax	**(174)**	**-**	**-**	**-**	**(174)**	(185)
Cash from operating activities	**1,849**	**(20)**	**-**	**42**	**1,871**	103
Capital element of lease payments	**(218)**	**20**	**-**	**-**	**(198)**	(374)
Capital expenditure and investment	**(512)**	**-**	**-**	**36**	**(476)**	(426)
Interest paid	**(352)**	**-**	**-**	**-**	**(352)**	(331)
Settlement of excess derivatives	**(326)**	**-**	**-**	**-**	**(326)**	(452)
Other (M&A, restructuring and financial penalties paid)	**49**	**-**	**-**	**(78)**	**(29)**	39
Free cash flow	**490**	**-**	**-**	**-**	**490**	(1,441)
- of which is continuing operations	**504**				**504**	(1,484)

[1] Included in working capital

The comparative information to 31 December 2021 has been presented in a different format to align to the current year presentation. In some instances, the groupings of items may have changed. All comparative figures remain unchanged versus those reported in the 2021 Annual Report.

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 calculated as trading cash flow less recurring tax and post-employment benefit expenses. It excludes amounts spent (or received) on business acquisitions or disposals, financial penalties paid, foreign exchange changes on net funds and movements on balances with the parent company. The Board considers that free cash flow reflects cash generated from the Group's underlying trading.

Cash flow from operating activities is determined to be the nearest statutory measure to free cash flow. The reconciliation between free cash flow and cash flow from operating activities can be found on page 160.

COMPANY BALANCE SHEET
As at 31 December 2022

	Notes	2022 £m	2021 £m
ASSETS			
Intangible assets	3	**2,154**	2,148
Property, plant and equipment	4	**1,673**	1,782
Right-of-use assets	5	**138**	163
Investments - subsidiary undertakings	6	**1,453**	1,442
Investments - joint ventures and associates	6	**26**	8
Investments - other	6	**35**	34
Loan receivable from subsidiary undertaking	6	**1,774**	1,866
Other financial assets	14	**522**	347
Deferred tax assets	16	**1,990**	1,562
Post-retirement schemes surpluses	17	**594**	1,118
Non-current assets		**10,359**	10,470
Inventories	7	**2,086**	1,729
Trade receivables and other assets	8	**7,969**	6,693
Contract assets	9	**1,057**	1,081
Taxation recoverable		**2**	2
Other financial assets	14	**261**	97
Cash and cash equivalents	10	**1,917**	2,047
Current assets		**13,292**	11,649
Assets held for sale		**-**	730
TOTAL ASSETS		**23,651**	22,849
LIABILITIES			
Borrowings and lease liabilities	11	**(39)**	(34)
Other financial liabilities	14	**(997)**	(662)
Trade payables and other liabilities	13	**(10,456)**	(9,385)
Contract liabilities	9	**(3,388)**	(2,289)
Current tax liabilities		**(2)**	(4)
Provisions for liabilities and charges	15	**(352)**	(204)
Current liabilities		**(15,234)**	(12,578)
Borrowings and lease liabilities	11	**(4,249)**	(6,183)
Other financial liabilities	14	**(3,232)**	(2,729)
Trade payables and other liabilities	13	**(2,205)**	(1,479)
Contract liabilities	9	**(5,153)**	(4,939)
Deferred tax liabilities	16	**(208)**	(391)
Provisions for liabilities and charges	15	**(1,466)**	(961)
Non-current liabilities		**(16,513)**	(16,682)
TOTAL LIABILITIES		**(31,747)**	(29,260)
NET LIABILITIES		**(8,096)**	(6,411)
EQUITY			
Called-up share capital	18	**338**	338
Share premium		**631**	631
Merger reserve		**-**	650
Other reserves		**199**	186
Accumulated losses		**(9,264)**	(8,216)
TOTAL EQUITY		**(8,096)**	(6,411)
(Loss)/profit for the year		**(633)**	54

The Company has elected to take the exemption under section 408 of the Companies Act 2006 from presenting the parent company income statement.

The Financial Statements on pages 113 to 139 were approved by the Board on 23 February 2023 and signed on its behalf by:

Tufan Erginbilgic
Chief Executive

Panos Kakoullis
Chief Financial Officer

Company's registered number: 01003142

COMPANY STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2022

	Notes	2022 £m	2021 £m
(Loss)/profit for the year		**(633)**	54
Other comprehensive (expense)/income (OCI)			
Actuarial movement in post-retirement schemes	17	**(544)**	115
Revaluation to fair value of other investments	6	**(4)**	(2)
Related tax movements		**190**	(40)
Items that will not be reclassified to profit or loss		**(358)**	73
Movement on fair values credited to hedging reserves		**76**	3
Reclassified to income statement from cash flow hedge reserve [1]		**(72)**	35
Costs of hedging		**10**	–
Foreign exchange translation differences on foreign operations		**3**	-
Related tax movements		**(4)**	(10)
Items that will be reclassified to profit or loss		**13**	28
Total other comprehensive (expense)/income		**(345)**	101
Total comprehensive (expense)/income for the year		**(978)**	155

[1] Includes £(52)m loss on the deal contingent forward reclassified to loss on disposal in the same period as the hedged cash flow proceeds

COMPANY STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2022

	Note	Non-distributable reserves: Share capital £m	Share premium £m	Merger reserves £m	Other reserves [1] £m	Accumulated losses £m	Total equity £m
At 1 January 2021		338	631	650	158	(8,376)	(6,599)
Profit for the year		–	–	–	–	54	54
Actuarial movement in post-retirement schemes	17	–	–	–	–	115	115
Reclassified to income statement from cash flow hedge reserve		–	–	–	35	–	35
Fair value on movement on cash flow hedges		–	–	–	3	–	3
Revaluation to fair value of other investments		–	–	–	–	(2)	(2)
Related tax movements		–	–	–	(10)	(40)	(50)
Total comprehensive income for the year		–	–	–	28	127	155
Share-based payments - direct to equity [2]		–	–	–	–	16	16
Related tax movements		–	–	–	–	17	17
Other changes in equity in the year		–	–	–	–	33	33
At 31 December 2021 as previously reported		338	631	650	186	(8,216)	(6,411)
Adoption of amendments to IAS 37 (post-tax)		–	–	–	–	(747)	(747)
At 1 January 2022		**338**	**631**	**650**	**186**	**(8,963)**	**(7,158)**
Loss for the year		**–**	**–**	**–**	**–**	**(633)**	**(633)**
Actuarial movement in post-retirement schemes	17	**–**	**–**	**–**	**–**	**(544)**	**(544)**
Reclassified to income statement from cash flow hedge reserve		**–**	**–**	**–**	**(72)**	**–**	**(72)**
Fair value on movement on cash flow hedges		**–**	**–**	**–**	**76**	**–**	**76**
Revaluation to fair value of other investments	6	**–**	**–**	**–**	**–**	**(4)**	**(4)**
Costs of hedging		**–**	**–**	**–**	**10**	**–**	**10**
Foreign exchange translation differences on foreign operations		**–**	**–**	**–**	**3**	**–**	**3**
Related tax movements		**–**	**–**	**–**	**(4)**	**190**	**186**
Total comprehensive income/(expense) for the year		**–**	**–**	**–**	**13**	**(991)**	**(978)**
Share-based payments - direct to equity [2]	19	**–**	**–**	**–**	**–**	**39**	**39**
Transfer to realised profit [3]		**–**	**–**	**(650)**	**–**	**650**	**–**
Related tax movements		**–**	**–**	**–**	**–**	**1**	**1**
Other changes in equity in the year		**–**	**–**	**(650)**	**–**	**690**	**40**
At 31 December 2022		**338**	**631**	**–**	**199**	**(9,264)**	**(8,096)**

[1] Other reserves includes a translational reserve of £7m (2021: £4m) and £159m (2021: £159m) relating to the premium which arose on shares issued on a 1989 acquisition. This also includes the cash flow hedge reserve of £30m and the cost of hedging reserve of £nil. During the year, costs of hedging of £10m were recognised and reclassified to the income statement

[2] 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

[3] On disposal of ITP Aero on 15 September 2022, consideration of £1,335m was received resulting in a profit on disposal of £673m. The premium recognised on issue of shares for the previous acquisition became realised on receipt of qualifying consideration. As such, the total merger reserve has been transferred to accumulated losses

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 01003142 and its registered address is at Kings Place, 90 York Way, London, N1 9FX, United Kingdom.

Basis of preparation

In preparing these financial statements, the Company applies the recognition, measurement and disclosure requirements of International Financial Reporting Standards as adopted by the UK (UK-adopted international accounting standards), but makes amendments where necessary in order to comply with the Companies Act 2006 and to take advantage of FRS 101 disclosure exemptions:

- a cash flow statement and related notes;
- IFRS 2 *Share Based Payment* in respect of group settled share-based payments;
- in respect of transactions with wholly owned subsidiaries;
- IFRS 7 *Financial Instruments: Disclosures;*
- the requirements of paragraphs 30 and 31 of IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors;*
- IAS 8 disclosure in respect of new standards and interpretations issued but not yet effective;
- comparative period reconciliations for share capital, investments, property, plant and equipment, intangible assets and additional comparative information as required by IAS 1; and
- in respect of the compensation of key management personnel.

The accounting policies set out below have, unless otherwise stated, been applied consistently to all periods presented in 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 34. After due consideration, the Directors consider that the Company has sufficient liquidity to continue in operational existence for a period of at least 18 months from the date of this report and are therefore satisfied that it is appropriate to adopt the going concern basis of accounting in preparing the Financial Statements.

In preparing the Company Financial Statements, the Directors have considered the potential impact of climate change, please see pages 52 to 54 for further details.

Revision to IFRS applicable in 2022

The Company adopted the amendment to IAS 37 *Provisions, Contingent Liabilities and Contingent Assets for Onerous Contracts – Cost of Fulfilling* a Contract on 1 January 2022. The amendment clarifies the meaning of 'costs to fulfil a contract', explaining that the direct cost of fulfilling a contract comprises the incremental costs of fulfilling that contract (for example, direct labour and materials) and also an allocation of other costs that relate directly to fulfilling contracts. As a result of the amendment, the Company now includes additional allocated costs when determining whether a contract is onerous and in the quantification of the provision recognised in the event of a contract being onerous. These primarily relate to (a) fixed overheads in our operational areas that are incurred irrespective of manufacturing load, (b) fixed overheads of providing services including engine health monitoring and IT costs, and (c) depreciation of spare engines that the Company owns that are used to support the delivery of our contractual commitments to customers under LTSAs. The Company has assessed the impact of this amendment on its contracts and has included additional allocated costs that increased the total contract loss provision by £747m as at 1 January 2022 (see note 15). All material elements impact Civil Aerospace contracts. Of this increase, £39m relate to current provisions and £708m to non-current provisions. A tax credit has not been recognised on the increase in the provision relating to the UK (see note 16 for details). As required by the transition arrangement in relation to the amendment, comparative information has not been restated. The cumulative effect of initially applying the amendment has been recognised as an adjustment to the opening balance of retained earnings as at 1 January 2022. It is estimated that the impact of the IAS 37 amendment has had a favourable immaterial impact on the 2022 income statement.

There are no other new standards or interpretations issued by the IASB that are effective for the year ended 31 December 2022.

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.

Key areas of judgement and sources of estimation uncertainty are disclosed on page 55 and further details, together with sensitivities, are included within the significant accounting policies section where applicable.

1 Accounting policies

Revenue recognition and contract assets and liabilities

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 rely on the key estimates highlighted below. 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. Consideration is received in the form of deposits and payments for completion of milestones or performance obligations. Long-term service agreement (LTSA) cash receipts are typically received based on EFHs.

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.

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. 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 USD transactions in sterling. 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.
- 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 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 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 (one to eight 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 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. 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 to be 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 wastage cost. Provision is made for any costs identified as wastage when the obligation to incur them arises - see note 15.

1 Accounting policies

Revenue recognition (continued)

Key judgement – When revenue should be recognised in relation to spare engine sales

Revenue is recognised at the point in time when a customer obtains control of a spare engine. The customer could be a related party, an external operator or a spare engine service provider. Depending on the contractual arrangements, judgement is required on when the Company relinquishes control of spare engines and, therefore, when the revenue is recognised. The point of control passing has been concluded to correspond to the point of legal sale, even for instances where the customer is contracted to provide some future spare engine capacity to the Company to support its installed engine base. In such cases, the customer has responsibility for generating revenue from the engines and exposure to periods of non-utilisation; exposure to risk of damage or loss, risk from residual value movements, and will determine if and when profits will be made from disposal. The spare engine capacity that will be made available to the Company in the future does not consist of identified assets and the provider retains a substantive right to substitute the asset through the Company's period of use. It is, therefore, appropriate to recognise revenue from the sale of the spare engines at the point that title transfers. During 2022, of the total 44 large spare engine sales delivered (2021: 36), 20 (2021: six) engines were sold to customers where contractual arrangement allows for some future spare engine capacity to be used by the Company. These sales contributed £454m (2021: £111m) to revenue for the year.

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 LTSAs in the Civil Aerospace business with an average remaining term of around ten years. The estimated revenue and costs are inherently imprecise and significant estimates are required to assess: EFH's, 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 impact of climate change on EFH and costs is also considered when making these estimates. Industry and customer data on expected levels of utilisation is included in the forecasts used. Across the length of the current Civil LTSA contracts, allowance has been made for around a 1% (2021: 1%) projected cost increase resulting from carbon pricing and commodity price changes.

The sensitivities below demonstrate how changes in assumptions (including as a result of climate change) could impact the level of revenue recognised were assumptions to change. The Directors believe that the estimates used to prepare the financial statements take account of the inherent uncertainties, constraining the expected level of revenue as appropriate.

Estimates of future LTSA revenue within Civil Aerospace are based upon future EFH forecasts, influenced by assumptions over the recovery of the civil aviation industry. Finally, 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 rate, based on historical trends and economic forecasts.

During the year, changes to the estimate in relation to the Civil Aerospace LTSA contracts resulted in catch-up adjustments to revenue of £170m (2021: £(80)m).

Based upon the stage of completion of all LTSA contracts within Civil Aerospace as at 31 December 2022, the following reasonably possible changes in estimates would result in catch-up adjustments being recognised in the period in which the estimates change (at underlying rates):

- A change in forecast EFHs of 1% over the remaining term of the contracts would impact LTSA income and to a lesser extent costs, resulting in a catch-up adjustment of around £8m. This would be expected to be seen as a change in revenue with a modest proportion relating to onerous contracts which would be reported within cost of sales.
- A 2% increase or decrease in our pricing to customers over the life of the contracts would lead to a revenue catch-up adjustment in the next 12 months of around £228m.
- A 2% increase or decrease in shop visit costs over the life of the contracts would lead to a revenue catch-up adjustment in the next 12 months of around £70m.

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 recognised on a 15-year straight-line basis.

The payments to suppliers for 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.

Key judgement – Determination of the nature of entry fees received

RRSAs with key suppliers (workshare partners) are a feature of the civil aviation industry 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 amortisation of development costs – see page 120.

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.

1 Accounting policies

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 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, which include the reversal of taxable temporary differences, will be available against which the assets can be utilised. Further details on the Company's tax position can be found on pages 133 to 134.

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 only recognised to the extent it is probable that future taxable profits will be available, against which the deductible temporary difference can be utilised. On this basis a deferred tax asset of £2,023m is not recognised in respect of UK tax losses. Further details are included in note 16.

