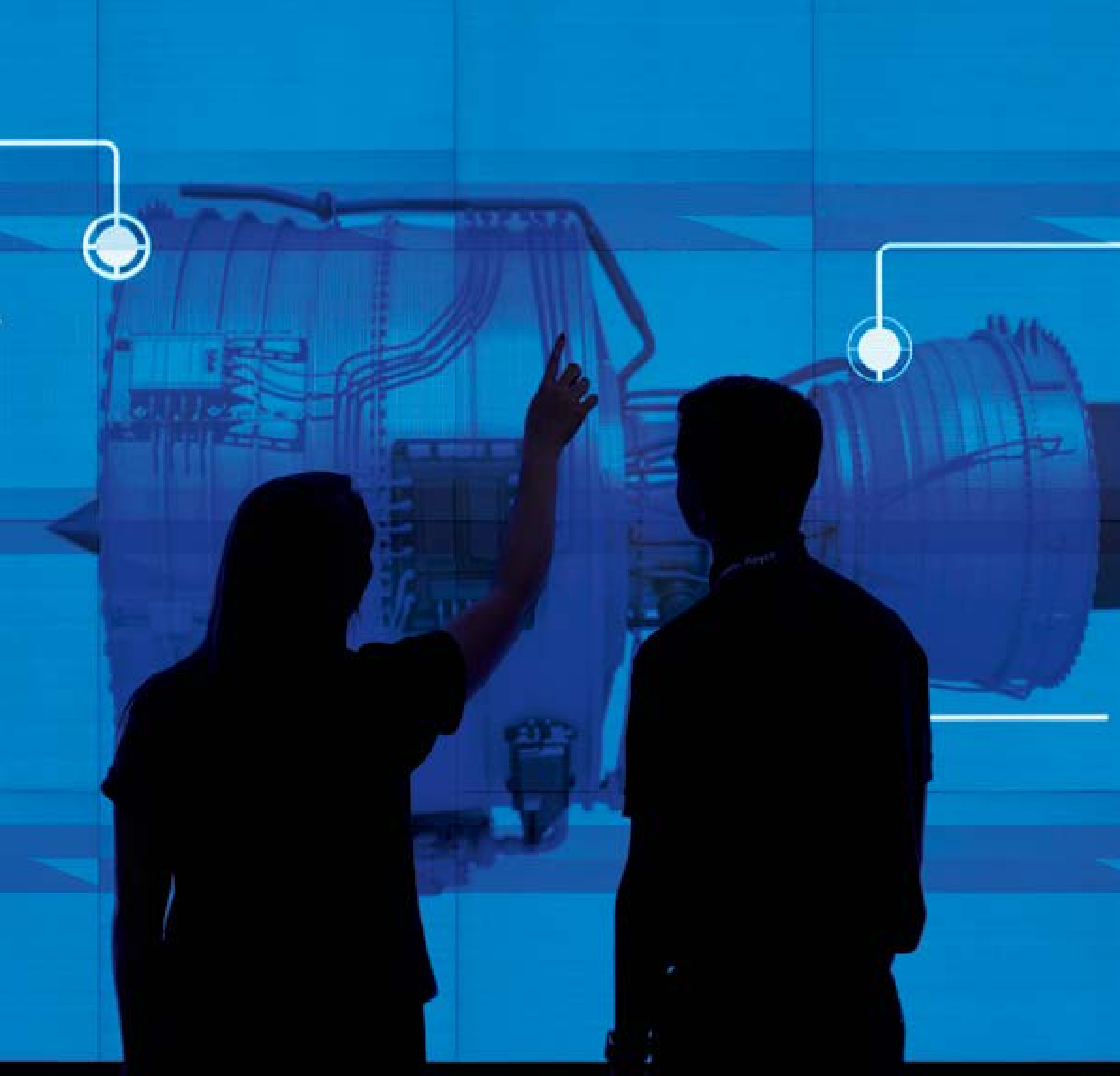
2019 ANNUAL REPORT

Rolls-Royce Holdings plc



PIONEERS OF POWER

Rolls-Royce pioneers cutting-edge technologies that deliver clean, safe and competitive solutions to meet our planet's vital power needs.

Group Financial Highlights

Free cash flow △
£873m
2018: £568m

Full year payment to shareholders
11.7p
2018: 11.7p

Underlying revenue
£15,450m
2018: £15,067m

Reported revenue
£16,587m
2018: £15,729m

Underlying operating profit
£808m
2018: £616m

Reported operating (loss)
£(852)m
2018: £(1,161)m

Underlying profit before tax
£583m
2018: £466m

Reported (loss) before tax
£(891)m
2018: £(2,947)m

Underlying earnings per share
15.9p
2018: 16.0p

Reported earnings per share
(69.1)p
2018: (129.2)p

Net funds ⌀
£1,361m
2018: £840m

△ Free cash flow is defined in note 28 on page 180.
⌀ Net funds (excluding lease liabilities) is defined on page 121.

Use of underlying performance measures in the Annual Report
All figures in the narrative of the Strategic Report are underlying unless otherwise stated. We believe this is the most appropriate basis to measure our in-year performance as underlying results reflect the substance of trading activity, including the impact of the Group's foreign exchange forward contracts, which lock in transactions at predetermined exchange rates. In addition, underlying results exclude the accounting impact of business acquisitions and disposals, impairment charges and exceptional items. A full definition of underlying and the reconciliation to the reported figures are in note 2 of the Consolidated Financial Statements on page 134. All references to organic change are at constant translational currency and exclude M&A.

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

Contents

Front Cover:
The Rolls-Royce ionBird: a test airframe for our ACCEL project, which is developing the world's fastest all-electric aircraft.

Our Spirit of Innovation aircraft, developed with YASA and Electroflight and partly funded by Aerospace Technology Institute (ATI), will be powered by the world's most power-dense flying battery pack, with the aim of reaching speeds of over 300mph.

GROUP AT A GLANCE

At Rolls-Royce, we pioneer the power that matters to connect, power and protect society.

Free cash flow

£873m

Underlying revenue

£15,450m

Underlying operating profit

£808m

Reported revenue

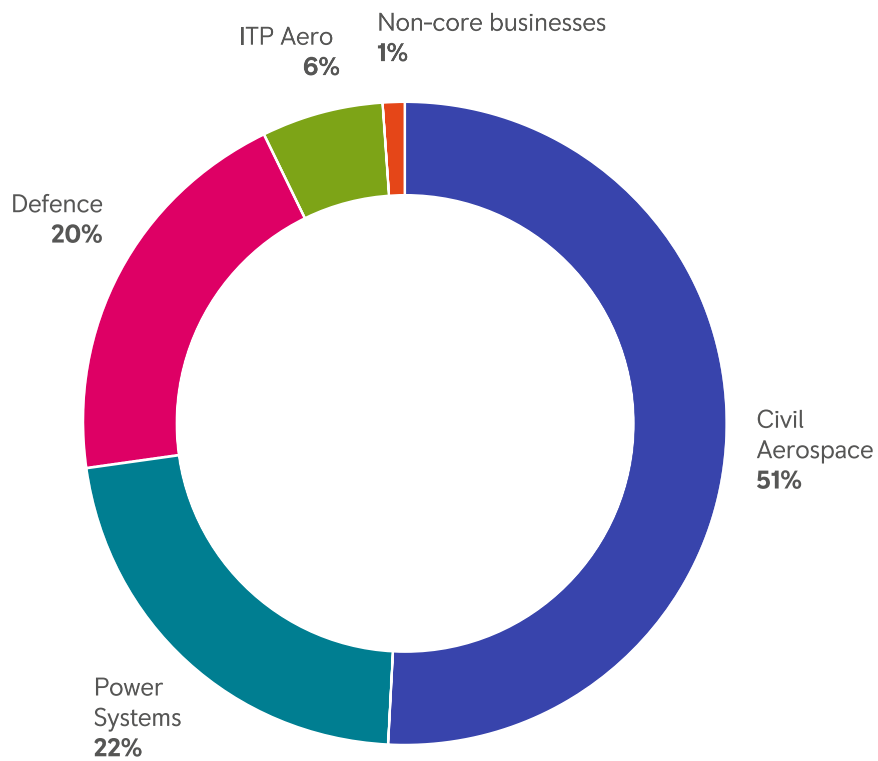
£16,587m

Reported operating (loss)

£(852)m

See note 2 on page 139 for a reconciliation between underlying and reported results.

Underlying revenue by business in 2019



Order backlog	Patents approved for filing	Gross R&D expenditure	Countries with Rolls-Royce presence	Employees (monthly average)
£60.9bn	830	£1.46bn	50	51,700

Our core businesses in 2019

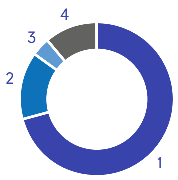
CIVIL AEROSPACE

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

£8,107m
Underlying revenue

£44m
Underlying operating profit

Underlying revenue mix



1. Large Engines 71%
2. Business Aviation 14%
3. Regional 4%
4. V2500 11%

See page 24

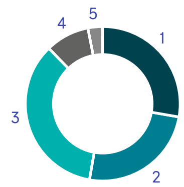
POWER SYSTEMS

Power Systems is a leading provider of high-speed and medium-speed reciprocating engines, and complete propulsion and power generation systems. It serves the marine, defence, power generation and industrial markets and includes civil nuclear operations that supply safety-critical systems.

£3,545m
Underlying revenue

£357m
Underlying operating profit

Underlying revenue mix



1. Marine 28%
2. Industrial 25%
3. Power Generation 35%
4. Defence 9%
5. Civil Nuclear 3%

See page 29

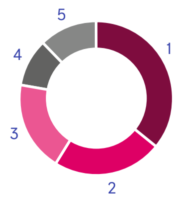
DEFENCE

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

£3,250m
Underlying revenue

£415m
Underlying operating profit

Underlying revenue mix



1. Transport 36%
2. Combat 23%
3. Submarines 19%
4. Naval 10%
5. Other 12%

See page 33

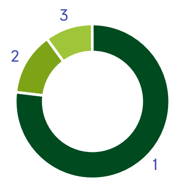
ITP AERO

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

£936m
Underlying revenue

£111m
Underlying operating profit

Underlying revenue mix



1. Civil 77%
2. Defence 13%
3. In-Service Support 10%

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CHAIRMAN'S STATEMENT

SIR IAN DAVIS, CHAIRMAN

This was a year of progress across the Group, despite the technical and operational challenge of the Trent 1000. Strategically, good progress is being made on new low carbon technologies and capabilities.

This was a year of progress across the Group, despite the challenges we experienced with the Trent 1000 engine. We took further significant strategic steps towards realising our long-term goal to be the world's leading industrial technology company while continuing our cultural transformation.

In our Civil Aerospace business, the technical and operational challenge of fixing the Trent 1000 has been both costly and resource intensive. Most importantly, it has led to significant and deeply regrettable disruption for our customers. But we have made progress and are taking further proactive steps to improve the situation in 2020. Ensuring engine availability and the service levels our customers expect are our highest short-term priorities.

Our Power Systems and Defence businesses sustained the financial and strategic momentum of previous years. Strategically, good progress is being made in the development of new technologies and capabilities with the focus on more efficient and environmentally friendly engines and propulsion systems.

2019 Review

We delivered a record number of widebody engines in 2019, almost double the number delivered five years ago. This has enabled the continuous growth of our installed engine base in the civil aerospace market which, because of the nature of our service contracts and business model, is the bedrock of our long-term future profits and cash flow. We are very encouraged by the sustained successful introduction and reliable performance of our crucial Trent XWB engine.

Our Power Systems business is performing well despite challenging external market conditions. In line with strategy, it continues to increase revenues and market share as it moves towards integrated systems and solutions and to new, more environmentally sustainable technologies. We are particularly pleased with the strong progress in China made by Power Systems and proud of the development of pioneering new hybrid-electric engines for the rail market.

Our Defence business performed strongly, achieving a record level of new orders, with particular strength in the US where we see significant future opportunities. I would like to single out the greatly improved customer service and delivery performance in our submarines propulsion unit.

Consistent with the long-term needs and nature of the business, we have sustained technology and R&D investments. The focus of these investments has been on new technologies and capabilities that will improve engine efficiency, significantly reduce carbon emissions and minimise adverse environmental impacts – including noise. I would highlight, as examples, the acquisition of Siemens' eAircraft business and our investments in electric propulsion more broadly. These include the pioneering development of an all-electric aircraft, the testing of a new hybrid-electric propulsion system, as well as microgrid technologies for power generation.

We are investing heavily in digital and artificial intelligence (AI) technologies. The industries we operate in are, and will increasingly be, at the centre of the data revolution and the integration of complex systems and technologies.

During the year, we faced unprecedented challenges with our Trent 1000 engine. We are working tirelessly to fix the problems and improve the engine's underlying durability. We have seen signs of progress with the roll-out of fixes and have a detailed operational plan to mitigate the disruption to our customers. As a result of the cost of the programme, however, we recognised a significant exceptional charge in the year.

Despite progress on our restructuring and transformation programme, there remains a lot more to be done to reduce the cost base of the business, to simplify our processes and to provide a more agile culture. This is a competitive and investor necessity. It is essential to generate the cash flow, shareholder returns and investment funds required for the long-term health of the business. It is also a huge opportunity, and consistent with our long-term aspiration to be the world leading industrial technology company.

At the time of writing, there are macro risks to navigate in the coming year, notably the outbreak of the COVID-19 virus which is currently having an effect on world trade, travel, and supply chains. We are actively monitoring the situation, following international health advice and giving our people as much support as they need.

Purpose, strategy and governance

Purpose has been, and always will be, fundamental to any company with long-term aspirations or enduring ambition. We have spent significant time refining our purpose to ensure it is relevant to our stakeholders, not least our employees. At its core, our purpose is to connect, power and protect society. We will do this while minimising our impact on the environment.

Purpose manifests itself in strategy and behaviour. I hope this report will clarify our strategic intent and the actions we are taking to make our purpose real, and measurable, to all our stakeholders. Technology and capital allocation will be at its heart. We have to be at the forefront of technologies such as electrification, hybrid propulsion systems and microgrids that can dramatically reduce emissions. Long haul aviation is technologically challenging from a carbon emissions perspective. Improved engine efficiency will continue to play a very important role in emissions reduction as will alternative non-fossil fuels.

We are committed to reducing greenhouse gas emissions from our operations and facilities to zero by 2030. Beyond that, we are working hard to determine how we can mitigate the emissions impact of our product portfolio and product testing in order to get the whole of Rolls-Royce to a net zero emissions position by 2050. Large scale aviation is a potentially very challenging sector and to achieve this, we will have to continue to work in partnership with governments, suppliers, customers, technology providers, fuel companies, non-governmental organisations (NGOs) and civil society. We cannot do it alone. Climate change is a risk to our business – indeed a principal risk – but more importantly, it is a real opportunity which could see us create disruptive new technologies and solutions.

We have continued to develop the governance innovations highlighted in previous reports. Irene Dorner, our Employee Champion on the Board, continued her sterling efforts during the year, while Beverly Goulet visited a number of our smaller sites as our North American Employee Champion and Lee Hsien Yang held a series of town hall meetings with employees and partners in China. We held further Meet the Board events and continued our Board apprentice programme. We have introduced a new tool to track employee engagement with increased focus on key topics such as engagement with our purpose and strategy. Statistically and culturally we still have a way to go on diversity, particularly at the most senior levels. But we are making good progress elsewhere from a talent pipeline perspective and I believe we are on the right path.

Finally, we continue to focus attention and oversight on ethical compliance and, above all, on safety. This is an ongoing challenge, particularly at times of disruption and stress, for all companies in our industries.

Shareholder payments

During the year, further steps were taken to simplify the portfolio and improve our net funds position. We completed the sale of our Commercial Marine business and finalised the transfer of a significant portion of our pension liabilities to Legal & General Assurance Society. This move will increase overall security for Rolls-Royce pensioners and reduce risk to our business.

Strengthening the balance sheet understandably remains a priority. The costs associated with the Trent 1000 have impacted investor confidence. Our firm intent is to turn this around. While we have made progress in delivering the sustainable free cash flow from our business that would be the foundation for increased shareholder payments, there is more to be done. As a consequence, we are not proposing an increase in the final shareholder payment for 2019. This will be held flat at 7.1p per share. Taken together with the interim payment, this brings the full payment to 11.7p per share. Despite the challenges of 2019, our underlying financial performance has shown improvement over the last few years. It remains our objective to progressively rebuild distributions to shareholders while investing for the long-term.

Board developments

During the year, we announced the appointment of George Culmer as a Non-Executive Director. He joined at the start of 2020 and is a member of the Nominations & Governance Committee, the Audit Committee and the Safety, Ethics & Sustainability Committee. A chartered accountant, George was until recently chief financial officer at Lloyds Banking Group and is also the senior independent director at Aviva.

We were really sorry to see the departure of Ruth Cairnie as a Non-Executive Director at the end of the year following her appointment as chair of Babcock International Group. Ruth made extraordinary contributions to the Board and to the Group, not least in her role as Chairman of the Remuneration Committee.

Brad Singer, a partner and chief operating officer of ValueAct Capital, stepped down as a Non-Executive Director in December. Since joining us in 2016, Brad has been an active member of the Board, offering a valued external perspective and helping us to drive progress in our efforts to transform Rolls-Royce. My colleagues and I have greatly appreciated Brad's insight and commitment to the Company and it has been a pleasure to work alongside him.

We have recently announced the appointment of Dame Angela Strank as a Non-Executive Director. She will join the Board on 1 May 2020 and will be a member of the Nominations & Governance Committee, the Safety, Ethics & Sustainability Committee and the Science & Technology Committee. Dame Angela is currently chief scientist and head of downstream technology at BP and a member of their Executive Management Team. I am delighted to welcome her to our Board.

Looking forward

Our Group continues to operate in markets where the long-term trajectory is one of growing demand for power and the services that will support it. To capitalise on the opportunities, however, we must continue to focus on improving our cost competitiveness; pursue purposeful, disciplined capital allocation; and drive innovation in sustainable, lower carbon power solutions. We must also continue on the cultural transformation journey that helps accelerate our trajectory and attract and retain the talent on which we will depend.

Sir Ian Davis
Chairman

CHIEF EXECUTIVE'S REVIEW

WARREN EAST, CHIEF EXECUTIVE

Despite the challenges of the Trent 1000, the progress seen across the Group in the year gives me increased confidence that the changes we are implementing are creating a tangible and sustainable cultural and performance shift within our business.

Progress in 2019

To draw an analogy to describe the year that might be familiar to many of our aerospace customers: the journey is sometimes more important than the destination. In 2019, how we got to our destination – strong progress across the Group – gives me increased confidence that the changes we have been implementing over the past two years are creating a tangible and sustainable cultural and performance shift within our business.

We had a good end to the year including strong Civil Aerospace aftermarket performance, record widebody engine deliveries, and better trading in Power Systems despite tough market conditions. Defence performed well throughout the year with a record order intake and healthy cash performance. As a result, we delivered improved financial results including a 25% increase in underlying operating profit and further strong improvement in Civil Aerospace. This contributed to strong Group free cash flow of £873m, another significant step towards achieving at least £1bn in 2020. We also continued to invest in the new technologies which are so vital to remaining competitive. This was all achieved despite the in-service challenges with the Trent 1000, which could have derailed our progress. The fact that they did not is thanks to the focus of our people on their roles in delivering for the business.

I spoke last year of needing to build beyond the breakthrough we could see occurring as we launched our restructuring and adopted our new operating structure. We have generated real momentum during 2019, not least in respect to costs, as we scrutinised our spending with intense rigour and really challenged ourselves to act differently. There is, however, no denying the fact that the durability issues with the Trent 1000 weighed heavily on 2019, in terms of the financial cost of returning the fleet to the levels of service our customers expect and dealing with the unacceptable disruption we have caused them. As a result of the Trent 1000 and as announced in November, we are recognising a net exceptional charge of £1,361m within our financials, contributing to a reported operating loss of £(852)m.

We have fixes designed for all but one of the issues identified and are well advanced on certification and rolling them out into the fleet. As the year drew to a close, we carried out a detailed technical re-evaluation of our progress on the final fix, a new high pressure turbine blade for the Trent 1000 TEN. Based upon that work and test activity, we reset our financial and operational expectations for the engine in November, based on a revised estimate of final blade durability, in order to provide certainty for customers and greater clarity for investors. Since then, we have made good progress on the design of this blade, and continue to expect certification of this component in the first half of 2021.

Lower carbon power

We believe in the positive transforming potential of technology and have a passion for solving difficult problems. Today, one of our society's greatest technological challenges is the need for lower carbon power and we have a crucial role to play

2019 priorities

Customers
- Increase production volume
- Expand service network
- Mitigate disruption from in-service issues

People and culture
- Build a resilient business
- Continue restructuring programme
- Further simplify processes
- Diversity & inclusion

Technology
- Revitalise service
- Develop new engine architecture
- Advance electrification projects

Financial
- Continue improving free cash flow
- Further strengthen balance sheet
- Enhance capital allocation discipline

in decarbonising the sectors in which we operate. Firstly, we are committed to further reducing the environmental impacts of our products and services. We are following up our success as the developer of the world's most efficient civil large engine in service today, the Trent XWB, with our next generation UltraFan. We are also heavily involved in the drive for sustainable alternative fuels. Secondly, we are committed to developing new low emission technologies. During 2019, we made significant progress, including the acquisition of Siemens' eAircraft business and ground tests of our megawatt generator for the E-Fan X demonstrator with Airbus. Thirdly, we are working to reduce the greenhouse gas emissions from our own operations and facilities to zero by 2030.

Our ability to pioneer the decarbonisation of aviation builds upon the experience of our Power Systems business in hybrid and electrical power across a range of sectors. During the year, we signed customer contracts and framework agreements for hybrid solutions for the rail and yacht markets. In early 2020, we further enhanced our capabilities with the acquisition of a majority holding in power storage specialist Qinous, which will enhance our microgrid development activities.

Climate change is a risk for our business and playing a pivotal role in combating it presents us with a very significant opportunity to become a disrupter. Inaction is not an option.

Progress on restructuring

In 2019, we made further progress on our restructuring programme. Since it was announced in mid-2018, we have implemented productivity improvements enabling us to achieve 2,900 of the planned 4,600 indirect headcount reduction and we remain on track to realise the full benefits of the programme by the end of 2020. Reducing our workforce is not a decision we take lightly, but we must fundamentally change the way we operate.

We have completed the majority of the changes within Civil Aerospace and Defence, including unwinding an overly complex corporate structure and introducing new automated tools and methods which have helped streamline processes. Progress within Power Systems was more limited as we completed planned strategic investments. Our Group Business Services operation, meanwhile, is now providing more effective and efficient transactional processing across the Group.

We have focused on driving value through reducing other indirect spend beyond salary costs and on improving the effectiveness of our cash management processes. These foundations will be developed further in 2020 to provide additional productivity improvements in the future.