In addition to taking into account a severe but plausible downside forecast (see below), the climate-related estimates and assumptions (set out on pages 52 to 54) have also been considered when assessing the recoverability of the deferred tax assets. Recognising the longer terms over which these assets will be recovered, the Company has considered the risk that regulatory changes could materially impact demand for our products and shifting investment focus towards more sustainable products and solutions. The climate scenarios prepared do not indicate a significant deterioration in demand or profitability for Civil Aerospace programmes given that all commercial aero-engines will be compatible with sustainable fuels by the end of 2023.

While carbon and commodity pricing may put pressure on costs, decarbonisation and new supplier and customer contracts offer the opportunity to receive value for more efficient and sustainable products.

Macro-economic factors continue to result in uncertainty over the recovery of demand across the civil aviation industry. As explained in note 16, a 25% probability of there being a severe but plausible downside forecast in relation to the civil aviation industry has been taken into account in the assessment of the recovery of the UK deferred tax assets.

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 deferred tax assets. The following sensitivities have been modelled to demonstrate the impact of changes in assumptions on the recoverability of deferred tax assets.

- A 5% change in margin in the main Civil Aerospace large engine programmes.
- A 5% change in the number of shop visits driven by EFHs.
- Assumed future cost increases from climate change expected to pass through to customers at 100%, are restricted to 90% pass through.

All of these could be driven by a number of factors, including the impact of climate change as explained on pages 52 to 54 and changes in foreign exchange rates.

A 5% change in margin or shop visits (which could be driven by fewer EFHs as a result of climate change) would result in an increase/decrease in the deferred tax asset of around £130m.

If only 90% of assumed future cost increases from climate changes are passed on to customers, this would result in a decrease in the deferred tax asset of around £50m, and if carbon prices were to double, this would be £80m.

Foreign currency translation
Transactions denominated in currencies other than the functional 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.

The trading results of the Company are translated into sterling at the average exchange rates for the year. The assets and liabilities of foreign operations 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

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 listed 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).
- Cash and cash equivalents (consisting of balances with banks and other financial institutions, money-market funds and 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 other investments are measured at FVPL. The Company elected to measure its listed investment at FVOCI.

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 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 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.

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 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 net cumulative gain or loss on the hedging instrument recognised in SOCIE 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
In August 2020, Phase 2 of IBOR reform was published, effective from 1 January 2021. The amendments address issues that arise from the implementation of the reforms including the replacement of one benchmark with an alternative one. The Phase 2 amendments provide additional temporary reliefs from applying specific IAS 39 *Financial Instruments: Recognition and Measurement* and IFRS 9 *Financial Instruments* hedge accounting requirements to hedging relationships directly affected by IBOR reform.

A number of the Company's lease liabilities are based on a LIBOR index. These are predominantly referencing USD LIBOR which is not expected to cease until 2023, hence the change in relation to these contracts has not impacted the 2022 financial statements. Amendments to these contracts is in progress at the balance sheet date.

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.

1 Accounting policies

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 the Directors).

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

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. During the year, £120m of development expenditure was capitalised.

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.

The Company continues to invest in new technologies as a result of its decarbonisation commitments. As these are new technologies, there is a higher level of uncertainty over potential outcomes and therefore, this could impact the level of expenditure that is capitalised or recognised in the income statement in future years.

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 LTSAs, 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. The amortisation period of software assets is reviewed annually. In 2022 the amortisation period has changed from a maximum of five years to a maximum of ten years to reflect the expected useful lives of the assets. This change has been accounted for as a change in accounting estimate and has impacted a limited amount of assets with an immaterial impact on the results for the year. The cost of internally developed software includes direct labour and an appropriate proportion of overheads.

Investment in subsidiaries, joint ventures and associates

Investments in subsidiaries, joint ventures and associates are held at cost less accumulated depreciation.

Joint arrangements

The Company accounts for joint operations by consolidating their results on a proportional basis, rather than holding them at their investment value.

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 26 years);
  - no depreciation is provided on freehold land.
- Plant and equipment – five to 25 years (average 12 years).
- Aircraft and engines – five to 20 years (average 12 years).

1 Accounting policies

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 IFRS 16 *Leases* 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. Where appropriate, lease liabilities are revalued at each reporting date using the spot exchange rate.

The Company did not adopt the amendment to IFRS 16 Leases, effective in 2022, which provides a practical expedient to not treat COVID-19 rent concessions as lease modifications.

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 (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 recognised as an expense. The recoverable amount is the higher of value in use or fair value less costs of disposal, 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 (or CGU). The relevant local statutory tax rates has been applied in calculating post-tax to pre-tax discount rates.

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.

1 Accounting policies

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.

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. The election to utilise the programme is the sole decision of the supplier. 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 13.

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 113;
- contract losses based on an assessment of whether the direct costs to fulfil a contract are greater than the expected revenue;
- warranty 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.

Key judgement – Whether any costs should be treated as wastage

As described further on page 116, 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, a 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 LTSAs, 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 wastage costs at 31 December 2022 of £179m (2021: £157m). 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 2022 the Trent 1000 contract loss provisions and the Trent 1000 wastage cost provision are most sensitive to changes in estimates. A 12-month delay in the availability of the modified HPT blade could lead to around a £40-70m increase in the Trent 1000 wastage 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 2022 of £1,544m (1 January 2022: £1,646m).

An increase in Civil Aerospace large engine estimates of LTSA costs of 1% over the remaining term of the contracts could lead to around a £100-125m increase in the provision for contract losses across all programmes.

Key estimates – Assumptions implicit in the calculation of discount rates

The contract loss provisions for onerous contracts are sensitive to changes in the discount rate used to value the provision. The rate used for each contract is derived from bond yields (i.e. risk-free rates) with a similar duration and currency to the contract that they are applied to. The rate is adjusted to reflect the specific inflation characteristics of the contract. The forecast rates are determined from third-party market analysis and average 4%. A 1% change in the discount rate used could lead to around a £80-100m change in the provision.

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. Credit-based guarantees are disclosed as commitments or contingent liabilities dependent on whether aircraft have been delivered or not. The Company considers asset-value guarantees to be non-financial liabilities and provides for amounts required. As described on page 139, 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.

1 Accounting policies

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.

UK pension obligations include the estimated impact of the obligation to equalise defined benefit pensions and transfer values respectively for men and women.

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 Company's defined benefit pension schemes and similar arrangements are assessed annually in accordance with IAS 19 *Employee Benefits*. The valuations, which are based on assumptions determined with independent actuarial advice, resulted in a net surplus of £594m before deferred taxation being recognised on the balance sheet at 31 December 2022 (2021: surplus of £1,118m). 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, in the UK, 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 Bridging Pension Option. Following consultation, the UK scheme closed to future accrual on 31 December 2020.

A reduction in the discount rate of 0.25% from 4.80% could lead to an increase in the defined benefit obligations of the RR UK Pension Fund (RRUKPF) of approximately £205m. 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.

An increase in the assumed rate of inflation of 0.25% (RPI of 3.50% and CPI of 2.95%) could lead to an increase in the defined benefit obligations of the RRUKPF of approximately £70m.

A one-year increase in life expectancy from 21.9 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 £215m.

Further details and sensitivities are included in note 17.

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.

Post balance sheet events
The Company has taken the latest legal position in relation to any ongoing legal proceedings and reflected these in the 2022 results as appropriate.

2 Emoluments of Directors

The total amount of remuneration paid to Directors for the year ended 31 December 2022 was £6,142,000 (2021: £6,088,000). £3,718,000 of this was attributed to the highest paid Director (2021: £3,838,000). A cash allowance in lieu of company contributions to a pensions scheme was also paid to two Directors (2021: three), which totalled £199,000 (2021: £186,000). No Directors exercised share options during the year (2021: none) nor received vested shares under the Long-Term Incentive Plan (2021: none).

3 Intangible assets

	Development costs £m	Certification costs £m	Software and other [1] £m	Total £m
Cost				
At 1 January 2022	**1,943**	**903**	**1,104**	**3,950**
Additions	**120**	**–**	**58**	**178**
Disposals	**–**	**–**	**(78)**	**(78)**
At 31 December 2022	**2,063**	**903**	**1,084**	**4,050**
Accumulated amortisation and impairment				
At 1 January 2022	**704**	**411**	**687**	**1,802**
Charge for the year [2]	**53**	**22**	**81**	**156**
Impairment	**–**	**–**	**13**	**13**
Disposals	**–**	**–**	**(75)**	**(75)**
At 31 December 2022	**757**	**433**	**706**	**1,896**
Net book value				
At 31 December 2022	**1,306**	**470**	**378**	**2,154**
At 31 December 2021	1,239	492	417	2,148

[1] Includes £88m (2021: £113m) of software under course of construction which is not amortised

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

At 31 December, the Company had expenditure commitments for software of £31m (2021: £38m).

The carrying amounts and the residual life of the material intangible assets for the Company are as follows:

	Residual life [1]	**Net book value** 2022 £m	2021 £m
Trent programme intangible assets [2]	3-15 years	**1,826**	1,787

[1] Residual life reflects the remaining amortisation period of those assets where amortisation has commenced. As per page 120, the amortisation period of 15 years will commence on those *assets which are not being amortised as the units are delivered*

[2] Included within the Trent programmes are the Trent 1000, Trent 7000 and Trent XWB

Intangible assets (including programme intangible assets) have been reviewed for impairment in accordance with IAS 36 *Impairment of Assets*. Assessments have considered potential triggers of impairment such as external factors including climate change, significant changes with an *adverse effect on a programme and by analysing latest management forecasts against those prepared in 2021 to identify any deterioration in* performance.

The Company believe there are significant business growth opportunities to come from Rolls-Royce playing a leading role in the transition to net zero, whilst at the same time climate change poses potentially significant risks. The assumptions used by the Directors are based on past experience and external sources of information. The main climate-related areas that have been considered are the risk that regulatory changes could materially impact demand for our products (and hence the utilisation of the products whilst in service and their useful lives) and shifting investment focus towards more sustainable products and solutions. Based on the climate scenarios prepared, the forecasts do not assume a significant deterioration of demand for Civil Aerospace programmes given that all commercial aero-engines will be compatible with sustainable *fuels by the end of 2023. The investment required to ensure our new products will be compatible with net zero operation by 2030, and to achieve* net zero scope 1 and 2 GHG emissions is reflected in the forecasts used.

A 1.5°C scenario has been prepared using key data points from external sources including Oxford Economics, Global Climate Service and Databank and the International Energy Agency. This scenario has been used as the basis of a sensitivity. It is assumed that governments adopt stricter product and behavioural standards and measures that result in higher carbon pricing. Under these conditions it is assumed that markets are willing to pay for low carbon solutions and that there is an economic return from strategic investments in low carbon alternatives.

Where a trigger event has been identified, an impairment test has been carried out. Where an impairment was required the test was performed on the following basis:

- The carrying values of assets in their current condition have been assessed by reference to value in use. These have been estimated using cash flows from the most recent forecasts prepared by the Directors, which are consistent with past experience and external sources of information on market conditions over the lives of the respective programmes; and
- The key assumptions underlying cash flow projections are based on estimates of product performance related estimates, future market share and pricing and cost for uncontracted business. Climate-related risks are considered when making these estimates consistent with the assumptions above.

There have been no (2021: none) individually material impairment charges or reversals recognised during the year.

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 2022	**895**	**2,616**	**284**	**80**	**3,875**
Additions	2	33	11	45	**91**
Reclassifications [1]	2	26	–	(28)	**–**
Disposals/write-offs	(27)	(39)	(54)	–	**(120)**
Exchange differences	–	3	–	–	**3**
At 31 December 2022	**872**	**2,639**	**241**	**97**	**3,849**
Accumulated depreciation					
At 1 January 2022	**282**	**1,696**	**108**	**7**	**2,093**
Charge for the year [2]	31	127	18	–	176
Impairment [3]	5	(6)	–	–	(1)
Disposals/write-offs	(18)	(36)	(40)	–	(94)
Exchange differences	–	2	–	–	2
At 31 December 2022	**300**	**1,783**	**86**	**7**	**2,176**
Net book value					
At 31 December 2022	**572**	**856**	**155**	**90**	**1,673**
At 31 December 2021	613	920	176	73	1,782

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

2 Depreciation is charged to cost of sales or commercial and administrative costs or included in the cost of inventory as appropriate

3 The carrying values of property, plant and equipment have been assessed during the period in line with IAS 36. Material items of plant and equipment and aircraft and engines are assessed for impairment together with other assets used in individual programmes - see assumptions in note 3. Land and buildings are generally used across multiple programmes and are considered based on future expectations of the use of the site, which includes any implications from climate-related risks as explained in note 3. As a result of this assessment, there are no individually material impairment charges or reversals in the year. The reversal in the year relates to an element of the non-underlying impairments recorded in 2020 in Civil Aerospace for site rationalisation where there has been a subsequent change in strategy to continue production on those sites

Property, plant and equipment includes:

Assets held for use in leases where the Company is the lessor:	2022 £m	2021 £m
Cost	**3**	3
Depreciation	**(3)**	(3)
Net book value	**–**	–

Capital expenditure commitments	**61**	60
Cost of fully depreciated assets	**1,088**	984

5 Right-of-use assets

	Land and buildings £m	Plant and equipment £m	Aircraft and engines £m	Total £m
Cost				
At 1 January 2022	**147**	**91**	**17**	**255**
Additions/modifications of leases	**7**	**17**	**–**	**24**
Disposals	**(23)**	**(9)**	**(3)**	**(35)**
At 31 December 2022	**131**	**99**	**14**	**244**
Accumulated depreciation and impairment				
At 1 January 2022	**50**	**38**	**4**	**92**
Charge for the year	**12**	**20**	**4**	**36**
Impairment [1]	**(3)**	**(1)**	**–**	**(4)**
Disposals	**(6)**	**(9)**	**(3)**	**(18)**
At 31 December 2022	**53**	**48**	**5**	**106**
Net book value				
At 31 December 2022	**78**	**51**	**9**	**138**
At 31 December 2021	97	53	13	163
Right-of-use assets held for use in operating leases				
Cost	**1**	**–**	**14**	**15**
Depreciation	**–**	**–**	**(5)**	**(5)**
Net book value at 31 December 2022	**1**	**–**	**9**	**10**

[1] The carrying values of right-of-use assets have been assessed during the period in line with IAS 36. Material items of plant and equipment and aircraft and engines are assessed for impairment together with other assets used in individual programmes – see assumptions in note 3. Land and buildings are generally used across multiple programmes and are considered based on future expectations of the use of the site (which includes any implications from climate-related risks as explained in note 3). As a result of this assessment, there are no individually material impairment charges or reversals in the period. The reversal in the period relates to an element of the non-underlying impairments recorded in 2020 in Civil Aerospace for site rationalisation where there has been a subsequent change in strategy to continue production on that site

6 Investments

	Subsidiary undertakings [1]		Joint ventures and associates [1]			Other investments [2]
	Shares at cost £m	Loans * £m	Shares at cost £m	Loans * £m	Total £m	Total £m
At 1 January 2022	**1,442**	**1,866**	**3**	**5**	**8**	**34**
Additions [3]	**10**	**–**	**23**	**–**	**23**	**7**
Disposal	**–**	**–**	**–**	**–**	**–**	**(1)**
Repayment of loan and interest [4]	**–**	**(92)**	**–**	**(5)**	**(5)**	**–**
Revaluation of investments accounted for at FVOCI	**–**	**–**	**–**	**–**	**–**	**(4)**
Impairment	**–**	**–**	**–**	**–**	**–**	**(1)**
Exchange differences	**1**	**–**	**–**	**–**	**–**	**–**
At 31 December 2022	**1,453**	**1,774**	**26**	**–**	**26**	**35**

[1] Subsidiary and joint venture undertakings and associates are listed on pages 140 to 145

[2] Other investments includes unlisted investments of £25m (2021: £27m) and listed investments of £10m (2021: £7m)

[3] During the year to 31 December 2022, the Company invested an additional £10m in Rolls-Royce SMR Limited. Further investment is expected over the next 2 years alongside other investors. On 1 September 2022, Rolls-Royce and Air China established a joint venture called Beijing Aero Engine Services Company Limited and invested £23m. On 4 May 2022, the Company acquired an investment in Eve Holding Inc for consideration of £7m. The Company has uncalled share capital in Nightingale Insurance Limited, one of its subsidiaries at 31 December 2022 of £30m (2021: £30m)

[4] The Company has an interest-bearing outstanding 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. During the year, Vinters International Limited made repayments of £121m (2021: £nil) and accrued interest of £29m (2021: £11m). No interest accruing during the year (2021: £9m part offset by the release of group tax relief) has been capitalised and is shown within repayment of loan and interest for the year

* Loan interest is added to the loan balance where 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.