Delivery on 2019 priorities

We set out four key priorities for the year:

Customers

During the year, we delivered a record 510 widebody engines from Civil Aerospace, increasing our installed base by 6% to more than 5,000 engines and growing engine flying hours by 7%. The Trent XWB became our second-largest Trent programme by volume, with the fleet having amassed more than five million flying hours and its leading engines already achieving our expectations for time-on-wing (see page 26). We revamped our Civil Aerospace services business and undertook a record number of scheduled major overhauls, in spite of increased check and repair visits driven by the Trent 1000.

During the year, we took the decision to accelerate the installation of fixes within a small proportion of the Trent 1000 fleet following an incident. As a result, we revised our target to reduce aircraft on ground (AOG) to single digits from the end of 2019 to the end of the second quarter of 2020. To help alleviate disruption, we took further action to increase our maintenance, repair and overhaul (MRO) capabilities and increased our pool of spare engines to get our customers flying again.

Our Power Systems business continued to capitalise on its extensive installed base of engines by increasing revenues from services, including through the introduction of digital monitoring tools, initially targeting the mining industry.

Defence had a very successful year, securing a record order intake of £5.3bn boosted by services. Notable wins included a five-year contract worth over $1bn with the US Marine Corps to maintain the AE1107 engines that power the Bell Boeing V-22 Osprey. We delivered just under 500 aero engines and now have over 16,000 in service across more than 100 countries. We also made good progress on developing new technologies ahead of a number of attractive opportunities in coming years.

Technology

Technology is the lifeblood of our business and, during the year, we passed a number of significant milestones on our new engine programmes. We successfully tested all the composite elements of our advanced low pressure system (ALPS) – including fan blades and fan cases – which is a key component of our UltraFan engine design. In Defence, our work as part of Team Tempest in the UK continued. In the US, our dedicated defence development team, LibertyWorks, demonstrated an integrated power and thermal management system for high-power directed energy applications

FIXING THE TRENT 1000

Returning the Trent 1000 fleet to the level of service which our customers expect is the top priority of senior management and the Board. We believe 2019 was a pivotal year. We have now designed fixes for all but one of the significant technical challenges we have faced and have a clear path to resolving the final issue. We have announced actions to boost our maintenance capacity and add additional spare engines to reduce customer disruption. We also carried out an extensive review that resulted in greater certainty for customers and clarity for investors. Our focus is now on executing this clear plan.

We have been dealing with three significant technical issues affecting each of the three variants of the Trent 1000 (Package B, Package C and TEN). Of the nine fixes required, we have so far designed eight and certified seven which are now being incorporated into the fleet. A new high pressure turbine (HPT) blade for the Trent 1000 TEN variant is the final modification required. During the year, we carried out a detailed technical re-evaluation of our progress. Based upon that work and test activity, we reset our financial and operational expectations for the Trent 1000 TEN based on a revised estimate of final blade durability. This allowed us to be clearer with customers on the engine's long-term servicing requirements, giving them greater certainty when planning schedules. It also enabled us to assess the associated exceptional cost and provide investors with a clearer view of future costs (see page 19).

The Board continued to scrutinise the issue, receiving regular updates on progress. The Audit Committee reviewed the accounting treatment of the cost (see page 82) and the Board carried out a full technical review (see page 68). To underpin our target to reduce AOG to less than ten by mid-2020, we are increasing our stock of spare engines and accelerating growth in our MRO network. This comes on top of a tripling of MRO capacity over the past three years, the introduction of new servicing techniques and a 50% increase in our turbine blade manufacturing capacity.

and we refined our F130 engine for the competition to re-engine the US Air Force's (USAF) Boeing B-52s. Our efforts in electrification included the introduction of microgrids from Power Systems (see page 30) and breakthroughs in aviation including the roll-out of the all-electric plane we hope will set new speed records (see page 42).

People and culture

We have continued to embed our values and behaviours across the Group (see page 45). Improving diversity & inclusion remains a priority for us and during the year we refreshed our strategy and looked to accelerate its implementation. We have a lot of work to do if we are to hit our gender diversity target of 23% for our Executive Team. During the year, we reviewed our succession plans and increased the proportion of females from 35% to 44%.

Financial

We delivered significant financial progress with a strong level of free cash flow, despite £578m of in-service costs from the Trent 1000 which were partially offset by £173m of related insurance receipts. In Civil Aerospace, we reduced widebody OE losses and generated a healthy increase in the net cash flow driven by our widebody in-service fleet. We also saw an increase in margins in Power Systems, although Defence was lower as we had signalled, reflecting its OE product mix. After a poor first half performance, we delivered a material reduction in inventory as the year progressed, although further work is required here in 2020. We focused hard on costs, with good progress achieved in the second half of the year. We still have work to do in 2020, however, to further grow the quality and scale of our cash flow.

2020 priorities and longer-term outlook

Building on the strength of our performance in 2019, we enter 2020 with conviction and confidence. The momentum we saw as the year progressed must be maintained in 2020 in order to achieve at least £1bn in free cash flow. The fact that we have remained on course for this target despite the Trent 1000 situation is due to the determination, drive and resolve of our people. In the coming year, we will push for further improvements in execution, delivery and overall business performance.

25 YEARS CONNECTING THE WORLD

In 2020, our family of Trent engines will pass a major milestone: a quarter of a century powering commercial airlines around the world, connecting people and cultures and delivering goods and services.

Having completed more than 145 million engine flying hours since the very first engine, a Trent 700, went into service in 1995, our Trent engines are the bedrock of Rolls-Royce. We have been celebrating the vital role that these engines play in our growth and our future with our #poweroftrent campaign across all our digital channels.

More than a year since it entered service in November 2018, the latest member of the family, the Trent 7000, has performed well. This follows the smoothest entry into service of any widebody engine, the Trent XWB, which became our second largest Trent programme by volume during the year. The Trent XWB fleet has now flown more than five million flying hours since it took to the skies in early 2015. It remains the world's most efficient large aero engine in service today. In 2019, we won 64% of all new widebody engine orders and now hold 55% of the widebody industry order backlog.

Now that we are two years into our new simplified structure of business units – operating within a clear framework and supported by a lean centre – it is appropriate to set priorities which are solely Group level, from which we determine the priorities for our businesses and functions.

Our first priority is to deliver on our commitments to customers. Secondly, we must deliver the full benefit of our transformation by constantly seeking simpler, more efficient ways of working across the Group. While headcount reduction is a consequence, our transformation must primarily be about changing the way we operate. We have made good progress in 2018 and 2019, and during 2020 we must push for even greater pace and simplicity. Thirdly, our financial target as a Group is clear: to generate at least £1bn of free cash flow in 2020. Sustainable and growing cash flow is the foundation upon which our long-term future, and returns to investors, will be built. Finally, our most important differentiator is our people and we must continue to embed the behaviours we need from everyone who works at Rolls-Royce in order to create the culture we need to continue to win.

I believe the coming year will mark another important step towards generating significant returns from the market positions Rolls-Royce has spent many years securing. The value embedded within our business, most obviously within our installed base of widebody engines and order book, must be fully unlocked. Our sights are firmly set upon a mid-term ambition to exceed £1 of free cash flow per share, which translates to at least £1.9bn of free cash flow. To secure this in a sustainable way means reinforcing behavioural change across our business, driving pace and simplicity, developing a thirst for continuous improvement and ensuring disciplined investment in the new technologies we require to exploit the opportunities that we can see across all our markets. We will push harder and further in 2020, towards becoming the world's leading industrial technology company.

2020 priorities

Group priorities				
	Customers Exceed customer commitment metrics	**Operations** Annual efficiency improvements of over £400m (from launch of restructuring)	**Financial** Free cash flow of at least £1bn	**People and culture** Improved employee engagement as measured through Gallup Q12

Core values		
	Safety	Operate safely
	Quality	Trusted to deliver excellence
	Ethics	Act with integrity

PURPOSE, VISION AND STRATEGY

We are one of the world's leading industrial technology companies. We pioneer the power that matters to connect, power and protect society. This requires us to anticipate the opportunities and challenges our customers will face.

OUR VISION

Pioneering the power that matters

Rolls-Royce pioneers cutting-edge technologies that deliver clean, safe and competitive solutions to meet our planet's vital power needs.

OUR STRATEGY

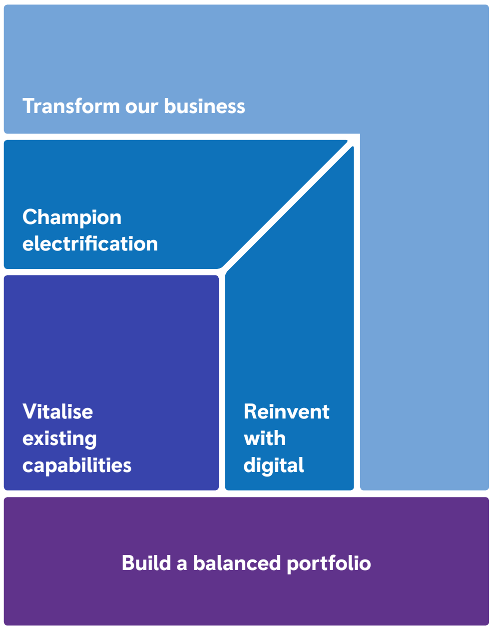
Our strategy reflects three horizons:

Horizon 1 Maintain and defend core businesses

Horizon 2 Nurture emerging businesses

Horizon 3 Create genuinely new businesses

At the same time we need to manage the transition of technologies, capabilities, resources and value across business horizons.



Trends shaping our markets

We believe three key trends will define the world's future power needs: the growing demand for cleaner, more sustainable power; electrification; and digitalisation. As we move to a low carbon global economy, our engines will become part of broader, hybrid-electrical systems with lower emissions and environmental impact.

Our progress in 2019

Horizon 1

Vitalise existing capabilities

We are developing next-generation technologies to sustain and grow our current competitiveness; investing in our existing thermo-mechanical products to ensure that they provide clean, safe and competitive solutions for our customers.

Our installed base of Civil Aerospace widebody engines exceeded 5,000 in the year, up more than 50% over the past decade. The Trent XWB is meeting our expectations, with the first Trent XWB-84 engines now entering their fifth year in service without requiring shop visits. The Trent 700, a leading member of the Trent family for almost 25 years, continued to perform well and received certification to power a small fleet of new Airbus BelugaXL aircraft. Our ambitions for the UltraFan demonstrator programme remain strong as we target engine maturity towards the end of the 2020s. During 2019, we successfully tested the composite elements of the ALPS, including fan blades and fan cases. In business aviation, we unveiled the Pearl 700 for the new Gulfstream G700 and the first member of the Pearl family, the Pearl 15, entered into service (see page 28).

In Power Systems, we secured an innovative ten-year service agreement with Svitzer that connects maintenance services to engine availability; and signed a new agreement for the supply of MTU engines with British luxury yacht manufacturer Sunseeker.

In Defence, we successfully completed early engine tests of the F130 which we are offering as a new engine for the USAF's Boeing B-52. We were also awarded a contract, alongside industry partners, to develop hypersonic propulsion by the UK's Ministry of Defence as part of a suite of technologies being developed in parallel with Project Tempest. In the US, our LibertyWorks team saw the culmination of ten years of research and development by demonstrating an integrated power and thermal management system for defensive high-power directed energy applications. During the year, both our AE1107 engines on the Bell Boeing V-22 Osprey and RR300 engines on the Robinson R66 helicopter exceeded one million engine flying hours.

Horizon 2

Champion electrification

We are investing in new power solutions for our long-term success, building on our strong heritage in thermo-mechanical engineering to produce state-of-the-art electro-mechanical and hybrid power systems. It is just one of the steps we are taking towards the provision of lower carbon power (see page 42).