7 Inventories

	2022 £m	2021 £m
Raw materials	**17**	8
Work in progress	**696**	471
Finished goods	**1,369**	1,237
Payments on account	**4**	13
	2,086	1,729
Inventories stated at net realisable value	**139**	155
Amount of inventory write-down	**10**	16
Reversal of inventory write-down	**12**	18

Inventories are stated after provisions for impairment of £226m (2021: £218m).

8 Trade receivables and other assets

	Current		Non-current		Total	
	2022 £m	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m
Trade receivables [1]	**1,161**	1,225	**43**	52	**1,204**	1,277
Prepayments	**663**	491	**891**	374	**1,554**	865
Receivables due on RRSAs	**928**	706	**255**	67	**1,183**	773
Amounts owed by:						
Subsidiary undertakings	**1,915**	2,099	**544**	227	**2,459**	2,326
Joint ventures [1]	**598**	561	**5**	–	**603**	561
Parent undertaking	**335**	335	**-**	–	**335**	335
Other taxation and social security receivable	**105**	141	**-**	–	**105**	141
Costs to obtain contracts with customers [2]	**2**	2	**2**	3	**4**	5
Other receivables [3]	**493**	394	**29**	16	**522**	410
	6,200	5,954	**1,769**	739	**7,969**	6,693

1 Non-current trade receivables relate to amounts not expected to be received in the next 12 months from customers on payment plans

2 These are amortised over the term of the related contract in line with engine deliveries, resulting in amortisation of £1m (2021: £3m) in the year. There were no impairment losses (2021: none)

3 Other receivables include unbilled recoveries relating to completed overhaul activity where the right to consideration is unconditional

All amounts owed by subsidiary undertakings (except those listed below) are unsecured, interest free, have no fixed date of repayment and are repayable on demand.

- US$644m (£535m) balance receivable from Rolls-Royce Overseas Investments Limited (2021: US$294m (£218m). This incurs interest at US Federal Reserve rate + 3.18% and has a repayment date of 31 December 2026.
- €11m (£10m) receivable from Aerospace Transmission Technologies GmbH (2021: €11m (£9m)). This incurs interest at EURIBOR +2% and has a repayment date of 31 December 2037.
- €7m (£6m) receivable from Europea Microfusioni Aerospaziali Spa (2021: £nil). This incurs interest at EURIBOR + 4.5% and has a repayment date of 31 December 2023.

The ECLs on parent and group undertakings amounts to £16m (2021: £15m). The assumptions and inputs used for the estimation of the allowance takes into account the market credit ratings.

The ECLs for trade receivables and other assets have increased by £68m to £210m (31 December 2021: decreased by £11m to £142m). This movement is mainly driven by the Civil Aerospace business of £72m, of which £65m relates to specific customers and £7m relates to updates to the recoverability of other receivables.

The Company has adopted the simplified approach to provide for ECLs, measuring the loss allowance at a probability weighted amount incorporated by using credit ratings which are publicly available, or through internal risk assessments derived using the customer's latest available financial information.

The assumptions and inputs used for the estimation of the ECLs are shown in the table below:

	2022			2021		
	Trade receivables and other financial assets £m	**Loss allowance £m**	**Average ECL rate**	Trade receivables and other financial assets £m	Loss allowance £m	Average ECL rate
Investment grade [1]	**1,016**	**(92)**	**9%**	639	(6)	1%
Non-investment grade	**51**	**(4)**	**8%**	133	(2)	2%
Without credit rating	**2,655**	**(114)**	**4%**	2,388	(134)	6%
	3,722	**(210)**	**6%**	3,160	(142)	4%

1 Counterparties with a credit rating of 'C' or above are classified as investment grade

The movements of the Company's ECLs provision are as follows:

	2022 £m	2021 £m
At 1 January	**(142)**	(153)
Increases in loss allowance recognised in the income statement during the year	**(82)**	(69)
Loss allowance utilised	**19**	32
Releases of loss allowance previously provided	**21**	28
Exchange differences	**(26)**	20
At 31 December	**(210)**	(142)

9 Contract assets and liabilities

	Current		Non-current [1]		Total [2]	
	2022 £m	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m
Contract assets						
Contract assets with customers	**408**	381	**484**	532	**892**	913
Participation fee contract assets	**16**	15	**149**	153	**165**	168
	424	396	**633**	685	**1,057**	1,081

[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

The balance includes £853m (2021: £873m) of Civil Aerospace LTSA assets, with most of the remaining balance relating to Defence. The decrease in the Civil Aerospace balance is due to collection of higher cash receipts than revenue recognised in relation to completion of performance obligations on those contracts with a contract asset balance. Revenue recognised relating to performance obligations satisfied in previous years was £26m in Civil Aerospace.

The absolute value of ECLs for contract assets has increased by £6m to £21m (31 December 2021: £15m).

Participation fee contract assets have reduced due to amortisation. No impairment losses (2021: none) of contract assets have arisen during the year.

	Current		Non-current		Total	
	2022 £m	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m
Contract liabilities	**3,388**	2,289	**5,153**	4,939	**8,541**	7,228

During the year £2,039m (2021: £1,366m) of the opening contract liability was recognised as revenue.

Contract liabilities have increased by £1,313m. The main driver is the increase seen in Civil Aerospace, where the movement includes an increase in relation to LTSA liabilities of £880m driven by growth in customer payments as EFHs continue to recover from the COVID-19 pandemic and price escalation. This has been offset by revenue relating to performance obligations satisfied in previous years being adjusted upwards by £120m which decreases the contract liability.

10 Cash and cash equivalents

	2022 £m	2021 £m
Cash at bank and in hand	**199**	254
Money-market funds	**4**	33
Short-term deposits	**1,714**	1,760
Cash and cash equivalents	**1,917**	2,047
Overdrafts (note 11)	**–**	(3)

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.

11 Borrowings and lease liabilities

	Current		Non-current		Total	
	2022 £m	2021 £m	**2022 £m**	2021 £m	2022 £m	2021 £m
Unsecured						
Overdrafts	**-**	3	**-**	-	**-**	3
Bank loans [1]	**-**	-	**-**	1,975	**-**	1,975
0.875% Notes 2024 €550m [2]	**-**	-	**472**	471	**472**	471
3.625% Notes 2025 $1,000m [2]	**-**	-	**801**	781	**801**	781
3.375% Notes 2026 £375m [3]	**-**	-	**351**	394	**351**	394
4.625% Notes 2026 €750m [4]	**-**	-	**661**	624	**661**	624
5.75% Notes 2027 $1,000m [4]	**-**	-	**825**	735	**825**	735
5.75% Notes 2027 £545m	**-**	-	**541**	540	**541**	540
1.625% Notes 2028 €550m [2]	**-**	-	**444**	493	**444**	493
Total unsecured	**-**	3	**4,095**	6,013	**4,095**	6,016
Lease liability - Land and buildings	**15**	15	**109**	118	**124**	133
Lease liability - Aircraft and engines	**4**	1	**12**	13	**16**	14
Lease liability - Plant and equipment	**20**	15	**33**	39	**53**	54
Total lease liabilities	**39**	31	**154**	170	**193**	201
Total borrowings and lease liabilities	**39**	34	**4,249**	6,183	**4,288**	6,217

	Less than one year £m	Between one and five years £m	After five years £m	Total £m
At 31 December 2022				
Borrowings	**-**	**3,651**	**444**	**4,095**
Lease liabilities	**39**	**118**	**36**	**193**
	39	**3,769**	**480**	**4,288**
At 31 December 2021				
Borrowings	3	4,245	1,768	6,016
Lease liabilities	31	122	48	201
	34	4,367	1,816	6,217

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

1 On 16 September 2022, the Company repaid the £2,000m loan maturing in 2025 (supported by an 80% guarantee from UK Export Finance)

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. 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

3 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

4 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 ended 31 December 2022, the Company entered into a new £1,000m sustainability-linked facility, maturing in 2027 (supported by an 80% guarantee from UK Export Finance). The facility was undrawn at 31 December 2022.

At 31 December 2022, the Company had total undrawn facilities of £5,500m (2021: £4,500m).

12 Leases

Leases as lessee

The net book value of lease right-of-use assets at 31 December 2022 was £138m (2021: £163m), with a lease liability of £193m (2021: £201m) (per notes 5 and 11 respectively). Leases that have not yet commenced to which the Company is committed have a future liability of £nil. The financial statements include the following amounts relating to leases:

	2022 £m	2021 £m
Land and buildings depreciation and impairment	**(9)**	(10)
Aircraft and engines depreciation and impairment	**(19)**	(2)
Plant and equipment depreciation and impairment	**(4)**	(11)
Total depreciation and impairment for right-of-use assets	**(32)**	(23)

The total cash outflow for leases in 2022 was £51m (2021: £56m). Of this, £40m related to leases reflected in the lease liability, £11m to short-term leases where lease payments are expensed on a straight-line basis and £nil for variable lease payments where obligations are only due when the assets are used. The timing difference between income statement charge and cash flow relates to costs incurred at the end of leases for residual value guarantees and restoration costs that are recognised within depreciation over the term of the lease, the most significant amounts relate to engine leases.

Leases as lessor

The Company 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 the Company's 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 the Company can confirm that appropriate insurance documentation is established that covers the engine assets to pre-agreed amounts. All such contracts are operating leases. The Company also leases out a small number of properties, or parts of properties, where there is excess capacity under operating leases.

Total non-cancellable future operating lease rentals receivables (undiscounted) of £1m (2021: £1m), are predominantly due after five years.

In a limited number of circumstances, the Company sublets properties 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 2022, the total undiscounted lease payments receivable is £39m (2021: £19m) on annual lease income of £4m (2021: £2m). The discounted finance lease receivable at 31 December 2022 is £32m (2021: £17m). There was £nil (2021: £nil) finance income recognised during the year.

13 Trade payables and other liabilities

	Current		Non-current		Total	
	2022 £m	2021 £m	2022 £m	2021 £m	2022 £m	2021 £m
Trade payables [1]	**845**	582	**-**	-	**845**	582
Payables due on RRSAs	**1,392**	739	**-**	-	**1,392**	739
Amounts owed to:						
Subsidiary undertakings	**5,301**	4,810	**-**	-	**5,301**	4,810
Joint ventures and associates	**557**	476	**-**	-	**557**	476
Customer concession credits [2]	**561**	1,017	**817**	399	**1,378**	1,416
Warranty credits	**212**	201	**152**	161	**364**	362
Accruals	**1,291**	1,324	**182**	177	**1,473**	1,501
Deferred receipts from RRSA workshare partners	**32**	23	**829**	484	**861**	507
Government grants [3]	**18**	21	**13**	12	**31**	33
Other taxation and social security	**26**	-	**-**	-	**26**	-
Other payables [4]	**221**	192	**212**	246	**433**	438
	10,456	9,385	**2,205**	1,479	**12,661**	10,864

1 Includes payables due from ITP Aero that were previously eliminated on consolidation
2 Customer concession credits are a form of discount and are reported within revenue as set out on page 116
3 During the year £3m (2021: £2m) of government grants were recognised in the income statement
4 Other payables includes parts purchase obligations, payroll liabilities, HM UK Government levies and payables associated with business disposals

All amounts due to subsidiary undertakings (except those outlined below) are unsecured, interest free and are repayable on demand.

The Company is part of the Rolls-Royce group banking arrangements and the Company's main bank accounts are subject to offset and pooling arrangements with cash balances acquired from other group entities. As a result of these arrangements the balances are presented as intercompany payables as funds are pooled by the Company on the last working day of the month with funds returned the next day. The amounts owed by the Company of £1,213m as at 31 December 2022 (2021: £959m) are interest bearing and repayable on demand.

13 Trade payables and other liabilities

Other intercompany payable balances outstanding as at 31 December 2022 were as follows:

- US$15m (£12m) balance payable to Rolls-Royce Canada Limited (2021: US$35m (£26m)). This incurs interest at the 3 month USD LIBOR rate +0.1% and is repayable on demand.
- CAD237m (£146m) balance payable to Rolls-Royce Canada Limited (2021: CAD419m (£245m)). This incurs interest at the 3 month CAD LIBOR rate +0.1% and is repayable on demand.
- £81m balance payable to Nightingale Insurance Limited (2021: £81m). This incurs interest at Bank of England base interest rate - 0.06% and is repayable on demand.
- US$300m (£249m) balance payable to Rolls-Royce North America (USA) Holdings Co (2021: US$139m (£103m)). This incurs interest at the 1 month USD LIBOR rate +0.1% and is repayable on demand.
- €335m (£297m) balance payable to Rolls-Royce Power Systems AG (2021: €633m (£532m)). This incurs interest at EURIBOR +0.1% and is repayable on demand.
- US$171m (£142m) balance payable to Rolls-Royce Power Systems AG (2021: £nil). This incurs interest at USD LIBOR rate +0.1% and is repayable on demand.
- €200m (£177m) balance payable to RR Deutschland Ltd & Co KG (2021: €200m (£168m)). This incurs interest at the 3 month EURIBOR rate +0.1% and is repayable on demand.
- £50m balance payable to RR SMR Limited (2021: £nil). This incurs interest at the Bank of England base interest rate -0.06% and is repayable on demand.

The Company's payment terms with suppliers vary on the products and services being sourced, the competitive global markets the Company operates in and other commercial aspects of suppliers' relationships. Industry average payment terms vary between 90-120 days. The Company offers reduced payment terms for smaller suppliers, so that they are paid in 30 days. In line with aerospace industry practice, the Company offers a supply chain financing (SCF) programme in partnership with banks to enable suppliers, including joint ventures, who are on standard 75-day payment terms to receive their payments sooner. The SCF programme is available to suppliers at their discretion and does not change rights and obligations with suppliers nor the timing of payment to suppliers. At 31 December 2022, suppliers had drawn £422m under the SCF scheme (31 December 2021: £540m).

14 Other financial assets and liabilities

Details of the Company's policies on the use of financial instruments are given in the accounting policies on page 119.

The fair values of other financial instruments held by the Company are as follows:

	Foreign exchange contracts £m	Commodity contracts £m	Interest rate contracts [1] £m	Total derivatives £m	Financial RRSAs £m	Other £m	Total £m
2022							
Current assets	**219**	**40**	**2**	**261**	**–**	**–**	**261**
Non-current assets	**61**	**25**	**436**	**522**	**–**	**–**	**522**
Assets	**280**	**65**	**438**	**783**	**–**	**–**	**783**
Current liabilities	**(973)**	**(2)**	**(2)**	**(977)**	**(9)**	**(11)**	**(997)**
Non-current liabilities	**(3,031)**	**(2)**	**(98)**	**(3,131)**	**(101)**	**–**	**(3,232)**
Liabilities	**(4,004)**	**(4)**	**(100)**	**(4,108)**	**(110)**	**(11)**	**(4,229)**
	(3,724)	**61**	**338**	**(3,325)**	**(110)**	**(11)**	**(3,446)**
2021							
Current assets	76	21	–	97	–	–	97
Non-current assets	160	11	176	347	–	–	347
Assets	236	32	176	444	–	–	444
Current liabilities	(632)	(4)	–	(636)	(13)	(13)	(662)
Non-current liabilities	(2,583)	–	(82)	(2,665)	(64)	–	(2,729)
Liabilities	(3,215)	(4)	(82)	(3,301)	(77)	(13)	(3,391)
	(2,979)	28	94	(2,857)	(77)	(13)	(2,947)

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

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.

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 borrowing denominated in a foreign currency, the Company has currency derivatives designated as part of a fair value or cash flow hedge. The Company uses interest rate swaps and forward rate agreements to manage its exposure to movements in interest rates.

14 Other financial assets and liabilities

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

	Foreign exchange instruments 2022 £m	Commodity instruments 2022 £m	Interest rate instruments – hedge accounted [1] 2022 £m	Interest rate instruments - non-hedge accounted 2022 £m	Total 2022 £m
At 1 January	(2,979)	28	57	37	(2,857)
Movements in fair value hedges	-	-	(74)	-	(74)
Movements in cash flow hedges	(56)	-	142	-	86
Movements in other derivative contracts	(1,636)	104	-	190	(1,342)
Contracts settled	947	(71)	-	(14)	862
At 31 December	(3,724)	61	125	213	(3,325)

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

Financial RRSAs and other liabilities

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.

Movements in carrying values were as follows:

	Financial RRSAs 2022 £m	Other - liabilities 2022 £m
At 1 January	(77)	(13)
Cash paid	10	-
Additions	(6)	2
Changes in forecast payments	(27)	-
Financing charge	(8)	-
Exchange adjustments	(2)	-
At 31 December	(110)	(11)

15 Provisions for liabilities and charges

	At 31 December 2021 as previously reported £m	On adoption of amendment to IAS 37 £m	At 1 January 2022 £m	Charged to income statement [1] £m	Reversed £m	Utilised £m	At 31 December 2022 £m
Contract losses	899	747	1,646	363	(385)	(80)	1,544
Trent 1000 wastage costs	157		157	106	-	(84)	179
Warranty and guarantees	21		21	2	(2)	(2)	19
Customer financing	17		17	-	(7)	(10)	-
Restructuring	7		7	-	(6)	(1)	-
Employer liability claims	5		5	2	(1)	(2)	4
Other	59		59	16	(3)	-	72
	1,165	747	1,912	489	(404)	(179)	1,818
Current liabilities	204	39	243				352
Non-current liabilities	961	708	1,669				1,466

[1] The charge to the income statement includes £33m (2021: £32m) as a result of the unwinding of the discounting of provisions previously recognised

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. As a result of the amendment to IAS 37 for Onerous Contracts, from 1 January 2022 provisions for contract losses have been measured on a fully costed basis resulting in a £747m increase of the total contract loss provision as at 1 January 2022 (see note 1 for details). During the year, additional contract losses for the Company of £363m have been recognised as a result of changes in future cost estimates, primarily in relation to LTSA shop visits. Contract losses of £385m previously recognised have been reversed following improvements to cost estimates across various large engine programmes as a result of operational improvements and updates to the discount rate. The Company continues to monitor the contract loss provision for changes in the market and revises the provision as required. The value of the remaining contract loss provisions reflect, in each case, the single most likely outcome. The provisions are expected to be utilised over the term of the customer contracts, typically within 8 to 16 years.

15 Provisions for liabilities and charges

Trent 1000 wastage costs

In November 2019, the Company 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. During the year, the Company has utilised £84m of the Trent 1000 wastage costs provision. This represents customer disruption costs and remediation shop visit costs. During the year, additional Trent 1000 costs of £106m relating to wastage have been recognised reflecting delays in certification which have led to revised cost and timing estimates. The value of the remaining provision reflects the single most likely outcome and is expected to be utilised over the period 2023-2024.

Warranty and guarantees

Provisions for warranty and guarantees primarily relate to products sold and are calculated based on an assessment of the remediation costs related to future claims based on past experiences. The provision generally covers a period of up to three years.

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. 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. The values of aircraft providing security are based on advice from a specialist aircraft appraiser. There were no provisions for Customer financing provisions at 31 December 2022 (2021: £17m). In addition to the provisions recognised, the Company has contingent liabilities for customer financing arrangements where the payment is not probable. See note 20.

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

During the year, £16m of other provisions have been charged to the income statement. The items that make up the charge in the year are individually immaterial and predominately relate to claims. At 31 December 2022, other provisions includes those items as well as others (predominantly supplier claims), where the related legal proceedings are ongoing and utilisation will depend upon their resolution. The value of the provision reflects the single most likely outcome in each case.

16 Deferred taxation

	2022 £m	2021 £m
At 1 January	**1,171**	768
Amount credited to income statement	**424**	436
Amount credited/(charged) to statement of OCI	**186**	(50)
Amount credited to equity	**1**	17
At 31 December	**1,782**	1,171
Deferred tax assets	**1,990**	1,562
Deferred tax liabilities	**(208)**	(391)
Deferred tax	**1,782**	1,171

The analysis of the deferred tax position is as follows:

	2022 £m	2021 £m
Intangible assets	**(357)**	(343)
Property, plant and equipment	**159**	131
Other temporary differences [1]	**244**	165
Pensions and other post-retirement scheme benefits	**(208)**	(391)
Foreign exchange and commodity financial assets and liabilities	**668**	339
Losses	**1,054**	1,054
Advance corporation tax	**162**	162
R&D credit	**60**	54
	1,782	1,171

Unprovided deferred tax	2022 £m	2021 £m
Other temporary differences	**-**	14
Foreign exchange and commodity financial assets and liabilities	**218**	392
Losses	**2,023**	1,563
	2,241	1,969

Gross amount of losses and other deductible temporary differences for which no deferred tax has been recognised on which there is no expiry	2022 £m	2021 £m
Other temporary differences	**-**	55
Foreign exchange and commodity financial assets and liabilities	**871**	1,567
Losses	**8,092**	6,251
	8,963	7,873

[1] Other temporary differences mainly relate to the deferral of relief for interest expenses under the corporate interest restriction rules

16 Deferred taxation

The total deferred tax asset of £1,990m (2021: £1,562m) is made up as follows:

- £1,054m (2021: £1,054m) relating to tax losses;
- £668m (2021: £339m) arising on unrealised losses on derivative contracts;
- £162m (2021: £162m) of advance corporation tax; and
- £106m (2021: £7m) relating to other deductible temporary differences, in particular tax depreciation and relief for interest expenses.

The deferred tax 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 deductible temporary differences can be utilised.

Most of the tax losses relate to the Civil Aerospace large engine 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 are typically in excess of 30 years.

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 large engine business, to assess the level of future taxable profits.

The recoverability of deferred tax assets has been assessed on the following basis:

- Using the most recent UK profit forecasts 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 major large engine programmes which is typically in excess of 30 years from initial investment to retirement of the fleet, including the aftermarket revenues earned from airline customers;
- Taking into account the risk that regulatory changes could materially impact demand for our products and shifting investment focus towards more sustainable products and solutions;
- Consideration that all commercial aero-engines will be compatible with sustainable fuels by the end of 2023;
- A 25% probability of the stressed downside forecast materialising in relation to the civil aviation industry; 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. In addition, management's assumptions relating to the amounts and timing of future taxable profits include the impact of macroeconomic factors and climate change on existing large engine programmes. Based on this assessment, the Company has recognised a total deferred tax asset of £1,990m. 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 can be utilised.
- Based on current forecasts and using various scenarios these losses and other deductible temporary differences will be used in full within the expected large engine programme lifecycles. An explanation of the potential impact of climate change on forecast profits and sensitivity analysis can be found in note 1.

The Company has not recognised a deferred tax asset in respect of 2022 tax losses. This includes the impact of the IAS 37 amendment.

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

The temporary differences associated with investments in subsidiaries, joint ventures and associates, for which a deferred tax liability has not been recognised, aggregate to £1,062m (2021: £957m). 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.

17 Post-retirement benefits

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 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 2022.

Changes to the defined benefit scheme
As at 31 December 2022, a constructive obligation has been recognised for the offering of the Bridging Pension Option (BPO) to other deferred members in Rolls-Royce UK Pension Fund. As a result, a past service credit of £6m has been recognised within non-underlying operating profit/(loss).

17 Post-retirement benefits

Amounts recognised in OCI in respect of defined benefit schemes	2022 £m	2021 £m
Actuarial gains and losses arising from:		
Demographic assumptions [1]	**19**	(101)
Financial assumptions [2]	**3,423**	416
Experience adjustments [3]	**(235)**	(88)
Return on scheme assets excluding financing income [2]	**(3,751)**	(112)
	(544)	115

[1] This 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] Actuarial gains and losses arising from financial assumptions arise primarily due to changes in interest rates and inflation

[3] This reflects realised inflation being higher than expected in the period, resulting in increases in actual pension increases and deferred pension expectations

Amounts recognised in the balance sheet in respect of defined benefit schemes	2022 £m	2021 £m
Present value of funded obligations	**(4,621)**	(8,010)
Fair value of scheme assets	**5,215**	9,128
Net asset recognised in the balance sheet - Post retirement surplus [1]	**594**	1,118

[1] The surplus is recognised as on an ultimate wind-up when there are no longer any remaining members, 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

Assumptions

Significant actuarial assumptions used at the balance sheet date were as follows:

		2022 £m	2021 £m
Discount rate		**4.80%**	1.90%
Inflation assumption (RPI)		**3.50%**	3.60%
Inflation assumption (CPI)		**2.95%**	3.05%
Transfer assumption (employed deferred/deferred)		**50%/40%**	50%/40%
Bridging Pension Option assumption		**30%**	25%
Life expectancy from age 65:	current male pensioner	**21.9 years**	21.8 years
	future male pensioner currently aged 45	**23.2 years**	23.2 years
	current female pensioner	**23.7 years**	23.6 years
	future female pensioner currently aged 45	**25.5 years**	25.4 years

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.

The mortality assumptions are derived from the SAPS S3 'All' actuarial tables, with future improvements in line with the CMI 2021 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 has been updated based on actual experience and actuarial advice.

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.

17 Post-retirement benefits

Changes in present value of defined benefit obligations	2022 £m	2021 £m
At 1 January	**(8,010)**	(8,879)
Current service cost	**(4)**	(4)
Past-service cost	**6**	15
Finance cost	**(149)**	(137)
Benefits paid out	**329**	768
Actuarial gains	**3,207**	227
At 31 December	**(4,621)**	(8,010)
Funded schemes	**(4,621)**	(8,010)

The defined benefit obligations are in respect of:	2022 £m	2021 £m
Active plan participants [1]	**(1,681)**	(3,451)
Deferred plan participants	**(1,172)**	(2,258)
Pensioners	**(1,768)**	(2,301)
Weighted average duration of obligations (years)	**17**	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 Company retain some additional benefits compared with other deferred members. The obligations for these members are shown as active plan participants

Changes in fair value of scheme assets	2022 £m	2021 £m
At 1 January	**9,128**	9,762
Administrative expenses	**(4)**	(6)
Financing	**170**	153
Return on plan assets excluding financing	**(3,751)**	(112)
Contributions by employer	**1**	99
Benefits paid out	**(329)**	(768)
At 31 December	**5,215**	9,128
Total return on plan assets	**(3,581)**	41

Fair value of scheme assets	2022 £m	2021 £m
Sovereign debt	**3,574**	5,756
Corporate debt instruments	**1,492**	3,122
Interest rate swaps	**196**	54
Inflation swaps	**212**	106
Cash and similar instruments [1]	**(1,066)**	(811)
Liability driven investment (LDI) portfolios [2]	**4,408**	8,227
Unlisted equities	**40**	54
Synthetic equities [3]	**(8)**	43
Corporate debt instruments	**772**	802
Other	**3**	2
At 31 December	**5,215**	9,128

[1] Cash and similar instruments include repurchase agreements on UK Government bonds amounting to £(1,221)m (2021: £(1,087)m). The latest maturity date for these short-term borrowings is April 2024

[2] A portfolio of gilt and swap contracts, backed by investment grade credit instruments and diversified liquidity funds 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 £329m (2021: £505m)

17 Post-retirement benefits

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 2022, there was no indirect holding of the Company's financial instruments (2021: none).

The liquidity of the scheme was not significantly impacted by the rapid rise in UK Government bond yields in the second half of 2022. The scheme (and its predecessor schemes) benefited from prudent cash funding from the Company in previous financial years coupled with long-term liability hedging programmes. These factors have resulted in the scheme being relatively well funded and consequently enabled it to keep leverage relatively low. Throughout 2022 the scheme maintained adequate levels of liquidity and eligible collateral to service its leveraged positions.

Future contributions

The Company does not expect to contribute to its defined benefit scheme in respect of 2023 (2022: £nil).

The cash funding of RRUKPF is based on a statutory triennial funding valuation process. The Company and the Trustee negotiate and agree the actuarial assumptions used to value the liabilities (Technical Provisions); assumptions 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 2020 valuation) rather than being based on yields of AA corporate bonds. Once each valuation is signed, a Schedule of Contributions (SoC) must be agreed which sets out the cash contributions to be paid. The most recent valuation, as at 31 March 2020, agreed by the Trustee in June 2021, showed that RRUKPF was estimated to be 105% funded on the Technical Provisions basis (estimated to be 109% at 31 December 2022). All cash due has been paid in full and the current SoC does not require any cash contributions to be made by the Company. The current SoC does include an agreement for contributions between 2024 to 2027 (capped at £145m in total) if the Technical Provisions funding position is below 107% at 31 March 2023.

Sensitivities

The calculations of the defined benefit obligations are sensitive to the assumptions set out on page 135. 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 2022, 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 are designed to hedge the risks from interest rates and inflation on a proxy solvency basis.

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 has 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.

		2022 £m	2021 £m
Reduction in discount rate of 0.25% [1]	Obligation	**(205)**	(460)
	Plan assets (LDI portfolio)	**235**	484
Increase in inflation rate of 0.25% [1]	Obligation	**(70)**	(210)
	Plan assets (LDI portfolio)	**91**	147
Increase of 1% in transfer value assumption	Obligations	**(30)**	(55)
Increase of 5% of transfers instead of BPO	Obligations	**(5)**	(30)
One year increase in life expectancy	Obligations	**(215)**	(365)

[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 £130m (2021: £125m).

18 Share capital

	Equity ordinary shares of 20p each (millions)	Nominal value £m
Authorised		
At 1 January and 31 December 2022	**2,000**	**400**
Issued and fully paid		
At 1 January and 31 December 2022	**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.