During the year, we secured orders from Irish Rail and Porterbrook, the UK's largest rolling stock leasing company, for our hybrid powerpacks. We also signed a global microgrid partnership to offer energy-efficient solutions for utility and industrial companies, and opened a microgrid validation centre (see page 30).

In aviation, we completed the acquisition of Siemen's eAircraft business (see below) and carried out successful ground tests of a hybrid system using our M250 gas turbine, paving the way for test flights in 2021. We gained support for our hybrid-electric ambitions from the German State of Brandenburg and announced plans to work with partners, including the Brandenburg University of Technology to develop a hybrid-electric flight demonstrator based on the M250 system.

In the UK, where the government is already supporting the E-Fan X and ACCEL programmes (see page 42), it is also supporting us on Project Fresson, which plans to design, manufacture and integrate a hybrid-electric propulsion system into a small aircraft for island-hopping routes.

We also launched a joint programme to research zero-emissions aviation with Widerøe, the largest regional airline in Scandinavia, which plans to replace and electrify its regional fleet by 2030.

Reinvent with digital

We are using digital technologies across our activities to generate new insights, new solutions and new opportunities; increasingly partnering with start-ups and established players. We expanded the digital solutions team within Power Systems and set up a new data and analytics competence centre in the year. We announced that ferry company Förde Reederei Seetouristik will test a new electronic monitoring system that collects and analyses data from our engines and other systems at sea. We also unveiled plans to develop an autonomous machinery control system for naval vessels.

R^2 Data Labs continued to build its digital ecosystem through a tie-up with venture capital fund, BrightCap Ventures, to attract start-ups to work with us on solving industrial challenges using digital technologies. We also launched our first collaborative digital technology project with Singapore's Defence Science and Technology Agency (DSTA).

Horizon 3

Transform our business

We are advancing new opportunities that could capture substantial growth and value for the Group in the future. We have received initial match funding from the UK government to progress a new type of compact smart nuclear power station based around our Small Modular Reactor (SMR) concept (see page 43). Power Systems signed a letter of intent for the construction of a demonstration plant that uses electric power generated in photovoltaic and wind power plants for the production of synthetic fuels. We also set up a power-to-x competence centre at the Brandenburg University of Technology, Germany, to explore the potential of synthetic fuels.

Build a balanced portfolio

We actively manage our portfolio of activities to focus on key activities that are aligned with our strategy and business model. As a result, during the year, we completed the sale of our Commercial Marine business and, in January 2020, completed the sale of our Civil Nuclear North America Services business.

ACCELERATING OUR ELECTRICAL STRATEGY

During the year, we took a significant stride towards meeting our strategic ambition to champion electrification with the completion of the acquisition of Siemens' eAircraft business.

This business has been developing a range of all-electric and hybrid-electric propulsion solutions. Around 180 specialist electrical designers and engineers based in Germany and Hungary, have now joined us.

Electrification is set to have as dramatic an impact on aviation as the replacement of piston engines by gas turbines. We are at the dawn of the third era of aviation, which will bring a new class of quieter and cleaner air transport to the skies.

The acquisition of eAircraft accelerates our ambitions in aerospace by adding vital skills and technology to our portfolio. It brings us increased scale and additional expertise as we develop a product range of hybrid power and propulsion systems.

BUSINESS MODEL

Our competitive advantage comes from:

Cutting-edge technologies

We apply cutting-edge technologies to provide clean, safe and competitive solutions. Our technologies ensure that our customers have the vital power that meets their emerging needs.

System solutions

We package technologies into systems that provide complete solutions for our customers. Our solutions mean that our customers have power from a single, trusted partner.

System life

We care about the performance of our solutions throughout their lives. Our through-life capabilities maximise availability and enable us to meet changing customer needs.

Principal risks

- A Safety
- B Business continuity
- C Climate change
- D Competitive environment
- E Compliance
- F Cyber threat
- G Major product programme delivery
- H Market and financial shock
- I Political risk
- J Strategic transformation
- K Talent and capability

Principal Risks page 50.

We believe we have a sustainable business model which will create value for all our stakeholders over the long term. See our viability statement on page 55.

1 Anticipate the needs of our customers

We maintain a high degree of customer intimacy in order to anticipate and understand the future power needs of our customers, building on our years of experience in delivering for our markets. Our strategic planning processes match customer expectations with market insight to forecast trends, opportunities and threats which we must adapt to meet.

2 Develop cutting-edge technologies

We act as a global technology sponsor, drawing upon expertise inside and outside our organisation. In 2019, we invested £1.46bn in gross R&D, supported by governments around the world, enabling our engineers to generate cutting-edge technologies, vital intellectual property, and 830 new patents approved for filing. We draw upon the skills of our 29 University Technology Centres and utilise the expertise of our partners, with over 500 companies within our digital ecosystem.

3 Design solutions

We harness the potential of digital technologies and design thinking to create solutions that generate the greatest value from our cutting-edge technologies. This activity is supported by the team within our data innovation catalyst R^2 Data Labs. We produce digital twins in order to test our hypotheses and then validate our results through a rigorous physical testing regime. Dynamic technology management enables us to leverage, attract and recycle capital for innovation.

4 Develop world-class production capability

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

5 Grow installed original equipment base

Increasing our installed base of products generates both in-year growth and the potential for our business to capture long-term service revenue. To give our business access to these growth opportunities, we strive to deliver new product introductions on time and on budget. In line with our strategic aim to vitalise existing capabilities, we also continually look for ways to reduce the time and resource expended on producing existing products, and roll-back new technologies from new programmes into legacy products as appropriate. Operational excellence is key throughout.

In our Civil Aerospace business, we have been growing our in-service fleet for over two decades and, towards the end of 2019, we had over 5,000 widebody engines in service, more than a 50% increase in a decade.

6 Capture through-life value of in-service products

Our customer relationships are our greatest strength. We offer our customers a combination of advanced technologies, in a complete systems solution, optimised throughout its life.

The service innovation we introduced with TotalCare into the Civil Aerospace widebody market gave us expertise which we drew upon to create innovative aftermarket solutions in other parts of the Group, generating returns over many years. These include CorporateCare in business aviation and MissionCare in Defence. Power Systems is now also leveraging the aftermarket potential of its installed base. In legacy products, we also offer more traditional aftermarket services, such as spare parts.

7 Generate stakeholder value

Our activities are global, complex and touch upon a wide variety of stakeholders. From investors, employees, customers, suppliers and partners, to communities, local and national authorities, regulatory bodies and armed forces, we aim to create trusted relationships. We must understand the needs of all our stakeholders and continue to deliver value, to build a resilient business.

Value creation for our stakeholders

Customers

We develop product solutions that improve the competitiveness of our customers.

Gross R&D expenditure

£1.46bn

See Technology page 42.

Investors

We generate attractive returns for investors over the long term.

Three-year total shareholder return

11%

See Remuneration Committee Report page 102.

Employees

We create an environment where our employees are able to be at their best.

Invested in training and development

£28.7m

See People and Culture page 45 and Non-Financial KPIs page 15.

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

96,000

See People and Culture page 45.

See Stakeholder Engagement page 70.

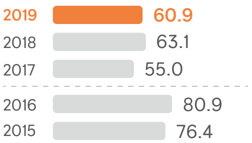
KEY PERFORMANCE INDICATORS

Financial key performance indicators *,†

See Other Financial Information page 205 for additional commentary on our financial KPIs.

Order backlog

£60.9bn



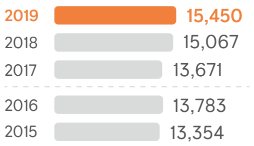
How we define it
Total value of firm orders placed by customers for delivery of products and services. This KPI is the same as the statutory measure for order backlog.

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

Link to remuneration
Customer orders drive future revenue growth which in turn, enables profit and cash flow growth. Profit and free cash flow performance are the key financial metrics in both the annual bonus plan and long-term incentive plan (LTIP).

Underlying revenue

£15,450m



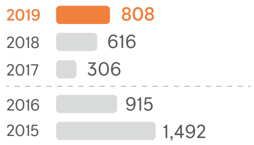
How we define it
Revenue generated from operations at actual rates of foreign exchange including achieved hedge rates in the year. See note 2 on page 139 for a reconciliation to statutory reported revenue.

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

Link to remuneration
Underlying revenue growth maximises the opportunity to improve profit and free cash flow performance in the year, both of which are key financial metrics in the annual bonus plan and LTIP.

Underlying operating profit

£808m



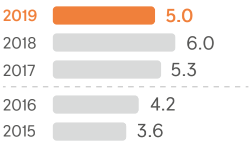
How we define it
Profit generated from operations at actual rates of foreign exchange including achieved hedge rates in the year. It excludes exceptional and one-off items. See note 2 on page 139 for a reconciliation to statutory reported operating profit.

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

Link to remuneration
Profit and EPS are key financial performance measures for our annual bonus plan and LTIP.

Capital expenditure as a proportion of underlying revenue

5.0%



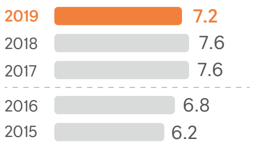
How we define it
Cash purchases of property, plant and equipment in the year relative to underlying revenue. There is no statutory equivalent to this KPI.

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

Link to remuneration
Disciplined allocation of capital expenditure optimises in-year profit and cash flow performance without compromising longer-term growth. Metrics in our LTIP reward strong financial performance through EPS, CPS and TSR over the three-year life of the plan.

Self-funded R&D as a proportion of underlying revenue

7.2%



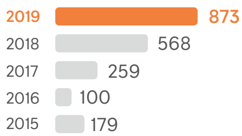
How we define it
In-year self-funded cash expenditure on R&D before any capitalisation or amortisation relative to underlying revenue. There is no statutory equivalent to this KPI.

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

Link to remuneration
Disciplined control and allocation of R&D expenditure optimises in-year profit and cash flow performance without compromising long-term growth through innovation. There is a balance of metrics in our LTIP which reward strong financial performance through EPS, CPS and also relative returns to our shareholders through TSR over the three-year life of the plan.

Free cash flow

£873m



How we define it
Cash flow generated from our business activities in the year before M&A, SFO payments, foreign exchange and payments to shareholders. Cash flow is our statutory equivalent, see note 28 on page 179.

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

Link to remuneration
Free cash flow is our key financial metric in the annual bonus plan, accounting for 50% of the overall targets. CPS is a key driver for our LTIP.

* Following the adoption of IFRS 15 *Revenue from Contracts with Customers* in 2018, the 2017 figures have been restated. Dotted lines separate pre and post IFRS 15 figures on all affected KPIs.
† The adoption of IFRS 16 *Leases* in 2019 had no material impact on our financial KPIs, see page 181 for more information.

Free cash flow per share

45.9p

2019	45.9
2018	30.6
2017	14.1

How we define it
Free cash flow in the year divided by the average number of shares in issue in the year. This measure was introduced in 2018. There is no statutory equivalent to this KPI.

Why it is important
Cash flow per share ensures alignment with shareholder interests and is a key measure of the economic performance of our business.

Link to remuneration
CPS is the largest driver of the LTIP at 60% of the total.

Cash return on invested capital (CROIC)

12%

2019	12%
2018	12%
2017	13%

How we define it
CROIC is calculated as free cash flow divided by invested capital in the year. See page 205 for a full definition of invested capital. This measure was introduced in 2018. There is no statutory equivalent to this KPI.

Why it is important
CROIC ensures we invest in programmes and projects which optimise returns for our shareholders with the correct balance between long-term and short-term value.

Link to remuneration
A key driver of CROIC is free cash flow, which is also an important financial performance measure for our annual bonus plan and LTIP.

Non-financial key performance indicators

Customer metric

38% *

How we define it
In 2019, we introduced a new balanced scorecard of metrics for each business. The scorecard includes on-time delivery, aircraft on ground and engine availability amongst other indicators. The aggregate outturn is used to determine the customer element of our bonus plan. See page 96 for more information.

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
The customer metric accounts for 12.5% of the target bonus in our annual bonus plan.

* Metric is 38% of target (100%), 19% of maximum (200%).

Employee engagement

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. See page 46 for more on our change of approach this year.

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

Link to remuneration
Employee engagement performance against our target accounts for 12.5% of our annual bonus plan.

FINANCIAL REVIEW

STEPHEN DAINTITH, CHIEF FINANCIAL OFFICER

Although much remains to be done on our journey to transform and improve the Group, 2019 was a year of good progress and a critical step towards our 2020 and mid-term ambitions.

Overview 2019

After a challenging first half of the year, we had a good end to the year and generated a strong level of free cash flow of £873m, delivered on our restructuring plan and made good progress on the key value drivers in Civil Aerospace. These achievements were made despite the ongoing operational and financial headwinds caused by in-service issues with the Trent 1000.

Overall, Group revenue rose by 7% with Group operating profit of £808m, an increase of £192m versus 2018. We achieved or exceeded our revenue growth and profit margin guidance for each of our core businesses. Civil Aerospace achieved a record number of widebody engine deliveries and returned to profitability. Power Systems demonstrated resilient revenue growth and good margin expansion despite certain end-market challenges. Defence achieved an impressive 1.6x book-to-bill ratio and healthy cash performance while ITP Aero achieved good progress.

Although progress on inventory reduction fell short of our ambitions, we delivered further improvements on the fundamental drivers that underpin our improving cash flows and returns:

- in Civil Aerospace further steps were made in reducing OE unit losses on widebody engines, which fell by 14% to £1.2m, led by 22% progress on Trent XWB-84 unit losses;
- our large engine aftermarket cash margin improved by £0.3bn, led by the 7% growth in large engine flying hours allied to the strength in spare parts sales, which more than outstripped higher shop visit volumes; and
- we delivered a 4% reduction in commercial and administrative (C&A) costs and we maintained disciplined capital allocation with combined R&D and capital expenditure 11% lower at £1.9bn reflecting lower capital spend due to completion of several facility modernisation projects.

We achieved further progress on our restructuring plan, with a further 1,600 net reduction in headcount in 2019 across a variety of overhead functions. Our cumulative headcount reduction since the start of the programme has now reached 2,900 and we remain committed to our ambition of a total 4,600 reduction by the end of 2020.

Finance has embraced its own role in the drive to transform our organisation; we have rolled out new, more agile forecasting tools across our businesses, improved the quality of our finance data and management information and improved a number of key processes. An area of particular focus is simplifying the structure of our underlying systems and improving our data flow to enable better management information. We still have much to do and I am determined that we will build further on this in 2020.

We delivered another step in 2019 to improve the Group's net funds position, which reached £1.4bn (excluding lease liabilities), up from £0.8bn in 2018. We made further progress on refining our portfolio, completing the disposal of Commercial Marine, with net proceeds of £350m, and Power Development. We also announced the sale of two further small businesses. We completed the acquisition of Siemens' eAircraft business in October and since the year-end we have announced the acquisition of a majority stake in Qinous.

Both of these deals are helping us to accelerate our electrification and hybrid capabilities.

Although our credit rating currently sits below our aspiration of single A, we have strong levels of liquidity and, led by improving cash generation, we are confident in our ability to strengthen our rating over the coming 12 to 18 months. Our ambition is to return shareholder payments to a more appropriate level over time.

2020 outlook

Building on the strength of our performance in 2019, we are well positioned to deliver further progress in 2020. We expect around 15% growth in operating profit with at least £1bn of free cash flow. There are macro risks to navigate in 2020, notably the outbreak of the COVID-19 virus which is currently having an effect on world trade, travel, and supply chains. We are actively monitoring the situation and taking appropriate actions. Our guidance excludes any material impact from COVID-19 as the situation is still evolving.

Progress on restructuring

Headcount (# FTEs)	FY17 actual	FY18 actual	**FY19 actual**	FY20 (programme total)
Indirect & engineering	29,529	28,147	**26,606**	<25,000
Net cumulative reduction		*~1,300*	***~2,900***	*~4,600*
Run-rate savings at period end		£81m	**£269m**	£400m

Longer-term outlook

We remain committed to delivering significantly higher levels of returns in terms of operating profit margin, free cash flow and cash flow return on invested capital (CROIC). Key drivers of this remain: further reduction in widebody OE engine losses in Civil Aerospace; future increases in our aftermarket cash margin; and ongoing growth in Power Systems and Defence.

Improved returns must be achieved despite our ongoing investment in new, more efficient aero engines in Civil Aerospace and the pursuit of programme and market opportunities in Power Systems and Defence.

After our strong 2019 performance, we remain confident in our mid-term ambition to deliver free cash flow per share of over £1, more than £1.9bn, and to generate annual CROIC of 15% through the cycle.

DEFINING OUR ALTERNATIVE PERFORMANCE MEASURES

Business performance is reviewed and managed on an underlying basis. These alternative performance measures reflect the economic substance of trading in the year, including the impact of the Group's foreign exchange activities. The tables to the right summarise the adjustments between reported and underlying results for revenue and operating profit. For more information on these reconciliations, see note 2 on page 139.

Similarly, you can find reconciliations to statutory measures for free cash flow in note 28 on page 179 and underlying EPS in note 26 on page 144.

Free cash flow

Cash flow generated from our business activities in the year before M&A, SFO payments, foreign exchange and payments to shareholders.

Underlying EPS

Underlying profit after tax in the year divided by the average number of shares in issue in the year.

Revenue

£m	2019	2018
Reported measure		
Reported revenue	16,587	15,729
Underlying performance measure		
Reported revenue	16,587	15,729
Derivative and FX adjustments	(1,137)	(781)
Other underlying adjustments	–	119
Underlying revenue	15,450	15,067

Profit

£m	2019	2018
Reported measure		
Reported operating (loss)	(852)	(1,161)
Underlying performance measure		
Reported operating (loss)	(852)	(1,161)
Business disposals	139	358
(Loss) before financing & taxation	(713)	(803)
Derivative & FX adjustments	(144)	24
Programme exceptional charges	1,409	976
Restructuring exceptional charges	136	317
Acquisition accounting & M&A	24	(183)
Impairments & asset write-offs	84	155
Other underlying adjustments	12	130
Underlying operating profit	808	616

Core trading summary

The income statement table below and all commentary relate to the underlying performance of our core business and percentage or absolute change figures in this document are on an organic basis, unless otherwise stated.

Summary income statement – Core businesses [1]

£m	2019 [2]	2018 [2,3]	Change	Organic change [4]
Underlying revenue	**15,261**	**14,286**	**+7%**	**+6%**
Underlying OE revenue	7,373	7,172	+3%	+3%
Underlying services revenue	7,888	7,114	+11%	+10%
Underlying gross profit	**2,342**	**2,240**	**+5%**	**+4%**
Gross margin %	*15.3%*	*15.7%*	*-40bps*	*-40bps*
Commercial and administration costs	(938)	(977)	-4%	-4%
Restructuring	(15)	(14)	+7%	+7%
Research and development charge	(688)	(650)	+6%	+5%
Joint ventures and associates	109	32	+241%	+222%
Underlying operating profit	**810**	**631**	**+28%**	**+25%**
Underlying operating margin	***5.3%***	***4.4%***	***+90bps***	***+80bps***
Financing costs	(223)	(148)	+51%	+49%
Underlying profit before tax	**587**	**483**	**+22%**	**+17%**
Tax	(281)	(153)	+84%	–
Underlying effective tax rate	*47.9%*	*31.7%*	–	–
Underlying profit	**306**	**330**	**-7%**	**-12%**
Underlying earnings per share	**15.9**	**17.3**	**-1.4p**	**-2.4p**

[1] Core includes Civil Aerospace, Power Systems, Defence and ITP Aero.
[2] Underlying: for definition see note 2 on page 134.
[3] The financial information for the prior period has been restated to reflect the treatment of our North America Civil Nuclear business as non-core. See note 1 on page 125 for more details.
[4] Organic change at constant translational currency (constant currency) by applying FY 2018 average rates to 2019 and 2018 numbers excluding M&A. All commentary is provided on an organic basis unless otherwise stated.

Revenue up 6%

Revenue increased by 6% to £15,261m reflecting growth in both OE and services, led by Civil Aerospace and Power Systems. Civil Aerospace delivered OE revenue growth of 4% reflecting higher widebody engine volumes. Services revenue in Civil Aerospace rose 14% with increased shop visit volumes and higher sales of spare parts. Power Systems achieved 4% OE revenue growth due to strength in power generation markets, notably for data centres, and 4% services growth including increased long-term service agreement (LTSA) penetration. Defence revenue was 1% higher led by 4% growth in services driven by increased activity in transport and combat. ITP Aero revenue increased 21% reflecting volume growth largely across its civil programmes.

Gross profit up 4%

Gross profit was £2,342m, up 4%. Civil Aerospace gross profit improved by 25% reflecting several key factors:

— increased sales of spare parts and higher LTSA servicing activity;

— a material improvement in the net impact of contract catch-ups to LTSA profits at £33m in 2019 (2018: £(276)m), driven primarily by lower servicing costs in business aviation; and

— modestly lower LTSA underlying gross margins, reflecting shop visit mix, and around £70m of FX related headwind principally reflecting the revaluation of USD creditors and deposits.

Power Systems generated a 6% gross profit improvement with a gross margin of 26% driven by volume growth and improvements in product mix. As expected, Defence gross profit reduced by 6% with margins 160bps lower, reflecting product mix. ITP Aero gross profit increased by 33% with margin improvement of 200bps, driven by higher OE volumes, improved pricing and a circa £25m benefit from the impact of a change made to simplify ITP Aero's trading relationship and contractual terms with Civil Aerospace. This was net neutral at the Group level, with a corresponding increase in eliminations.

C&A costs down 4%

C&A costs reduced by 4% to £938m. This reduction was driven by restructuring programme headcount savings and management actions to reduce discretionary spend, partly offset by cost escalation and higher sales-related activities in Power Systems.

Self-funded R&D cash spend up modestly; charge to profit 5% higher

Gross R&D spend was up £70m. After funding from customers and other third parties, core self-funded cash spend was £3m higher at £1,108m. Investment in Civil Aerospace widebody and new business aviation programmes was lower following the recent entry into service of several new engine programmes. New technology investment increased by 9%, to develop technologies that underpin UltraFan in Civil Aerospace, a range of new programmes in Defence and electrification in Power Systems. R&D capitalisation of £468m was £28m lower. Capitalisation remains at a significant level due to the current development stage of several Civil Aerospace programmes but is expected to reduce in 2020 and over the coming years. The net charge to profit increased by £35m reflecting higher spend and the reduction in capitalisation.

Profit from joint ventures and associates

Our share of results from joint ventures was £109m, £71m higher than the prior year. This was driven by increased servicing activity in overhaul bases and higher profit on disposal of engines in Rolls-Royce & Partners Finance (our engine financing joint venture).

Operating profit up 25%

Operating profit improved by £157m on the prior year to £810m, led by the £85m increase in gross profit, higher joint venture profit and a £37m reduction in C&A costs, partially offset by the higher R&D charge outlined above.