19 Share-based payments

Effect of share-based payment transactions on the Company's results and financial position

	2022 £m	2021 £m
Total expense recognised for equity-settled share-based payment transactions	**39**	16

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)

The fair value of shares awarded 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 decreases the fair value of the award relative to the share price at the date of grant.

ShareSave

The fair value of the options granted is calculated using a 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.

Deferred Share Bonus Plan (DSBP)

The fair value of shares awarded under DSBP is calculated as the share price on the date of the award, excluding expected dividends (or equivalent).

The weighted average share price at the date share options were exercised was 95p (2021: 119p) per share. The closing price at 31 December 2022 was 93p (2021: 123p).

The range of exercise prices for the share options as at 31 December 2022 was 97p to 261p.

			ShareSave (millions)	
Grant - vest	**Expiry date (31 January)**	**Exercise price in pence per share option**	**2022**	**2021**
2017 - 2023	2023	260	**1.2**	1.4
2019 - 2023	2023	232	**1.8**	2.3
2019 - 2025	2025	232	**1.8**	2.1
2021 - 2025	2025	97	**33.4**	35.9
			38.2	41.7

The weighted average remaining contractual life for the cash settled options as at 31 December 2022 was two years (2021: two years).

20 Contingent liabilities

Contingent liabilities in respect of customer financing commitments are described in note 15.

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. The terms of both DPAs have now expired; the DPA with the DoJ was dismissed by the US District Court on 19 May 2020 and the SFO filed notice of discontinuance of proceedings with the UK Court on 18 January 2022. Certain authorities are investigating members of the Company for matters relating to misconduct in relation to historical matters. The Company is responding appropriately. Action may be taken by further authorities against the Company or individuals. In addition, the Company could still be affected by actions from customers, customers' financiers and the Company's current and former investors, including certain potential claims in respect of the Company's historical ethics and compliance disclosures which have been notified to the Company. 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 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 (including with tax authorities) 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.

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 $1.2bn (2021: $1.7bn) (on a discounted basis) to provide facilities to enable customers to purchase aircraft (of which approximately $0.9bn could be called during 2023). 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, the failure by customers to meet their obligations under such financing agreements, or inadequate provisions for customer financing liabilities may adversely affect the Company's financial position.

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 2022, these guarantees amounted to £1,016m (2021: £940m). At 31 December 2022, there were Company guarantees in respect of joint ventures' lending amounting to £3m (2021: £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 2022, these guarantees amounted to £2m (2021: £4m).

The Company has responded appropriately to the Russia-Ukraine conflict to comply with international sanctions and export control regime, and also to implement our business decision to exit from Russia. The Company could be subject to action by impacted customers and other contract parties.

While the outcome of the above 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.

21 Related party transactions

	2022 £m	2021 £m
Sale of goods and services [1]	**4,961**	3,432
Purchases of goods [1]	**(4,655)**	(3,359)
Guarantees of joint arrangements' and associates' borrowings	**3**	1
Guarantees of non-wholly owned subsidiaries' borrowings	**3**	3

[1] Sales of goods and services to related parties and purchases of goods and services from related parties, including joint ventures and associates, are included at the average exchange rate, consistent with the statutory income statement

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 8 and 13.

22 Parent and ultimate parent company

The Company's direct parent is Rolls-Royce Group Limited.

The ultimate parent undertaking and the smallest and largest group to consolidate these financial statements is Rolls-Royce Holdings plc. Copies of the Rolls-Royce Holdings plc consolidated financial statements can be obtained from the Company Secretary at Kings Place, 90 York Way, London, N1 9FX, United Kingdom.

Subsidiaries

As at 31 December 2022, the companies listed below and on the following pages are indirectly held by Rolls-Royce plc except those companies indicated which are directly held 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
Aerospace Transmission Technologies GmbH *,1	Adelheidstrasse 40, D-88046, Friedrichshafen, Germany	Capital Stock	50
Amalgamated Power Engineering Limited [2]	London [3]	Deferred Ordinary	100 100
Bristol Siddeley Engines Limited *,4	London [3]	Ordinary	100
Brown Brothers & Company, Limited [4]	Taxiway, Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, KY11 9JT, Scotland	Ordinary	100
C.A. Parsons & Company Limited [4]	London [3]	Ordinary	100
Derby Specialist Fabrications Limited [2]	London [3]	Ordinary	100
Europea Microfusioni Aerospaziali S.p.A. *	Zona Industriale AS1, 83040 Morra de Sanctis, Avellino, Italy	Ordinary	100
Heaton Power Limited [2]	London [3]	Ordinary	100
John Thompson Cochran Limited [2]	Taxiway, Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, KY11 9JT, Scotland	6% Cumulative Preference Ordinary	100 100
Karl Maybach-Hilfe GmbH	Maybachplatz 1, 88045, Friedrichshafen, Germany	Capital Stock	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 Trading and Contracting LLC [5]	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 Sistemas de UPS SpA	Bucarest No 17 Oficina, No 33, Previdencia, Santiago, Chile	Ordinary	100
Kinolt UK Limited [4]	London [3]	Ordinary	100
LLC Rolls-Royce Solutions Rus	Shabolovka Street 2, 119049, Moscow, Russian Federation	Ordinary	100
MTU India Private Limited [6]	6th Floor, RMZ Galleria, S/Y No. 144 Bengaluru, Bangalore, Kamataka 560,064, India	Ordinary	100
MTU Polska Sp. z o.o.	Ul. Lekka 3., Lokal U4. Raum, PLZ: 01-910, Ort: Warszawa, Poland	Ordinary	100
NEI International Combustion Limited [2]	London [3]	Ordinary	100
NEI Mining Equipment Limited [2]	London [3]	Ordinary	100
NEI Nuclear Systems Limited [2]	London [3]	Ordinary	100
NEI Parsons Limited [2]	London [3]	Ordinary	100
NEI Peebles Limited [2]	London [3]	Ordinary	100
NEI Power Projects Limited [2]	London [3]	Ordinary	100
Nightingale Insurance Limited	PO Box 33, Dorey Court, Admiral Park, St Peter Port, GY1 4AT, Guernsey	Ordinary	100
No-Break Power Limited [2]	Unit 29 Birches Industrial Estate, East Grinstead, RH19 1XZ, England	Ordinary	100
Powerfield Limited [2]	Derby [7]	Ordinary	100
PT Rolls-Royce	Secure Building Blok B, Jl. Raya Protokol Halim, Perdanakusuma, Jakarta, 13610, Indonesia	Ordinary	100
PT Rolls Royce Solutions Indonesia	Secure Building Blok B, Jl. Raya Protokol Halim, Perdanakusuma, Jakarta, 13610, Indonesia	Ordinary	100
Rolls-Royce (Ireland) Unlimited Company [2]	Ulster International Finance, 1st Floor IFSC House, IFSC, Dublin 1, Ireland	Ordinary	100
Rolls-Royce (Thailand) Limited	989 Floor 12A, Unit B1, B2, Siam Piwat Tower, Rama 1, Pathumwan, Bangkok, 10330, Thailand	Ordinary	100
Rolls-Royce Aero Engine Services Limited *,2	London [3]	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 Jose Versolato, No. 111, Torre B, Sala 2502, Centro, São Bernando do Campo, Sao Paulo, CEP 09750-730, Brazil	Quotas	100

* Directly held by the Company
[1] Although 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
[2] Dormant entity
[3] Kings Place, 90 York Way, London, United Kingdom, N1 9FX
[4] Entity to take advantage of s479A Companies Act 2006 (s479A) audit exemption for the financial year ended 31 December 2022. The Company will issue a guarantee pursuant to s479A in relation to the liabilities of the entity
[5] Although 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
[6] Reporting year end is 31 March
[7] Moor Lane, Derby, Derbyshire, DE24 8BJ, United Kingdom
[8] Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19809, United States
[9] Entity in liquidation
[10] Entity to take advantage of s479A Companies Act 2006 (s479A) audit exemption for the financial year ending 31 March 2023. The Company will issue a guarantee pursuant to s479A in relation to the liabilities of the entity
[11] The entity is not included in the consolidation as the Company does not have a beneficial interest in the net assets of the entity
[12] The entity is accounted for as a joint operation (see note 1 to the Consolidated Financial Statements)

Subsidiaries

Company name	Address	Class of shares	% of class held
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 Indigo Building 1, 20 Jiuxianqiao Road, Beijing, 100016, China	Registered Capital	100
Rolls-Royce Commercial Aero Engines Limited *,2	London [3]	Ordinary	100
Rolls-Royce Controls and Data Services Limited *,2	London [3]	Ordinary	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 [7]	Ordinary	100
Rolls-Royce Corporation	Wilmington [8]	Common Stock	100
Rolls-Royce Crosspointe LLC	Wilmington [8]	Partnership (no equity)	100
Rolls-Royce Defense Products and Solutions, Inc.	Wilmington [8]	Common Stock	100
Rolls-Royce Defense Services, Inc.	Wilmington [8]	Common Stock	100
Rolls-Royce Deutschland Ltd & Co KG	Amtsgericht Potsdam, Blankenfelde-Mahlow, Germany	Ordinary	100
Rolls-Royce Electrical Norway AS *	Jarleveien 8A, 7041, Trondheim 500, Norway	Ordinary	100
Rolls-Royce Energy Angola, Limitada [2]	Rua Rei Katyavala, Edificio Rei Katyavala, Entrada B, Piso 8, Luanda, Angola	Quota	100
Rolls-Royce Energy Systems Inc. [2]	Wilmington [8]	Common Stock	100
Rolls-Royce Engine Services Holdings Co.	Wilmington [8]	Common Stock	100
Rolls-Royce Engine Services Limitada Inc. [9]	Bldg. 06 Berthaphil Compound, Jose Abad Santos Avenue, Clark Special Economic Zone, Clark, Pampanga, Philippines	Capital Stock	100
Rolls-Royce Erste Beteiligungs GmbH *	Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany	Capital Stock	100
Rolls-Royce Finance Company Limited [2]	London [3]	Deferred Ordinary	100 100
Rolls-Royce Finance Holdings Co.	Wilmington [8]	Common Stock	100
Rolls-Royce Fuel Cell Systems Limited *,4	Derby [7]	Ordinary	100
Rolls-Royce General Partner (Ireland) Limited *	29 Earlshot Terrace, Dublin 2, Ireland	Ordinary	100
Rolls-Royce General Partner Limited *,2	London [3]	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 [2,6,10]	Derby [8]	Ordinary	100
Rolls-Royce India Private Limited [6]	Birla Tower West, 2nd Floor 25, Barakhamba Road, New Delhi, 110001, India	Equity	100
Rolls-Royce Industrial & Marine Power Limited [4]	London [3]	Ordinary	100
Rolls-Royce Industrial Power (India) Limited [2,6]	Derby [7]	Ordinary	100
Rolls-Royce Industrial Power Engineering (Overseas Projects) Limited	Derby [7]	Ordinary	100
Rolls-Royce Industries Limited *,4	Derby [7]	Ordinary	100
Rolls-Royce International Limited *	Derby [7]	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 [7]	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 [8]	Common Stock	100
Rolls-Royce Military Aero Engines Limited *,2,6,10	London [3]	Ordinary	100
Rolls-Royce New Zealand Limited	c/o Deloitte, 80 Queen Street, Auckland Central, Auckland 1010, New Zealand	Ordinary	100

Subsidiaries

Company name	Address	Class of shares	% of class held
Rolls-Royce North America (USA) Holdings Co.	Wilmington [8]	Common Stock	100
Rolls-Royce North America Holdings, Inc.	Wilmington [8]	Common Stock	100
Rolls-Royce North America Ventures, Inc.	Wilmington [8]	Common Stock	100
Rolls-Royce North America, Inc.	Wilmington [8]	Common Stock	100
Rolls-Royce North American Technologies, Inc.	Wilmington [8]	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 [2,6]	Birla Tower West, 2nd Floor, 25 Barakhamba Road, New Delhi,	Ordinary	100
Rolls-Royce Overseas Holdings Limited *	Derby [7]	Ordinary	100
Rolls-Royce Overseas Investments Limited [4]	Derby [7]	Ordinary	100
Rolls-Royce Placements Limited	London [3]	Ordinary	100
Rolls-Royce Power Engineering plc *	Derby [7]	Ordinary	100
Rolls-Royce Power Systems AG	Maybachplatz 1, 88045, Friedrichshafen, Germany	Ordinary	100
Rolls-Royce Retirement Savings Trust Limited [*,2,6]	Derby [7]	Ordinary	100
Rolls-Royce Saudi Arabia Limited	3010 - Al Arid, Unit No 1, Riyadh 13332 - 7663, Saudi Arabia	Cash shares	100
Rolls-Royce Singapore Pte. Limited	6 Shenton Way, #33-00 OUE, Downtown Singapore 068809, Singapore	Ordinary	100
Rolls-Royce SMR Limited *	Derby [7]	Ordinary	82.8
Rolls-Royce Solutions (Suzhou) Co. Ltd	9 Long Yun Road, Suzhou Industrial Park, Suzhou 215024, Jiang Su, China	Ordinary	100
Rolls-Royce Solutions Africa (Pty) Limited	36 Marconi Street, Montague Gardens, Cape Town, 7441, South Africa	Capital Stock	100
Rolls-Royce Solutions America Inc.	Wilmington [8]	Ordinary	100
Rolls-Royce Solutions Asia Pte. Limited	10 Tukang Innovation Drive, Singapore 618302	Ordinary	100
Rolls-Royce Solutions Augsburg GmbH	Dasinger Strasse 11, 86165, Augsburg, Germany	Capital Stock	100
Rolls-Royce Solutions Benelux B.V	Merwedestraat 86, 3313 CS, Dordrecht, Netherlands	Ordinary	100
Rolls-Royce Solutions Berlin GmbH	Villa Rathenau, Wilhelminenhofstrasse 75, 12459 Berlin, Germany	Common Seed Preferred	100 100
Rolls-Royce Solutions Brasil Limitada	Via Anhanguera, KM 29203, 05276-000 Sao Paulo – SP, Brazil	Ordinary	100
Rolls-Royce Solutions Enerji Deniz Ve Savunma Hatira	Sokak, No. 5, Ömerli Mahellesi, 34555 Arnavutköy, Istanbul, Turkey	Ordinary	100
Rolls-Royce Solutions France S.A.S.	Immeuble Colorado, 8/10 rue de Rosa Luxembourg-Parc des Bellevues 95610, Erangy-sur-Oise, France	Ordinary	100
Rolls-Royce Solutions GmbH	Maybachplatz 1, 88045, Friedrichshafen, Germany	Capital Stock	100
Rolls-Royce Solutions Hong Kong Limited	No.8 Hart Avenue, Unit D, 8th Floor, Tsim Sha Tsui, Kowloon, Hong Kong	Ordinary	100
Rolls-Royce Solutions Ibérica s.l.u.	Calle Copérnico 26-28, 28823 Coslada, Madrid, Spain	Ordinary	100
Rolls-Royce Solutions Israel Limited	4 Ha'Alon Street, South Building, Third Floor, 4059300 Kfar Neter, Israel	Ordinary	100
Rolls-Royce Solutions Italia S.r.l.	Via Aurelia Nord, 328, 19021 Arcola (SP), Italy	Capital Stock	100
Rolls-Royce Solutions Japan Co. Limited	Resorttrust Building 4-14-3, Nishitenma Kita-ku, Osaka 530-0047, Japan	Ordinary	100
Rolls-Royce Solutions Korea Limited	22nd Floor, Olive Tower, 41 Sejongdaero 9 gil, Junggu, 100-737 Seoul, Republic of Korea	Ordinary	100
Rolls-Royce Solutions Liège Holding S.A.	Rue de l'Avenir 61, 4460, Grace-Hollogne, Belgium	Ordinary	100

Subsidiaries

Company name	Address	Class of shares	% of class held
Rolls-Royce Solutions Liège S.A.	Rue de l'Avenir 61, 4460, Grace-Hollogne, Belgium	Ordinary	100
Rolls-Royce Solutions Magdeburg GmbH	Friedrich-List-Strasse 8, 39122 Magdeburg, Germany	Capital Stock	100
Rolls-Royce Solutions Mexico City S.A. de C.V.	Xochicalco 620, Colonia Letran Valle, Delegacion Benito Juarez,	Common	100
Rolls-Royce Solutions Middle East FZE	S3B5SR06, Jebel Ali Free Zone, South P.O. Box 61141, Dubai, United	Ordinary	100
Rolls-Royce Solutions Ruhstorf GmbH	Rotthofer Strasse 8, 94099 Ruhstorf a.d. Rott, Germany	Capital Stock	100
Rolls-Royce Solutions South Africa (Pty)	36 Marconi Street, Montague Gardens, Cape Town, 7441,	Ordinary	100
Rolls-Royce Solutions UK Limited	Derby [7]	Ordinary	100
Rolls-Royce Solutions Willich GmbH	Konrad-Zuse-Str. 3, 47877, Willich, Germany	Ordinary	100
Rolls-Royce Sp z.o.o. *	Opolska 100 31-323, Krakow, Poland	Ordinary	100
Rolls-Royce Submarines Limited *	Atlantic House, Raynesway, Derby, Derbyshire, United Kingdom, DE21 7BE	Ordinary	100
Rolls-Royce Technical Support Sarl	Centreda I, Avenue Didier Daurat, 31700 Blagnac, Toulouse, France	Ordinary	100
Rolls-Royce Total Care Services Limited *,4	Derby [7]	Ordinary	100
Rolls Royce Turkey Güç Çözümleri San. ve Tic. Ltd.Şti.	Acıbadem Mah. Çeçen Sk. Akasya A Kule Kent Etabı Blok No: 25, İç Kapı No:13, Üsküdar, Istanbul, Turkey	Cash shares	100
Rolls-Royce UK Pension Fund Trustees Limited *,2	Derby [7]	Ordinary	100
Rolls-Royce Zweite Beteiligungs GmbH *	Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany	Capital Stock	100
Ross Ceramics Limited	Derby [7]	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 [11]	Derby [7]	Limited by guarantee	100
Spare IPG 20 Limited [4]	London [3]	Ordinary	100
Spare IPG 21 Limited [2]	London [3]	Ordinary	100
Spare IPG 24 Limited [4]	London [3]	Ordinary	100
Spare IPG 32 Limited [4]	London [3]	Ordinary	100
Spare IPG 4 Limited [2]	London [3]	Ordinary	100
The Bushing Company Limited [4]	London [3]	Ordinary	100
Timec 1487 Limited [2]	London [3]	Ordinary	100
Turbine Surface Technologies Limited *,1	Derby [7]	Ordinary A Ordinary B	Nil 100
Vessel Lifter, Inc. [2]	Corporation Service Company, 1201 Hays Street, Tallahassee, Florida 32301, United States	Common Stock	100
Vinters Defence Systems Limited [2]	London [3]	Ordinary	100
Vinters Engineering Limited	Derby [7]	Ordinary	100
Vinters International Limited [4]	Derby [7]	Ordinary	100
Vinters Limited *,4	Derby [7]	Ordinary	100
Vinters-Armstrongs (Engineers) Limited [2]	London [3]	Ordinary	100
Vinters-Armstrongs Limited [2]	London [3]	Ordinary B	100
Yocova Private Ltd *,2	London [3]	Ordinary	100
Yocova PTE. Ltd. *	6 Shenton Way, #33-00 OUE, Downtown Singapore 068809, Singapore	Ordinary	100

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5 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
6 Reporting year end is 31 March
7 Moor Lane, Derby, Derbyshire, DE24 8BJ, United Kingdom
8 Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19809, United States
9 Entity in liquidation
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12 The entity is accounted for as a joint operation (see note 1 to the Consolidated Financial Statements)

Joint Ventures and Associates

Company name	Address	Class of shares	% of class held	Group interest held %
Aero Gearbox International SAS *,[12]	18 Boulevard Louis Sequin, 92700 Colombes, France	Ordinary	50	50
Airtanker Services Limited *	Airtanker Hub, RAF Brize Norton, Carterton, Oxfordshire, OX18 3LX, United Kingdom	Ordinary	23.5	23.5
Alpha Leasing (US) (No.2) LLC	Wilmington [8]	Partnership (no equity held)	-	50
Alpha Leasing (US) (No.4) LLC	Wilmington [8]	Partnership (no equity held)	-	50
Alpha Leasing (US) (No.5) LLC	Wilmington [8]	Partnership (no equity held)	-	50
Alpha Leasing (US) (No.6) LLC	Wilmington [8]	Partnership (no equity held)	-	50
Alpha Leasing (US) (No.7) LLC	Wilmington [8]	Partnership (no equity held)	-	50
Alpha Leasing (US) (No.8) LLC	Wilmington [8]	Partnership (no equity held)	-	50
Alpha Leasing (US) LLC	Wilmington [8]	Partnership (no equity held)	-	50
Alpha Partners Leasing Limited	1 Brewer's Green, London, United Kingdom, SW1H 0RH	Ordinary A	100	50
Beijing Aero Engine Services Company Limited *	Room 711, Building 2, No.1 Jinhang Middle Road, Shunyi District, Beijing, China	Capital	50	50
CFMS Limited	43 Queen Square, Bristol, England. BS1 4QP	Limited by guarantee	-	50
Clarke Chapman Portia Port Services Limited	Maritime Centre, Port of Liverpool, Liverpool, L21 1LA, United Kingdom	Ordinary A	100	50
Egypt Aero Management Services [9]	EgyptAir Engine Workshop, Cairo International Airport, Cairo, Egypt	Ordinary	50	50
EPI Europrop International GmbH *	Pelkovenstr. 147, 80992 München, Germany	Capital Stock	28	28
Eurojet Turbo GmbH *	Lilienthalstrasse 2b, 85399 Halbergmoos, Germany	Ordinary	33	33
Force MTU Power Systems Private Limited	Mumbai Pune Road, Akurdi, Pune, Maharashtra 411035, India	Capital Stock	49	49
Genistics Holdings Limited *	Derby [7]	Ordinary A	100	50
Global Aerospace Centre for Icing and Environmental Research Inc. [12]	1000 Marie-Victorin Boulevard, Longueuil Québec, J4G 1A1, Canada	Ordinary	50	50
Hoeller Electrolyzer GmbH	Alter Holzhafen, 23966 Wismar, Germany	Ordinary	54.2	54.2
Hong Kong Aero Engine Services Limited	33rd Floor, One Pacific Place, 88 Queensway, Hong Kong	Ordinary	50	50
International Aerospace Manufacturing Private Limited [6,12]	Survey No. 3 Kempapura Village, Varthur Hobli, Bangalore, KA 560037, India	Ordinary	50	50
ITP Next Generation Turbines SLU *	Parque Tecnologico Edificio 300, 48170, Zamudio, Vizcaya, Spain	Ordinary-B	25	25
Light Helicopter Turbine Engine Company (unincorporated partnership)	Suite 119, 9238 Madison Boulevard, Madison, Alabama 35758, United States	Partnership (no equity held)	-	50
Manse Opus Management Company Limited [6]	Third Floor Queensberry House, 3 Old Burlington Street, London, United Kingdom, W1S 3AE	Limited by guarantee	33	33
MEST Co., Limited	97 Bukjeonggongdan 2-gil, Yangsan-si, Gyeongsangnam-do, 50571, Republic of Korea	Normal	46.8	46.8
MTU Cooltech Power Systems Co., Limited	Building No. 2, No. 1633 Tianchen Road, Qingpu District, Shanghai, China	Equity	50	50

Joint Ventures and Associates

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 ITP GmbH *	Am Söldnermoos 17, 85399 Hallbergmoos, Germany	Capital Stock	25	25
MTU Turbomeca Rolls-Royce GmbH *	Am Söldnermoos 17, 85399 Hallbergmoos, Germany	Capital Stock	33.3	33.3
MTU Yuchai Power Company Limited	No 7 Danan Road, Yuzhou, Yulin, Guangxi, China, 537005,	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 *,2	Derby 7	Ordinary	50	50
Rolls-Royce & Partners Finance (US) (No 2) LLC	Wilmington 8	Partnership (no equity held)	–	50
Rolls-Royce & Partners Finance (US) LLC	Wilmington 8	Partnership (no equity held)	–	50
SAFYRR Propulsion Limited *,2	Derby 7	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	Levent Mahallesi Prof. Ahmet Kemal Aru Sk. No: 4/1, Beşiktaş, Turkey	Cash Shares	49	49
Techjet Aerofoils Limited 12	Tefen Industrial Zone, PO Box 16, 24959, Israel	Ordinary A Ordinary B	50 50	50
Texas Aero Engine Services LLC 2	The Corporation Trust Company, 1209, Orange Street, Wilmington, Delaware 19801, United States	Partnership (no equity held)	-	50
TRT Limited *	Derby 7	Ordinary B	100	50
Turbo-Union GmbH *	Lilienthalstrasse 2b, 85399 Halbergmoos, Germany	Capital Stock	40.0	40.0
United Battery Management GmbH	Wilhelminenhofstr. 76/77, 12459, Berlin, Germany	Ordinary	30	30
Xian XR Aero Components Co., Limited *,12	Xujiawan, Beijiao, Po Box 13, Xian 710021, Shaanxi, China	Ordinary	49	49

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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 2022 and of the group's loss and the group's cash flows for the year then ended;
- the consolidated financial statements have been properly prepared in accordance with UK-adopted international accounting standards as applied in accordance with the provisions 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, including FRS 101 "Reduced Disclosure Framework", and applicable law); and
- the financial statements have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements, included within the Annual Report, which comprise: the consolidated and company balance sheets as at 31 December 2022; the consolidated income statement and consolidated statement of comprehensive income, the consolidated cash flow statement, 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 of Rolls-Royce Holdings plc (the company's ultimate parent company).

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) ("ISAs (UK)") and applicable law. Our responsibilities under ISAs (UK) are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We remained independent of the group in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, which includes the FRC's Ethical Standard, as applicable to listed public interest entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

To the best of our knowledge and belief, we declare that non-audit services prohibited by the FRC's Ethical Standard were not provided.

Other than those disclosed in note 6, we have provided no non-audit services to the company or its controlled undertakings in the period under audit.

Our audit approach

Overview

Audit scope

- Following our assessment of the risks of material misstatement of the financial statements, including the impact of climate change, we subjected 33 individual components (including three joint ventures) to full scope audits for group purposes, which following an element of sub-consolidation, equates to 16 group reporting opinions. In addition, nine 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, and 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 98% of revenue, 79% of loss before tax from continuing operations 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 group audit supervision process, the group engagement team has performed 16 file reviews, which included meetings on approach and conclusions with the component teams and review of their audit files and final deliverables. In person site visits to components in the UK, Germany and US were also performed.
- As the company comprises a number of the UK components that were in scope for the group audit we leveraged that work for the purposes of the company audit and performed additional testing on how the company related components were combined, with appropriate eliminations made, to form the company financial statements. Our work accounted for 93% of the total assets of the company.

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)

Materiality

- Overall group materiality: £80m (2021: £80m) based on approximately 0.6% of five year average underlying revenues from continuing operations (2021: approximately 0.6% of four year average underlying revenues from continuing and discontinued operations).
- Overall company materiality: £70m (2021: £76m) based on approximately 1% of five year average revenues (2021: based on approximately 1% of four year average revenues).
- Performance materiality: £60m (2021: £60m) (group) and £53m (2021: £57m) (company).

The scope of our audit

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements.

Key audit matters

Key audit matters are those matters that, in the auditors' professional judgement, were of most significance in the audit of the financial statements of the current period and include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by the auditors, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. These matters, and any comments we make on the results of our procedures thereon, were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

This is not a complete list of all risks identified by our audit.

Determination of the ITP Aero disposal group and the accounting treatment and related consolidation adjustments for Civil engine sales to related entities, which were key audit matters last year, are no longer included because the ITP Aero sale completed in September 2022 and because we validated the structure and related accounting associated with spare engine sales to related entities in the prior year. Spare engine sales, including verifying that control has been passed to the customer to allow the associated revenue to be recognised, continues to be audited as part of our revenue procedures. Otherwise, the key audit matters below are consistent with last year.

Key audit matter	How our audit addressed the key audit matter
Long-term contract accounting and associated provisions (group and company) *Note 1 to the consolidated and company financial statements – Accounting policies – Revenue recognition* The Civil Aerospace and Defence businesses operate primarily with long-term customer contracts that span multiple periods. 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/loss that is recognised in each reporting period. Small adjustments can have a significant impact on the results of an individual financial year. Changes to the profile of shop visits or operating conditions of engines can result in different performance assumptions and hence cost profiles. Some contracts include inflation linked price escalations which require judgement to determine the extent to which future price increases are highly probable not to reverse and therefore can be recognised. These changes to forecasts can result in revisions to the revenue previously recognised. £367m of such revisions has been recognised in the current year, increasing revenue. 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 (EFH) in order to arrive at the total income expected over the life of a contract. There remains significant uncertainty over the speed and shape of recovery in EFH for large engines. The group expects EFH to recover to pre-pandemic levels by the end of 2024. In addition, the profitability of Civil Aerospace 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. 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	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. The audit procedures performed included: – 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 that could have an impact on 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; – 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 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 recalculated the price escalation included within the contracts based on recent experience; – We challenged the assessment of provisions for onerous contracts to determine the completeness of the unavoidable costs to fulfil the contractual obligations. This included validating the additional provision