Financing costs

Financing costs increased from £(148)m in 2018 to £(223)m in 2019. Within financing costs, net interest payable of £(132)m increased by £60m largely due to the adoption of IFRS 16. Other financing costs were £(91)m in 2019, modestly higher than the previous year (2018: £(76)m). Other financing costs include charges relating to the factoring of receivables and the discounting of prior year provisions.

Taxation

The core underlying tax charge was £281m (2018: £153m), an underlying tax rate of 47.9% compared with 31.7% in 2018. This increase in rate was primarily driven by the non-recognition of a deferred tax asset on UK losses arising in 2019.

Trent 1000

The Trent 1000 is 13% of our widebody engine fleet. We made good progress on resolving the technical issues in 2019; we have now designed eight of the nine component fixes required, seven of which have been certified. The intermediate pressure turbine fix is now fitted to almost 100% of the in-service fleet across all engine variants. The revised intermediate compressor has now been fitted to over 50% of Package C engine variants and has now been certified for the TEN variant with the Package B planned for the second half of 2020. Roll-out of the revised high pressure turbine blade has been embodied into almost 50% of Package B and C engine variants and design work for the TEN high pressure turbine (HPT) blade continues to progress well with certification expected in the first half of 2021.

We continue to regret the disruption caused to our customers from these issues. We are taking further positive steps in 2020 to increase availability of spare engines and further expand maintenance capacity to reduce the number of aircraft on the ground (AOG) to below ten by the end of the second quarter 2020. We have seen positive results from our actions in the first two months of 2020 with AOG reduced to the mid-30s from the elevated level of 42 in the second half of 2019, which had resulted from the proactive actions taken in autumn to retrofit the small number of remaining Package B intermediate pressure turbine modules.

In November, we announced the outcome of recent testing and a thorough technical and financial review of the Trent 1000 TEN programme following the issues identified during 2019. This resulted in a revised timeline and durability estimate for the improved TEN HPT blade. As a result we expect total in-service cash costs across all Trent 1000 variants of around £2.4bn across 2017–2023, consistent with the trading update in November. In 2019, £578m of cash costs were incurred, partly offset by a £173m insurance receipt. We continue to expect cash costs of £450–£550m in 2020 and a similar level in 2021, before declining significantly thereafter. These primarily comprise the cost of replacing affected parts as well as customer disruption related compensation.

Outside of these in-service costs, we are also investing in our engineering function, further expansion of our MRO capacity and our pool of Trent 1000 spare engines. Additionally, the increased costs associated with our revised estimate for HPT blade durability on the TEN has impacted the future margins on our Trent 1000 contracts, including a small number of contracts now becoming loss making (see below).

As guided in November, an exceptional charge of £1,361m at underlying FX rates was recorded in 2019 on the Trent 1000 (net of £173m insurance receipts). Within this charge, £703m is due to the additional cash costs associated with customer disruption and remediation shop visits. The remaining £658m relates to the margin impact of our updated HPT blade durability expectations on the TEN, primarily the up-front recognition of future losses on the small number of contracts which are now loss making, as well as related contract accounting adjustments.

Exceptional restructuring programme

Progress was made in 2019 on our restructuring plan. To date we have achieved a net headcount reduction of around 2,900 with run-rate savings of £269m. Cash costs of £216m were incurred during the year to deliver this plan, which are reported outside of free cash flow. We continue to expect run-rate savings of circa £400m by the end of 2020 and a net headcount reduction of 4,600.

Strategic review of Bergen

As part of our ongoing efforts to evaluate our portfolio and create a simpler, more efficient Group, on 28 February 2020 we announced the decision to carry out a strategic review of Bergen, our medium-speed gas and diesel engine business. Bergen formed part of Power Systems during 2019, but from 2020 (as a result of this review) it will be reclassified as non-core. Additionally, following a reassessment of the order book, an impairment review has been completed in the second half of the year and a charge of £58m has been recorded outside underlying results in 2019. In 2019, Bergen generated sales of £239m and an underlying operating loss of £(18)m.

A380 cessation costs

In our full year 2018 results, we took a preliminary view of costs relating to Airbus' decision to close the A380 production line. During the first half of 2019, we had the opportunity to update our impact assessment and as a result recorded an additional exceptional charge of £59m. This charge has been reduced to £48m at the year-end following the release of £11m relating to supplier amounts recorded in 2018.

IFRS 16 *Leases*

IFRS 16 is effective for the year beginning 1 January 2019. Commitments for operating as well as finance leases are now recognised on the balance sheet. The impact of the standard is as follows:

- on 1 January 2019 an additional lease liability of £2,248m and lease assets of £2,213m were recorded on the balance sheet;
- in the income statement rental payments (previously included within operating costs) are now replaced with a depreciation charge on the leased assets. Underlying financing costs on lease liabilities increased from £5m in 2018 to £77m in 2019 due to the new liability;
- there is no impact on free cash flow resulting from the implementation of IFRS 16; and
- we estimate the overall impact of the adoption of IFRS 16 in 2019 was approximately a 2p reduction in underlying EPS.

Group trading summary

Group results include core and non-core businesses. Group underlying revenue rose 7% to £15,450m, primarily driven by growth in Civil Aerospace, offsetting a (76)% decline in non-core revenue. Group underlying operating profit improved by 25% to £808m as a result of improved gross profit, lower C&A costs and higher profit from joint ventures offsetting an increased R&D charge.

Group funds flow

Summary funds flow statement [1]

£m	2019	2018	Change
Underlying operating profit	808	616	192
Depreciation and amortisation	1,068	756	312
Lease payments (capital plus interest)	(319)	–	(319)
Expenditure on intangible assets	(591)	(680)	89
Capital expenditure (property, plant and equipment)	(747)	(905)	158
Change in inventory	(43)	(616)	573
Change in receivables/payables	574	1,197	(623)
Civil Aerospace net LTSA balance change	754	679	75
Of which: underlying change	*654*	*376*	*278*
Of which: impact of contract catch-ups	*100*	*303*	*(203)*
Movement on provisions	(506)	(242)	(264)
Net interest received and paid	(73)	(70)	(3)
Trent 1000 insurance receipt	173	–	173
Other	(41)	22	(63)
Trading cash flow	1,057	757	300
Contributions to defined benefit pensions in excess of underlying PBT charge	(9)	59	(68)
Taxation paid	(175)	(248)	73
Group free cash flow	873	568	305
Of which: Disposed entities [2]	*(41)*	*(78)*	*37*
Group free cash flow (pre disposed entities)	*914*	*646*	*268*
Of which: Non-core businesses [3]	*3*	*(2)*	*5*
Core free cash flow	*911*	*648*	*263*
Shareholder payments	(224)	(219)	(5)
Disposals and acquisitions	410	573	(163)
Exceptional group restructuring	(216)	(70)	(146)
Payment of financial penalties	(102)	–	(102)
Foreign exchange	(98)	54	(152)
Pension fund contribution	(35)	–	(35)
Other	(87)	10	(97)
Change in net funds/(debt) excluding lease liabilities	521	916	(395)

[1] The derivation of the summary funds flow statement above from the reported cash flow statement is included on note 28 on page 179.
[2] Disposed entities include Commercial Marine and Power Development in 2019 and both of these plus L'Orange in 2018.
[3] Non-core businesses include the former Energy businesses not sold to Siemens and North America Civil Nuclear business.

Free cash flow

Group free cash flow of £873m improved materially from £568m in 2018. This was driven by strong profit growth across most of our core businesses, increased engine flying hour receipts and spare parts sales in Civil Aerospace, as well as reduced capital expenditure on several capacity and facility modernisation projects which had neared completion in 2018. Trent 1000 in-service cash costs were £578m (2018: £431m), partially offset by receipt of £173m of related insurance proceeds. R&D investments increased modestly.

In 2019, there was an inflow of £574m (2018: £1,197m) from the movement in receivables and payables, reflecting higher trade payables due to increased trading activity, actions taken to improve overdue debt collection, together with a number of customer deposits notably in Defence. This was partly offset by a £(43)m increase in inventory (2018: £(616)m).

We continue to strive to increase transparency around our financial performance and reported results. As part of this effort, additional information is now provided in note 14 on the sale of trade receivables. For many years, the Group has undertaken the sale of trade receivables, without recourse, to help normalise Group cash flows in line with physical delivery volumes. This practice is commonplace in the aerospace industry. Over the last three years, this has averaged around £1,037m at the year-end. At 31 December 2019, £1,117m had been drawn under factoring facilities, £95m higher than December 2018, which is reflected within working capital.

Given the one-off nature of the restructuring announced in 2018, the £(216)m cash costs relating to this restructuring programme (2018: £(70)m) are reported outside of Group free cash flow.

Depreciation and amortisation

The £312m increase in depreciation and amortisation to £1,068m was largely due to an additional circa £340m charge relating to right-of-use assets following the adoption of IFRS 16 from 1 January 2019.

Lease payments

Lease payments of £(319)m reflect the cash cost of leases in 2019. In 2018, prior to the adoption of IFRS 16, the equivalent lease payments were reflected within underlying operating profit. Under IFRS 16 the depreciation charge is recorded in underlying operating profit.

Expenditure on intangible assets

Intangible asset expenditure of £(591)m was incurred in 2019. This included £(481)m of R&D capitalisation (2018: £498m) largely reflecting ongoing investment in Civil Aerospace programmes including the Trent 7000, Trent XWB and Pearl engine programmes.

Capital expenditure on property, plant and equipment

Investment of £(747)m in 2019 reduced by £158m (2018: (£905m)) due to several capacity and modernisation programmes nearing completion in 2018. Spend in 2019 reflects our ongoing investment in manufacturing capability, projects to modernise our facilities, and spare engines to support our growing in-service fleet in Civil Aerospace.

Change in inventory

Inventory increased by £(43)m (2018: £(616)m) in 2019 due to volume growth in Civil Aerospace and Power Systems, with a significant improvement in the second half following a £(433)m increase in the first half. This inventory position was driven by a high level of assembled engines and aftermarket parts held in Civil Aerospace, as well as growth in Power Systems due to programme delays, production relocation projects, and product mix. Higher delivery volumes and greater focus on supply chain management in the second half of the year drove a significant reduction in inventory, with a strong improvement in Civil Aerospace in particular.

Change in receivables/payables

The change in receivables/payables of £574m in 2019 was significantly reduced year-on-year, and reflected:

- higher trade and other payables due to increased trading activity led by Civil Aerospace;
- a number of customer deposits, notably in Defence driven by strong order intake; and
- an increase in trade and other receivables, which reflected volume-related growth partially offset by actions taken to reduce overdue customer receivables.

Movement in underlying Civil Aerospace net LTSA balance

The net LTSA balance represents deferred revenue and is a core part of our business model where we receive payments from our customers in respect of our long-term service and overhaul agreements. In 2019, the LTSA net balance increased by £754m. This movement included a £100m increase driven by negative contract catch-ups to revenue (2018: £303m). The underlying change, net of these catch-ups, was £654m. This reflected invoiced engine flying hour receipts in excess of revenue traded together with customer deposits received in the year.

Movement in provisions

The movement in provisions of £(506)m in 2019 largely included utilisation of the Trent 1000 exceptional provision. The remainder primarily covered cash costs from onerous contracts and restructuring activity.

Pensions

Cash contributions were in line with the profit and loss charge in 2019. There was a £(68)m year-on-year movement, reflecting the non-recurrence of a 2018 benefit from changing to quarterly payments.

Taxation

The decrease in cash tax in 2019 from £(248)m to £(175)m reflected lower payments in Germany compared to 2018, largely due to timing.

Shareholder payments

Payments to shareholders of £224m in 2019 remained in line with the prior year.