Key audit matter	How our audit addressed the key audit matter
addition, specified revenue and costs are recorded in the consolidated income statement net of the RRSP's share. The nature of the Civil Aerospace business gives rise to a number of contractual guarantees, warranties and potential claims, including the in-service issues of the Trent 1000 programme. 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 are judgemental and need to be considered on a contract by contract basis. Management has modelled the potential impact of climate change on its forecasts and has incorporated these estimates into the long-term contract models. This included incorporating the potential impact of carbon prices on the group's direct emissions including engine testing and those of its suppliers and the potential impact of climate change on commodity prices in cost estimates. It also includes the estimated costs of demonstrating that all the commercial aero engines are compatible with sustainable aviation fuels. The impact of climate change on long-term contracts is highly uncertain and requires estimates on carbon prices, the cost and speed of decarbonisation, the ability of the group and its suppliers to pass on incremental costs and assessing the associated impact on aviation demand.	recorded in the year to reflect the amended accounting standard which required such provisions to be recognised for all direct costs. We validated the rates used to discount the future cash flows and how management has considered the potential impact of climate change; – 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; – With assistance from our valuation experts, we considered the appropriateness of the key assumptions used by management to model the impact of climate change, including the reasonableness of the carbon and commodity price forecasts. We validated management's assertions on the ability of suppliers and the group to pass on incremental costs by reviewing supplier and customer contracts for price change mechanisms. Where appropriate we performed independent sensitivity analysis to determine to what extent reasonably possible changes in these assumptions could result in material changes to the revenue recorded in the year and assessed the appropriateness of the associated disclosures; – We read and challenged management's accounting papers that were prepared to explain the positions taken in respect of their key contract judgements; – 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. Based on the work performed, we concur that management's estimates for long-term contract accounting and associated provisions is materially appropriate, in the context of the financial statements taken as a whole.
Deferred tax asset recognition and recoverability (group and company) *Note 1 to the consolidated and company financial statements – Accounting policies – Taxation and note 5 to the consolidated financial statements – Taxation* The recognition and recoverability of deferred tax assets in Rolls-Royce plc is a significant judgement. Rolls-Royce plc 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 a number of assumptions in assessing the future levels of profitability in the UK over an extended period. This requires assumptions on future profits from the Group's aftermarket and original equipment sales including EFH levels, associated costs and the future exchange rates used to translate foreign currency denominated amounts. The additional loss reported for 2022, along with the existence of tax losses brought forward and other deductible temporary differences in Rolls-Royce plc, combined with the impact of climate change on future forecasts, presents a heightened risk that deferred tax assets previously recognised may not be recoverable. Since the recognised deferred tax asset is recoverable over a long period, management has reflected their assessment of the impact of climate change within the	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 applicable UK tax legislation. 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. In doing this, we verified that the forecasts did not include taxable profit growth that could not be demonstrated as probable. We arrived at an independent range of long-term exchange rates based on historical movements in exchange rates and inflation expectations and compared this to management's rates. 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

Key audit matter	How our audit addressed the key audit matter
model forecasting probable taxable profits. This incorporates multiple assumptions including future carbon prices, commodity prices, the impact of government action on aviation demand, the cost and speed of decarbonisation and the ability of suppliers and Rolls-Royce plc to pass on price changes. To assess the impact of inherent uncertainty management has performed sensitivities over key estimates.	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 estimation risk to the longer term forecasts. We considered the appropriateness of the climate change assumptions modelled as part of their probability weighted scenarios to forecast probable profit levels. As described in the long-term contract accounting and associated provisions key audit matter, this included deploying valuation experts to assess the reasonableness of carbon pricing and commodity assumptions as well as the comparison of forecast aviation demand to third party sources. We considered the likelihood that the group and its suppliers would be able to pass on incremental climate related costs in the short, medium and longer term and verified that management's forecasts included the costs arising from the group's stated commitment to emissions reductions by 2030. We performed additional sensitivity analysis to understand whether reasonably possible changes to these assumptions could lead to a material change in the recognised asset and where appropriate ensured that adequate disclosure was provided. 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. We also assessed the adequacy of disclosures over this area, particularly the impact of changes in key estimates of the asset recognised and this has been disclosed in notes 1 and 5. We did not identify any material uncorrected exceptions from our audit work.
Translation of foreign-currency denominated transactions and balances (group and company) *Note 1 to the consolidated and company financial statements – Accounting policies – Foreign currency translation* Foreign exchange rate movements influence the reported consolidated income statement, the consolidated cash flow statement and consolidated balance sheet. 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. 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 financial statements.	In addition to our testing in other areas, we performed the following specific audit procedures over this area: – Obtained an understanding of the process employed by management to correctly record 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 record the translation of the foreign currency denominated transactions and balances; – We sampled balances and transactions requiring adjustment by source currency and tested to source data and assessed the completeness of these balances and transactions; – We created an independent expectation of the loss on the translation of monetary assets and liabilities based on the movements in the group's key exchange rates and associated balances in the year; – 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. There were no material uncorrected exceptions from our audit work.
Presentation and accuracy of underlying results and disclosure of other one-off items (including exceptional items) (group)	We have considered the judgements taken by management to determine what should be treated as an exceptional item and

Key audit matter	How our audit addressed the key audit matter
Note 1 to the consolidated financial statements – Accounting policies – Presentation of underlying results, note 2 to the consolidated financial statements – Segmental analysis and note 27 to the consolidated financial statements – Derivation of summary of funds flow statement 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 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. 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 additional 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. There is judgement on whether items should be excluded from underlying profit or free cash flow. 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. During the year, the group excluded £69m of credits from the net release of onerous contract and Trent-1000 provisions and a net £22m of credits associated with changes to the group's pension schemes from underlying profit before tax. In addition, £65m of impairment charges and £47m of restructuring costs have also been excluded.	the translation of foreign currency amounts and obtained corroborative evidence for these. 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. Within underlying results, foreign currency transactions are presented at rates achieved on derivative contracts hedging the net operating cash flows of the group and monetary assets and liabilities are 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. We audited the reconciling items between the underlying profit before tax and free cash flow disclosed in note 27 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. We 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 27 to the consolidated financial statements and found them to be appropriate. This included assessing the explanations management provided on the reconciling items between underlying performance and statutory performance in note 2. 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.

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 422 reporting components, 33 individual components (including three joint ventures) were subject to full scope audits for group purposes, which following an element of sub-consolidation, equates to 16 group reporting opinions; and nine components performed targeted specified audit 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 Bengaluru (India). Based on our assessment 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 98% of revenue, 79% of loss before tax from continuing operations and 90% of total assets. All entities that contribute in excess of 1% of the group's revenue were included in 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 to evaluate the sufficiency of audit evidence obtained and fully understand the matters arising from the component audits.

In addition, senior members of the group engagement team have visited component teams across all group segments in the UK, US and Germany. These visits were in-person for these locations. They included meetings with the component auditor and with local management.

The impact of climate risk on our audit

As part of our audit we made enquiries of management to understand the process management adopted to assess the extent of the potential impact of climate risk on the group's and company's financial statements and to support the disclosures made within the Sustainability section of the Strategic report. In addition to enquiries with management, we understood the governance process in place to assess climate risk, reviewed the group's assessment of climate related risk including both physical and transition risks and read additional reporting made on climate including its Carbon Disclosure Project public submission and the group's separate Climate Review which incorporates disclosures in line with the Task Force on Climate-related Financial disclosure (TCFD) framework.

We held meetings with management including the group's sustainability team to consider the completeness of management's climate risk assessment and its consistency with internal climate plans and board minutes, including whether the time horizons management have used take account of all relevant aspects of climate change such as transition risks. We also considered the consistency with the group's communications on climate related impacts. The group has publicly set out its target to achieve net carbon zero from operations by 2030 (excluding product testing and development), a target for a 50% reduction in total scope 1 and 2 emissions by 2030 and net zero 2050 commitments albeit the pathway to these commitments is not fully developed.

We considered the following areas which depend on medium to long term profit or cash flow forecasts to potentially be materially impacted by climate risk and consequently we focused our audit work in these areas: long-term contract accounting in the UK Civil business (including contract loss provisions); the recoverability of deferred tax assets in the UK; the recoverability of the carrying value of goodwill and certain intangible assets and the company's investments in subsidiary undertakings on the company balance sheet. Our findings were reported to and discussed with the Audit Committee and management. Where significant, further details of how climate change has been considered in these areas and our audit response is given in the key audit matters above.

To respond to the audit risks identified in these areas we tailored our audit approach to address these, in particular, we:

- Deployed our valuation experts to benchmark carbon pricing and key commodity price forecasts against forecasts of future prices and found them to be materially reasonable. These have been incorporated by management in their forecasts of the group's future cost base for long-term contract accounting and associated provisions as well as scenarios utilised in assessing the recoverability of deferred tax assets, goodwill and other assets;
- Considered the reasonableness of management's assertion that climate change is unlikely to have a material impact on aviation demand by comparing management's EFH forecasts against other industry benchmarks;
- Verifying that the capital and cash costs of the group's climate change commitments have been incorporated in the group's forecasts including those used for going concern and the disclosures around the viability of the group that are included in the Strategic Report;
- Considered whether management had adequately reflected the risk of regulatory changes or demand changes to the extent known in the useful economic lives and recoverable value of other intangible assets including those related to diesel engines produced by Power Systems;
- Validated management's judgement that climate change is unlikely to have a material impact on other estimates as at 31 December 2022 including the recoverability of inventory or the expected credit loss provision associated with trade receivables and contract assets by considering the short timeframe these assets are expected to be utilised compared to the period over which transition and physical risks are expected to arise; and
- Where appropriate, performed independent sensitivity analysis to determine to what extent reasonably possible changes in the climate related assumptions in the group's forecasts could result in material changes to the impacted balances and assessed the appropriateness of the associated disclosures.

We also considered the consistency of the disclosures in relation to climate change (including the disclosures in the Sustainability section of the Strategic Report) within the Annual Report and the separate Climate Review with the financial statements and our knowledge obtained from our audit. This included considering the models management used in the TCFD scenario analysis and if the assumptions in those models are consistent with the assumptions used elsewhere in the financial statements.

The group has incorporated an estimate within its forecasts of the associated costs for its 2030 commitments to reach net zero for facilities and to reduce scope 1 and 2 emissions by 50%. As disclosed within the Sustainability section of the Strategic Report and the Climate Review the achievement of net zero by 2050 will require significant change across the aviation sector in particular, including widespread adoption of Sustainable Aviation Fuels or other alternative fuel sources. Management has not included the incremental cost of this over and above the costs to achieve its 2030 targets in its longer term forecasts, based on the assumptions that such costs can be passed onto customers and will occur after the average life of the current existing contracts.

Our procedures did not identify any material impact in the context of our audit of the financial statements as a whole for the year ended 31 December 2022. The future estimated financial impacts of climate risk are clearly uncertain given the medium to long term timeframes involved and their dependency on how Governments, global markets, corporations and society respond to the issue of climate change

and the speed of technological advancements that may be necessary. Accordingly, financial statements cannot capture all possible future outcomes as these are not yet known.

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	£80m (2021: £80m).	£70m (2021: £76m).
How we determined it	Based on approximately 0.6% of five year average underlying revenues from continuing operations (2021: approximately 0.6% of four year average underlying revenues from continuing and discontinued operations)	Based on approximately 1.0% of five year average revenues (2021: Based on approximately 1.0% of four 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 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 more stable than the profit metric. However, from 2020 COVID-19 introduced additional volatility that impacted benchmarks. To mitigate this we have used a five year average underlying revenue measure to calculate materiality. ITP Aero, which was classified as a discontinued operation, has now been sold and therefore we have excluded its contribution to revenue over this five year period in determining our materiality.	We determined our materiality based on total assets, which is more applicable than a performance-related measure as the company is an investment holding company for the group. The higher company materiality level was used for the purposes of testing balances not relevant to the group audit, such as investments in subsidiary undertakings and intercompany balances.

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 £4m and £67m. 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% (2021: 75%) of overall materiality, amounting to £60m (2021: £60m) for the group financial statements and £53m (2021: £57m) 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 of Rolls-Royce Holdings plc (the company's ultimate parent company) that we would report to them misstatements identified during our audit above £3m (group audit) (2021: £3m) and £3m (company audit) (2021: £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 August 2024. We focussed on this period and also considered the subsequent four months to the end of 2024.
- 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 2023 and 2024 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 both downside and stressed downside cash flows, including understanding of the scenarios modelled by management, how they were quantified and the resultant monthly phasing of the downside and stressed downside cash flow forecasts.
- 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 consideration of management's assessment of the impact of climate change and the likelihood of any downside risks crystallising in the period to August 2024.

- 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 directors' reporting on how they have applied the UK Corporate Governance Code, we have nothing material to add or draw attention to in relation to the directors' statement in the financial statements about whether the directors considered it appropriate to adopt the going concern basis of accounting.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report.

Reporting on other information

The other information comprises all of the information in the Annual Report other than the financial statements and our auditors' report thereon. The directors are responsible for the other information, which includes reporting based on the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except to the extent otherwise explicitly stated in this report, any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If we identify an apparent material inconsistency or material misstatement, we are required to perform procedures to conclude whether there is a material misstatement of the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report based on these responsibilities.

With respect to the Strategic report and Directors' report, we also considered whether the disclosures required by the UK Companies Act 2006 have been included.

Based on our work undertaken in the course of the audit, the Companies Act 2006 requires us also to report certain opinions and matters as described below.

Strategic report and Directors' report

In our opinion, based on the work undertaken in the course of the audit, the information given in the Strategic report and Directors' report for the year ended 31 December 2022 is consistent with the financial statements and has been prepared in accordance with applicable legal requirements.

In light of the knowledge and understanding of the group and company and their environment obtained in the course of the audit, we did not identify any material misstatements in the Strategic report and Directors' report.

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, included within the governance report is materially consistent with the financial statements and our knowledge obtained during the audit, and we have nothing material to add or draw attention to in relation to:

- The directors' confirmation that they have carried out a robust assessment of the emerging and principal risks;
- The disclosures in the Annual Report that describe those principal risks, what procedures are in place to identify emerging risks and an explanation of how these are being managed or mitigated;
- The directors' statement in the financial statements about whether they considered it appropriate to adopt the going concern basis of accounting in preparing them, and their identification of any material uncertainties to the group's and company's ability to continue to do so over a period of at least twelve months from the date of approval of the financial statements;
- The directors' explanation as to their assessment of the group's and company's prospects, the period this assessment covers and why the period is appropriate; and
- The directors' statement as to whether they have a reasonable expectation that the company will be able to continue in operation and meet its liabilities as they fall due over the period of its assessment, including any related disclosures drawing attention to any necessary qualifications or assumptions.

Our review of the directors' statement regarding the longer-term viability of the group and company was substantially less in scope than an audit and only consisted of making inquiries and considering the directors' process supporting their statement; checking that the statement is in alignment with the relevant provisions of the UK Corporate Governance Code; and considering whether the statement is consistent with the financial statements and our knowledge and understanding of the group and company and their environment obtained in the course of the audit.

In addition, based on the work undertaken as part of our audit, we have concluded that each of the following elements of the corporate governance statement is materially consistent with the financial statements and our knowledge obtained during the audit:

- The directors' statement that they consider the Annual Report, taken as a whole, is fair, balanced and understandable, and provides the information necessary for the members to assess the group's and company's position, performance, business model and strategy;
- The section of the Annual Report that describes the review of effectiveness of risk management and internal control systems; and
- The section of the Annual Report describing the work of the Audit Committee of Rolls-Royce Holdings plc (the company's ultimate parent company).

We have nothing to report in respect of our responsibility to report when the directors' statement relating to the company's compliance with the Code does not properly disclose a departure from a relevant provision of the Code specified under the Listing Rules for review by the auditors.

Responsibilities for the financial statements and the audit

Responsibilities of the directors for the financial statements

As explained more fully in the Statement of Directors' responsibilities 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.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below.

Based on our understanding of the group and industry, we identified that the principal risks of non-compliance with laws and regulations related to the regulations of country aviation authorities such as the Civil Aviation Authority, import and export restrictions including sanctions, 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 financial statements such as the Listing Rules of the UK Financial Conduct Authority, the Companies Act 2006 and tax legislation. 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 Civil 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;
- Reading the minutes of Board meetings to identify any inconsistencies with other information provided by management;
- Reviewing legal expense accounts to identify significant legal spend that may be indicative of non-compliance with laws and regulations;
- 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 recoverability of deferred tax assets (see related key audit matters above);
- 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.

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 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 of Rolls-Royce Holdings plc (the company's ultimate parent company), 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 five years, covering the years ended 31 December 2018 to 31 December 2022.