Acquisitions and disposals

In 2019, we completed the disposals of Commercial Marine and Power Development with combined net proceeds of £453m. The £573m cash inflow in 2018 related to the disposal of the L'Orange business, previously within Power Systems. Costs of £43m were incurred in 2019 relating to the acquisition of Siemens' eAircraft business.

Payment of financial penalties

Following the agreements reached with investigating authorities in January 2017, a payment schedule was established. No payments were due in 2018 and a payment of £102m was made in 2019. In 2020 and 2021, £130m and £148m (plus interest) are due respectively. Consistent with prior years this payment is reported outside of free cash flow.

Balance sheet

Summary balance sheet

£m	31 Dec 2019	31 December 2018 Excluding Civil Nuclear	Civil Nuclear	Total	Change excluding Civil Nuclear
Intangible assets	**5,442**	5,278	17	5,295	164
Property, plant and equipment	**4,803**	4,919	10	4,929	(116)
Right-of-use assets	**2,009**	–	–	–	2,009
Joint ventures and associates	**402**	412	–	412	(10)
Contract assets and liabilities	**(8,745)**	(7,074)	1	(7,073)	(1,671)
Working capital [1]	**(1,136)**	(1,263)	8	(1,255)	127
Provisions	**(2,804)**	(1,916)	(1)	(1,917)	(888)
Net funds [2]	**(993)**	631	(20)	611	(1,624)
Net financial assets and liabilities [2]	**(3,277)**	(4,117)	–	(4,117)	840
Net post-retirement scheme (deficit)/ surplus	**(208)**	641	–	641	(849)
Tax	**1,136**	1,024	2	1,026	112
Held for sale	**3**	391	(17)	374	(388)
Other net assets and liabilities	**14**	22	–	22	(8)
Net liabilities	**(3,354)**	(1,052)	–	(1,052)	(2,302)
Other items					
US$ hedge book (US$bn)	**37**	37		37	–
Civil Aerospace LTSA asset	**1,086**	1,097		1,097	(11)
Civil Aerospace LTSA liability	**(6,784)**	(5,584)		(5,584)	(1,200)
Civil Aerospace net LTSA liability	**(5,698)**	(4,487)		(4,487)	(1,211)

[1] Net working capital includes inventory, trade receivables and payables and similar assets and liabilities.
[2] Net funds includes £243m (2018: £293m) of the fair value of financial instruments which are held to hedge the fair value of borrowings.

Intangible assets
The net increase of £164m includes R&D additions of £481m, primarily related to engine programmes in Civil Aerospace £(426)m, together with further investment in software applications of £101m. These were offset by impairment charges of £54m following the announcement of the strategic review of the Bergen business and the sale of the North America Civil Nuclear business in Power Systems. Amortisation for the period was £(318)m.

Property, plant and equipment
Following the adoption of IFRS 16, finance leased assets previously held in PPE have been transferred to right-of-use assets. Capital additions of £767m related to investments in MRO capacity in Civil Aerospace and the modernisation of facilities including our Defence facility in Indianapolis. We also expanded our spare engine lease pool to support our growing in-service widebody engine fleet. These were offset by depreciation of £(491)m.

Right-of-use assets
IFRS 16 was adopted effective 1 January 2019 resulting in the recognition of leased assets with a value of £2.2bn. See notes 1 and 29 in the Consolidated Financial Statements for more information.

Investments in joint ventures and associates
There was no material change in our investment in joint ventures and associates year-on-year.

Contract assets and liabilities
This represents deferred revenue and is a core part of our business model where we receive payments from our customers in respect of our long-term service and overhaul agreements. In 2019, this increased by £(1,671)m, of which £(1,211)m related to the Civil Aerospace LTSA balance. The remainder largely covered advance payments in several businesses. The movement in the Civil Aerospace LTSA balance of £(1,211)m included non-cash items of £557m, primarily related to foreign exchange and the cumulative negative impact of contract catch-ups to LTSA revenue. The change, net of these items, of £(654m) reflected invoiced engine flying hour receipts and customer deposits in excess of underlying revenue traded in the income statement.

Working capital
Working capital increased by £127m. This reflected a financial penalty payment of £102m related to agreements reached with investigating authorities in January 2017, and a £245m reduction in working capital from the settlement of deferred consideration for the acquisition of ITP Aero. These factors offset the reduction in working capital seen in the funds flow.

Provisions
Provisions increased by £888m largely driven by the incremental exceptional charge related to Trent 1000 disruption and related onerous contract losses, partly offset by utilisation.

Net funds
Net funds have moved from a net cash position of £611m in at 31 December 2018 to a net debt position of £(993)m. This was driven by the adoption of IFRS 16, which increased lease liabilities by £(2,248)m. Excluding lease liabilities, net cash stood at £1,361m at 31 December 2019. For other movements see funds flow commentary in note 28.

Net financial assets and liabilities
These items principally relate to the fair value of foreign exchange, commodity and interest rate contracts. The reduction in the net liability of £840m largely reflected settlement of derivative contracts in 2019.

Net post-retirement scheme deficits

The £(849)m movement was primarily driven by the buy-in agreement with Legal & General Assurance Society Limited, which resulted in a decrease in the surplus of the UK pension plan of around £(600)m. There were also changes in financial and demographic assumptions.

USD hedge book

The US hedge book at 31 December 2019 was $37bn. It extends to 2028 on a declining basis and remains sufficient to cover our medium-term requirements.

Group Reported Results

The changes resulting from underlying trading are described in the trading summary below.

Consistent with past practice, we provide both reported and underlying figures. As the Group does not generally hedge account for forecast transactions in accordance with IFRS 9 *Financial Instruments*, we believe underlying figures are more representative of the trading performance by excluding the impact of period-end mark-to-market adjustments. In particular, the USD:GBP hedge book has a significant impact on the reported results. In 2019, the GBP:USD rate rose from 1.28 to 1.32 while the GBP:EUR rose from 1.12 to 1.18. The adjustments between the underlying income statement and the reported income statement are set out in note 2 to the Consolidated Financial Statements. This basis of presentation has been applied consistently.

Reconciliation between underlying and reported results

	Revenue		Profit before financing		Financing		Profit/(loss) before tax	
£m	2019	2018	2019	2018	2019	2018	2019	2018
Underlying*	**15,450**	15,067	**808**	616	**(225)**	(150)	**583**	466
1 Foreign exchange and derivatives	**1,137**	781	**144**	(24)	**75**	(1,984)	**219**	(2,008)
2 Exceptional programme charges	**–**	(119)	**(1,409)**	(976)	**–**	(15)	**(1,409)**	(991)
3 Impact of discount rate charges	**–**	–	**–**	–	**(40)**	–	**(40)**	–
4 Exceptional restructuring charges	**–**	–	**(136)**	(317)	**–**	–	**(136)**	(317)
5 M&A gains & effects of acquisition accounting	**–**	–	**(24)**	183	**(8)**	(8)	**(32)**	175
6 Impairments and asset write-offs	**–**	–	**(84)**	(155)	**–**	–	**(84)**	(155)
7 Net post-retirement scheme financing, pension equalisation & other	**–**	–	**(12)**	(130)	**20**	13	**8**	(117)
Reported	**16,587**	15,729	**(713)**	(803)	**(178)**	(2,144)	**(891)**	(2,947)

* See note 2 on page 139 for further details.

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

1. Foreign exchange and derivatives included the impact of the following:
   - the impact of measuring revenue and profit before financing at spot rates rather than achieved hedge rates
   - mark-to-market adjustments on the Group's net hedge book of £(7)m (2018: £(2,145)m). At each period end, our foreign exchange hedge book is included in the balance sheet at fair value (mark-to-market) and the movement in the year included in reported financing costs; and
   - losses on derivatives settled during the period and the impact of valuation of assets and liabilities using the spot exchange rate rather than the exchange rate that is expected to be achieved by the use of the hedge book
2. Exceptional programme charges relating to the Trent 1000 of £1,361m and Trent 900 of £48m are excluded from the underlying results. These have been explained in note 2.
3. Included in discount rate changes is £30m relating to Trent 900 and £10m relating to Trent 1000
4. Exceptional restructuring costs of £136m (2018: £317m). These are costs associated with the substantial closure or exit of a site, facility or activity related to the significant transformation project that the business is currently undertaking. A number of the projects within the transformation programme are for multiple years. Of the 2019 costs, £88m (2018: £223m) relate to the Group restructuring programme announced in June 2018.
5. The loss before tax of £(32)m (2018: £175m profit) relates to the effects of acquisition accounting £171m (2018: £183m) that principally relate to the amortisation of intangible assets arising on the acquisition of Power Systems in 2013 and ITP Aero in 2017. The Group completed the sale of the Commercial Marine business to KONGSBERG on 1 April 2019 and recognised a profit of £106m in 2019. Rolls Royce Power Development Limited was sold on 15 April 2019 with a gain arising on disposal of £33m. In 2018, we recognised a gain on the sale of L'Orange of £358m. Together with the £183m acquisition accounting effect relating to ITP Aero, this resulted in the £175m profit before tax in 2018. Further details can be found in note 27.
6. On 26 September 2019, the Group announced the sale of the North America Civil Nuclear business and recognised an impairment charge and asset write offs of £26m. Following a reassessment of the Bergen order book and subsequent impairment review, we have recorded a charge of £58m in 2019. Further details can be found in note 2. In our 2018 financial statements, we reported an impairment charge of £155m in relation to the Commercial Marine business being disclosed as held for sale.
7. Following a High Court judgement in October 2018, the estimated costs of equalising UK pension benefits for men and women was recognised as a past-service charge. There is no equivalent charge in 2019.

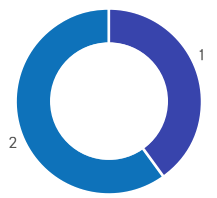
Tax affecting these adjustments resulted in a tax charge of £143m (2018: tax credit of £715m). The charge in 2019 is due to the non-recognition of deferred tax in respect of UK losses in the year. The 2019 charge also includes £86m relating to the derecognition of UK deferred tax assets on foreign exchange and commodity financial assets and liabilities. In 2018, deferred tax was recognised on UK losses resulting in an overall credit in that year.

BUSINESS REVIEW

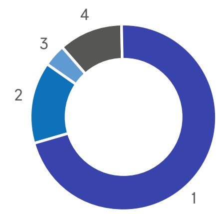
Civil Aerospace

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

Underlying revenue mix



1. OE...40%
2. Services...60%



1. Large Engines...71%
2. Business Aviation...14%
3. Regional...4%
4. V2500...11%

Progress against our 2019 Group priorities

Customers

- Delivered 510 widebody engines to customers (up from 469 in 2018).
- Accelerated efforts to return Trent 1000 fleet to full health, investing in additional spare engines and MRO capacity expansion.
- Successful transition to Trent 7000, smooth EIS and production ramp-up on plan.
- Launched the Pearl 700 engine on Gulfstream G700. Pearl 15 entered service on Bombardier Global 6500.

People and Culture

- Launched Civil Aerospace women's leadership programme targeting leaders who are in their early careers to help them build confidence and capability to succeed.
- Improvements to tools, methods and processes are delivering sustainable engineering efficiencies.
- Restructuring programme on track.

Technology

- UltraFan design freeze and successful tests of the composite fan system.
- Continued testing of the Advance3 demonstrator.
- Completed acquisition of Siemens' eAircraft business.
- Announced partnership with Widerøe to further zero carbon aviation.
- Invested in a new flying testbed for next-generation widebody and business jet engines.