Other matter

In due course, as required by the Financial Conduct Authority Disclosure Guidance and Transparency Rule 4.1.14R, these financial statements will form part of the ESEF-prepared annual financial report filed on the National Storage Mechanism of the Financial Conduct Authority in accordance with the ESEF Regulatory Technical Standard ('ESEF RTS'). This auditors' report provides no assurance over whether the annual financial report will be prepared using the single electronic format specified in the ESEF RTS.

Ian Chambers (Senior Statutory Auditor)
for and on behalf of PricewaterhouseCoopers LLP
Chartered Accountants and Statutory Auditors
London
23 February 2023

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		2022	2021	Change
USD per GBP	Year-end spot rate	**1.20**	1.35	-11%
	Average spot rate	**1.24**	1.38	-10%
EUR per GBP	Year-end spot rate	**1.13**	1.19	-5%
	Average spot rate	**1.17**	1.16	+1%

The Group's global corporate income tax contribution

The Group's total corporation tax payments in 2022 were £174m. Around 90% of this is paid in the US, Germany, Singapore and Canada. Together with the UK, where tax losses are currently generated (see note 5), the operations in these countries are where the majority of the Group's business is undertaken, and employees are based. The balance of tax payments are made in around 40 other countries.

In common with most multinational groups, the total of all profits and losses for corporate income tax purposes is not the same as the consolidated loss before taxation reported on page 45.

The main reasons for this are:

(i) the consolidated income statement is prepared under IFRS, whereas the corporate income tax profits and losses for each company 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.

In most cases, paragraphs (i) and (ii) above are only a matter of timing and therefore tax will be paid in an earlier or later year. The impact of paragraph (iii) above will often be permanent depending on the relevant tax law. Further information on the tax position of the Group can be found as follows:

- Rolls-Royce Holdings plc Audit Committee Report (page 73 of the Rolls-Royce Holdings plc Financial Statements) – updates were given to the Audit Committee during the year which covered key sources of estimation uncertainty, in particular the recognition of deferred tax assets;
- note 1 to the Consolidated Financial Statements (pages 58 and 59) – 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.

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 19. The Frc is chaired by the Chief Financial Officer. 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	2022	2021
Total equity	**(5,657)**	(4,278)
Cash flow hedges	**(26)**	45
Group capital	**(5,683)**	(4,233)
Net debt	**(3,251)**	(5,157)

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 repaid the £2.0bn loan, supported by an 80% guarantee from UK Export Finance.

During the year, the Group entered into a new £1.0bn loan, maturing in 2027 (supported by an 80% guarantee from UK Export Finance).

The £2.5bn revolving credit facility, the £1.0bn UKEF-supported loan, the £1.0bn sustainability linked UKEF-supported loan and £1.0bn bank loan were undrawn at the year end.

At the year end, the Group retained aggregate liquidity of £8.1bn, including cash and cash equivalents of £2.6bn and undrawn borrowing facilities of £5.5bn.

The Group has no material debt maturities until 2024. 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 16.

Credit rating

£m	Rating	Outlook
Moody's Investors Service	Ba3-	Stable
Standard & Poor's	BB-	Positive
Fitch	BB-	Positive

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 2022. During the year, the Group adopted the amendment to IAS 37 Provisions, contingent liabilities and contingent assets for Onerous Contracts - Cost of Fulfilling a Contract on 1 January 2022. As a result of the amendment, the cumulative effect of adopting the amendment has been recognised as an adjustment to opening balance of retained earnings and provisions. See page 54 for further detail.

Other than IFRS 17 Insurance Contracts described on page 65, where the Group is in the process of concluding its analysis of whether there is any further impact as a result of adopting the new standard, the Group does not consider that any other standards, amendments or interpretations issued by the IASB, but not yet applicable will have a significant impact on the Consolidated Financial Statements in 2023.

RECONCILIATION OF ALTERNATIVE PERFORMANCE MEASURES (APMs) TO THEIR STATUTORY EQUIVALENT

Alternative Performance Measures (APMs)

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. In addition, a number of other APMs are utilised to measure and monitor the Group's performance.

Definitions and reconciliations to the relevant statutory measure are included below.

Underlying results from continuing operations

Underlying results include underlying revenue and underlying operating profit. Underlying results are presented by recording all relevant revenue and cost of sales transactions at the average exchange rate achieved on effective settled derivative contracts in the period that the cash flow occurs. Underlying results also exclude: the effect of acquisition accounting and business disposals, impairment of goodwill and other non-current assets where the reasons for the impairment are outside of normal operating activities, exceptional items and certain other items which are market driven and outside of managements control. Statutory results have been adjusted for discontinued operations and underlying results from continuing operations have been presented on the same basis. Further detail can be found in notes 2 and 26.

Revenue from continuing operations	2022 £m	2021 £m
Statutory revenue	**13,520**	11,218
Derivative and FX adjustments	**(829)**	(271)
Underlying revenue	**12,691**	10,947

Operating profit from continuing operations	2022 £m	2021 £m
Statutory operating profit	**837**	513
Derivative and FX adjustments	**(264)**	40
Programme exceptional charges	**(69)**	(105)
Restructuring exceptional credits/(charges)	**47**	(45)
Acquisition accounting and M&A	**58**	50
Impairments	**65**	(9)
Pension past service credit	**(22)**	(47)
Other underlying adjustments	**–**	17
Underlying operating profit	**652**	414

Underlying results from discontinued operations

Results from discontinued operations	2022 £m	2021 £m
Profit for the year from discontinued operations on ordinary activities	**68**	36
Costs of disposal on discontinued operations prior to disposal	**–**	(39)
Loss on disposal of discontinued operations	**(148)**	–
Statutory operating loss	**(80)**	(3)
Derivative and FX adjustments	**(1)**	5
Restructuring exceptional charges	**–**	(1)
Acquisition accounting and M&A	**179**	64
Related tax effects	**(31)**	(14)
Underlying operating profit	**67**	51

Organic change

Organic change is the measure of change at constant translational currency applying full year 2021 average rates to 2022. The movement in underlying change to organic change is reconciled below.

All amounts below are shown on an underlying basis and reconciled to the nearest statutory measure above.

Total group income statement

	2022 £m	2021 £m	Change £m	FX £m	Organic change £m	Organic change %
Revenue	**12,691**	10,947	1,744	210	1,534	14%
Gross profit	**2,477**	1,996	481	45	436	22%
Operating profit	**652**	414	238	41	197	48%
Net financing costs	**(446)**	(378)	(68)	(3)	(65)	17%
Profit before taxation	**206**	36	170	38	132	367%
Taxation	**(48)**	(26)	(22)	(6)	(16)	62%
Profit for the year from continuing operations	**158**	10	148	32	116	1160%

Civil Aerospace

	2022 £m	2021 £m	Change £m	FX £m	Organic change £m	Organic change %
Underlying revenue	**5,686**	4,536	1,150	24	1,126	25%
Underlying OE revenue	**1,982**	1,612	370	(4)	374	23%
Underlying services revenue	**3,704**	2,924	780	28	752	26%
Underlying gross profit	**853**	474	379	20	359	76%
Commercial and administrative costs	**(371)**	(297)	(74)	(3)	(71)	24%
Research and development costs	**(452)**	(434)	(18)	(3)	(15)	3%
Joint ventures and associates	**113**	85	28	5	23	27%
Underlying operating profit/(loss)	**143**	(172)	315	19	296	nm

Defence

	2022 £m	2021 £m	Change £m	FX £m	Organic change £m	Organic change %
Underlying revenue	**3,660**	3,368	292	214	78	2%
Underlying OE revenue	**1,634**	1,411	223	87	136	10%
Underlying services revenue	**2,026**	1,957	69	127	(58)	(3)%
Underlying gross profit	**726**	721	5	33	(28)	(4)%
Commercial and administrative costs	**(174)**	(161)	(13)	(7)	(6)	4%
Research and development costs	**(122)**	(105)	(17)	(8)	(9)	9%
Joint ventures and associates	**2**	2	–	1	(1)	–
Underlying operating profit	**432**	457	(25)	19	(44)	(10)%

Power Systems

	2022 £m	2021 £m	Change £m	FX £m	Organic change £m	Organic change %
Underlying revenue	**3,347**	2,749	598	(28)	626	23%
Underlying OE revenue	**2,187**	1,744	443	(19)	462	26%
Underlying services revenue	**1,160**	1,005	155	(9)	164	16%
Underlying gross profit	**918**	778	140	(8)	148	19%
Commercial and administrative costs	**(441)**	(383)	(58)	4	(62)	16%
Research and development costs	**(204)**	(157)	(47)	2	(49)	31%
Joint ventures and associates	**8**	4	4	–	4	–
Underlying operating profit	**281**	242	39	(2)	41	17%

New Markets

	2022 £m	2021 £m	Change £m	FX £m	Organic change £m	Organic change %
Underlying revenue	**3**	2	1	–	1	50%
Underlying OE revenue	**1**	–	1	–	1	–
Underlying services revenue	**2**	2	–	–	–	–
Underlying gross (loss)/profit	**(1)**	1	(2)	–	(2)	nm
Commercial and administrative costs	**(23)**	(3)	(20)	–	(20)	667%
Research and development costs	**(108)**	(68)	(40)	–	(40)	59%
Joint ventures and associates	**–**	–	–	–	–	–
Underlying operating loss	**(132)**	(70)	(62)	–	(62)	89%

Trading cash flow

Trading cash flow is defined as free cash flow (as defined below) before the deduction of recurring tax and post-employment benefit expenses. Trading cash flow per segment is used as a measure of business performance for the relevant segments. For a reconciliation of group trading cash flow to free cash flow and reported cash flow, see note 27.

	2022 £m	2021 £m
Civil Aerospace	**226**	(1,670)
Defence	**426**	377
Power Systems	**158**	219
New Markets	**(57)**	(56)
Total reportable segments trading cash flow	**753**	(1,130)
Other businesses	**5**	(43)
Central and Inter-segment	**(50)**	(37)
Trading cash flow from continuing operations	**708**	(1,210)
Discontinued operations	**(12)**	46
Trading cash flow	**696**	(1,164)
Underlying operating profit charge exceeded by contributions to defined benefit schemes	**(32)**	(92)
Tax [1]	**(174)**	(185)
Free cash flow	**490**	(1,441)

[1] See page 48 for tax paid on statutory cash flow

Free cash flow

Free cash flow is a measure of financial performance of the businesses' cash flow to see what is available for distribution among those stakeholders funding the business (including debt holders and shareholders). Free cash flow is cash flows from operating activities, including capital expenditure and movements in investments, capital elements of lease payments, interest paid and excluding amounts spent or received on activity related to business acquisitions or disposals, financial penalties paid and exceptional restructuring payments. Free cash flow from continuing operations has been presented to remove free cash flow from discontinued operations as defined in note 26. For further detail, see note 27.

Free cash flow from cash flows from operating activities

	2022 £m	2021 £m
Statutory cash flows from operating activities	**1,849**	(258)
Capital expenditure (including investment from NCI and movement in joint ventures, associates and other investments)	**(512)**	(489)
Capital element of lease payments	**(218)**	(374)
Interest paid	**(352)**	(331)
Settlement of excess derivatives	**(326)**	(452)
Exceptional restructuring costs	**76**	231
M&A costs	**2**	50
Financial penalties paid	**-**	156
Other	**(29)**	26
Free cash flow	**490**	(1,441)
Discontinued operations free cash flow [1]	**14**	(43)
Free cash flow from continuing operations	**504**	(1,484)

[1] Discontinued operations free cash excludes: transactions with parent company of £(65)m (2021: £(15)m), movements in borrowings of £22m (2021: £22m), exceptional restructuring costs of £nil (2021: £8m), M&A costs of £64m (2021: £44m) and other of £(6)m (2021: £29m)

Group R&D expenditure

R&D expenditure during the year excluding the impact of contributions and fees, including government funding, amortisation and impairment of capitalised costs and amounts capitalised during the year. For further detail, see note 3.

	2022 £m	2021 £m
Statutory research and development costs	**(891)**	(778)
Amortisation and impairment of capitalised costs	**94**	70
Capitalised as intangible assets	**(131)**	(105)
Contributions and fees	**(359)**	(366)
Gross R&D expenditure	**(1,287)**	(1,179)

Key performance indicators

The following measures are key performance indicators and are calculated using APMs or statutory results. See below for calculation of these key performance indicators.

Order backlog

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 seven to 12 months) are excluded. Further details are included in note 2 on page 70.

Self-funded R&D as a proportion of underlying revenue

Self-funded cash expenditure on R&D before any capitalisation or amortisation relative to underlying revenue. Self-funded R&D and underlying revenue are presented for continuing operations in line with presentation in the statutory income statement.

	2022 £m	2021 £m
Gross R&D expenditure	**(1,287)**	(1,179)
Contributions and fees	**359**	366
Self funded R&D	**(928)**	(813)
Underlying revenue	**12,691**	10,947
	%	%
Self funded R&D as a % of underlying revenue	**7.3**	7.4

Capital expenditure as a proportion of underlying revenue

Cash purchases of PPE in the year relative to underlying revenue presented for continuing operations. All proposed investments are subject to rigorous review to ensure that they are consistent with forecast activity and will provide value for money. The Group measures annual capital expenditure as the cash purchases of PPE acquired during the period.

	2022 £m	2021 £m
Purchases of PPE (cash flow statement)	**359**	328
Less: capital expenditure from discontinued operations	**(14)**	(24)
Net capital expenditure	**345**	304
Underlying revenue	**12,691**	10,947
	%	%
Capital expenditure as a proportion of underlying revenue	**2.7**	2.8

GLOSSARY

AAM	advanced air mobility	IASB	International Accounting Standards Board
APM	alternative performance measure	IFRS	International financial reporting standards
Articles	Articles of Association of Rolls-Royce plc	KPIs	key performance indicators
C&A	commercial and administrative	LIBOR	London inter-bank offered rate
CEO	chief executive officer	LTIP	long-term incentive plan
Our Code	Global Code of Conduct	LTSA	long-term service agreement
the Code	UK Corporate Governance Code 2018	M&A	mergers & acquisitions
Company	Rolls-Royce plc	MRO	maintenance, repair and overhaul
D&I	diversity & inclusion	MW	megawatts
DoJ	US Department of Justice	OE	original equipment
DPAs	deferred prosecution agreements	PBT	profit before tax
DTR	the FCA's Disclosure Guidance and Transparency Rules	PPE	property, plant and equipment
EFH	engine flying hours	PSP	performance share plan
ERG	employee resource group	R&D	research and development
ESG	environment, social and governance	R&T	research and technology
EU	European Union	REACH	registration, evaluation, authorisation and restriction of chemicals
EUR	euro	RMS	risk management system
EVTOL	electric vertical take-off and landing	RRH	Rolls-Royce Holdings plc
FCA	Financial Conduct Authority	RRMS	Rolls-Royce management system
FX	foreign exchange	RRSAs	risk and revenue sharing arrangements
GBP	Great British pound or pound sterling	SAF	sustainable aviation fuel
GHG	greenhouse gas	SFO	UK Serious Fraud Office
Group	Rolls-Royce plc and its subsidiaries	SMR	small modular reactors
HPT	high pressure turbine	TCFD	Taskforce on Climate-related Financial Disclosures
HSE	health, safety and environment	TSR	total shareholder return
		USD/US$	United States dollar