Financial

- Delivered operating profit of £44m.
- Reduced large engine OE unit loss by 14%, including Trent XWB-84 improvement of 22%.
- Increased large engine flying hours by 7%, despite in-service issues on Trent 1000.
- Provided investors with greater clarity on the Trent 1000 programme after detailed engineering and financial review.
- Growth in UltraFan and new technology investment.

Underlying revenue

£8,107m

2018: £7,378m

Underlying operating profit

£44m

2018: £(162)m

Order backlog

£48.5bn

2018: £52.3bn

Civil Aerospace overview 2019

Civil Aerospace delivered a record 510 widebody engines in 2019. We have continued to make progress reducing widebody average OE losses, down by 14% year-on-year to £1.2m. Our large engine installed fleet increased to over 5,000 engines in service, driving a 7% growth in widebody engine flying hours and an increase in aftermarket cash margin of £0.3bn. 2019 saw strong revenue growth of 10% and further significant improvement in underlying operating profit for the business.

Financial overview

Underlying revenue

Underlying revenue increased 10%, reflecting good growth in OE, up 4% to £3,246m and strong growth in services, up 14% to £4,861m. Large engine OE growth of 8% was driven by an increase of 41 in widebody engine delivery volumes to 510. This reflected strong growth in Trent 7000 engines for the Airbus A330neo production ramp-up.

Large engine service revenue increased 20% to £3,205m (2018: £2,666m), driven by higher servicing volumes. Major LTSA shop visits rose 7% to 306 and check and repair visits, led by Trent 1000 activity, increased 16% to 660. Sales of spare parts not covered by LTSAs increased year-on-year. There was also a material reduction in negative contract catch-ups to revenues.

In business aviation, OE sales were 5% higher with deliveries broadly stable at 219 engines (2018: 217 engines) reflecting improved mix, while service revenue increased 2%. Regional aviation service revenue increased 19%, driven by the AE3007 and Tay-powered fleets. V2500 OE revenue was down 72%, due to end-of-life production on the Airbus A320ceo. The 2% reduction in V2500 service revenue reflected a modest reduction in spare parts sales, with the payment from Pratt & Whitney Aero Engines International relating to engine flying hours remaining stable.

Underlying operating result

The underlying operating profit of £44m was an improvement of £195m, reflecting higher gross profit, increased profit from joint ventures and lower C&A costs more than offsetting a 13% higher R&D charge.

Gross profit improved by £121m and gross margin by 90bps. This was driven by increased servicing activity, higher spare parts sales, and a material improvement in the net impact of contract catch-ups to LTSA profits. In 2019, catch-ups had a £33m positive impact on profit (2018: £(276)m).

Financial overview

£m	2019	2018	Change	Organic change
Engine deliveries	**729**	**686**	**+6%**	**+6%**
Underlying revenue	**8,107**	**7,378**	**+10%**	**+10%**
Underlying OE revenue	3,246	3,119	+4%	+4%
Underlying services revenue	4,861	4,259	+14%	+14%
Underlying gross profit	**622**	**493**	**+26%**	**+25%**
Gross margin %	*7.7%*	*6.7%*	*+100bps*	*+90bps*
Commercial and administrative	(299)	(336)	-11%	-11%
Restructuring	(7)	(8)	-13%	-13%
Research and development cost	(374)	(332)	+13%	+13%
Joint ventures and associates	102	21	+81	+78
Underlying operating result	**44**	**(162)**	**+206**	**+195**
Underlying operating margin %	**0.5%**	**-2.2%**	**+270bps**	**+260bps**

Underlying revenue

£m	2019	2018	Change	Organic change
Original Equipment	**3,246**	**3,119**	**+4%**	**+4%**
Large engine	2,568	2,373	+8%	+8%
Business aviation	643	620	+4%	+5%
V2500	35	126	-72%	-72%
Services	**4,861**	**4,259**	**+14%**	**+14%**
Large engine	3,205	2,666	+20%	+20%
Business aviation	477	464	+3%	+2%
Regional	355	292	+22%	+19%
V2500	824	837	-2%	-2%

Metrics

	2019	2018
Widebody engine deliveries	**510**	469
Average loss per widebody OE (£m)	**1.2**	1.4
Large engine in-service fleet	**5,029**	4,757
Large engine invoiced flying hours	**15.3m**	14.3m
Large engine LTSA major refurbs	**306**	286
Large engine LTSA check & repair	**660**	569

This was driven by improvements in servicing costs in business aviation, which was partly offset by a reassessment of costs and utilisation across various widebody programmes. Gross profit was negatively affected by a modestly lower LTSA underlying margin due to the mix of shop visits, circa £70m of FX related headwind principally relating to the revaluation of USD creditors and deposits, and a modest impact from higher customer charges. The profit contribution from spare engine sales was relatively stable year-on-year.

Self-funded R&D cash spend reduced by £18m to £(767)m reflecting lower investment in existing widebody and business aviation programmes and an increase in next generation technology, including the UltraFan demonstrator. Net R&D capitalisation was £60m lower, driven by widebody and business aviation development programme maturity. Overall, the R&D charge to profit increased to £(374)m from £(332)m in 2018.

Underlying C&A costs were 11% lower year-on-year. Joint venture profit of £102m (2018: £21m) reflected increased servicing activity in overhaul bases and higher profit on disposal of engines in Rolls-Royce & Partners Finance Limited (our engine financing joint venture).

TESTING FOR THE FUTURE

Work continued during the year on our UltraFan demonstrator; a world-beating suite of technologies that will redefine the Rolls-Royce jet engine, delivering significant reductions in fuel burn, emissions and noise.

Successful worldwide tests of key technologies have already been completed, ready for flight and ground testing over the coming years.

Next generation engines require next generation testbeds. Testbed 80, the largest testbed in the world, is currently taking shape in Derby, UK. Equipped with precision x-ray equipment, state-of-the-art data systems and the ability to test engines using sustainable aviation fuels, it will allow us to monitor and validate our engines better than ever before. Testbed 80 will be commissioned in 2020.

We are also bolstering our test capabilities in the sky, with the addition of a new flying testbed. In October, we took delivery of a Boeing 747-400 from Qantas, which will now be transformed from a passenger aircraft into an airborne laboratory, capable of testing both widebody and business jet engines. It joins our existing flying testbed, a Boeing 747-200 based in Tucson, Arizona.

Trading cash flow

Civil Aerospace trading cash flow improved £201m to £419m, driven by increased flying hour receipts from our growing in-service engine fleet, increased spare parts sales and lower capital expenditure. Cash costs on Trent 1000 in-service issues of £578m (2018: £431m) were partly offset by insurance receipts of £173m.

Cash inflow from working capital was significantly lower in 2019 notably due to the non-recurrence of a circa £400m benefit from standardisation of supplier payments in 2018. Year-on-year growth in inventory was significantly lower.

Operational and strategic review

Our top priority in 2019 remained securing the return of the Trent 1000 fleet to full health. We made major steps forward in rolling out fixes, expanding maintenance capacity and providing additional clarity to our customers. Much more work remains to be done in 2020. Importantly, we did not allow the Trent 1000 challenge to derail the much needed transformation of our business. Significant progress was also made on near-term operational improvement and we achieved a number of milestones in our longer term strategy to become a leader in the lower carbon future of aviation.

In 2019, we delivered 510 widebody engines, in line with guidance and a record figure for Rolls-Royce. This included the successful ramp-up of the Trent 7000, with 106 engines delivered compared with just eight engines in 2018. We continued to make progress in reducing our large engine average OE unit losses, which fell by 14% to £1.2m during the year, helped by a 22% improvement on the Trent XWB-84. We continue to expect to deliver our first breakeven Trent XWB-84 by the end of 2020. Thanks to these record engine deliveries, our large engine installed base grew by 6% in 2019 and crossed the 5,000 mark to 5,029 engines.

Overall, the performance of our fleet continues to be very strong, with invoiced engine flying hours increasing by 7% to 15.3 million. The Trent 700, the largest part of our installed base at 32%, has crossed 55 million flying hours and continues to deliver excellent performance in fuel burn, reliability and durability. The Trent XWB became our second largest Trent programme by volume in 2019, and has now flown over 5 million hours. As we highlighted in November, fleet-leading Trent XWB-84 engines have reached our original expectations for time-on-wing. The Trent 7000 has made an excellent entry into service, with 80 engines now flying and a dispatch reliability of 99.9%. The Trent 1000 is 13% of our widebody fleet and we continue to work to improve durability and reduce customer disruption. To this end, we announced actions to boost our maintenance capacity and add additional spare engines, with a significant investment in 2020 set to drive around 50% increase in our Trent 1000 spare engine pool. We also gave greater certainty to customers and clarity to investors following an extensive review of the programme. Our focus is now on executing the clear plan we have to reduce AOG and return the fleet to the level of service which our customers expect.

In business aviation, 2019 was a year of milestones. The Bombardier Global 5500 and Global 6500, both powered by our Pearl 15 engine, received EASA and FAA certification. In November, we also announced the new Pearl 700 to power the upcoming Gulfstream G700. The Pearl family now powers two airframer platforms, bolstering our position as the leader in the large cabin, long-range market.

Our transformation and cost reduction efforts accelerated during the year, and Civil Aerospace made the largest contribution towards the Group's 1,600 net headcount reduction in 2019. The removal of roles was enabled by increased use of digital technologies, largely in engineering, simplification of processes and removal of duplication.

We are determined to seize the opportunity to become a leader in the provision of lower carbon air power. This means not only improving our existing gas turbine technology to be more fuel efficient with lower carbon emissions, but also pioneering future technologies that will enable a low carbon future for aviation. We reached an important milestone with a design freeze on UltraFan, which will be 25% more efficient than original Trent engines and 10% more efficient than the Trent XWB, the world's most efficient large engine in service today. We also carried out successful tests of the composite fan system, a key technology enabler for UltraFan to reduce weight and increase fuel efficiency.

On future technologies, we have taken significant steps towards increasing our capabilities in hybrid electric propulsion. During the year we acquired Siemens' eAircraft business and achieved major milestones in three of our key electric demonstrator programmes:

- in August, we began ground tests of our 2.5MW generator in Norway. This forms part of our E-Fan X project with Airbus, the largest hybrid aircraft demonstrator in the world;
- in November, we announced a flight demonstrator based on our hybrid M250 propulsion system with APUS and the Brandenburg University of Technology, paving the way for experimental flights after 2021; and
- in December, we unveiled the plane which will seek to break the speed record for an all-electric aircraft in 2020 as part of our ACCEL programme (see page 42).

Civil Aerospace outlook

During the year, we booked a net widebody order intake of 213 engines. As a result, our widebody backlog at the end of 2019 was 1,978 engines, providing good visibility on our deliveries in the coming years and driving continued growth in our installed base. The long-term trends supporting air traffic growth remain intact, though the outbreak of COVID-19 represents a near-term macro risk. In 2019, approximately 20% of our invoiced engine flying hours were derived from the greater China region. We have a small number of tier one suppliers in the Greater China region, all of whom have resumed operations at the time of writing.

Although currently subdued, we expect an improvement in widebody orders driven by a replacement cycle in the coming years as a growing number of aircraft reach retirement age, including Boeing 777s, Boeing 767s and older Airbus A330s. We believe we are well positioned to continue to win a large share of these orders, having captured 64% of gross order intake and 52% of net orders for widebody engines in 2019. The increase in retirements in the coming years represents a challenge for the industry, but we are favourably positioned due to the younger age distribution of our fleet relative to our competitors. The average age of our widebody in-service fleet is less than eight years, compared to the industry average of 13 years, excluding Rolls-Royce. As a result, we continue to expect strong growth in our installed base in the coming years, which supports growth in our engine flying hours and the widebody aftermarket cash margin.

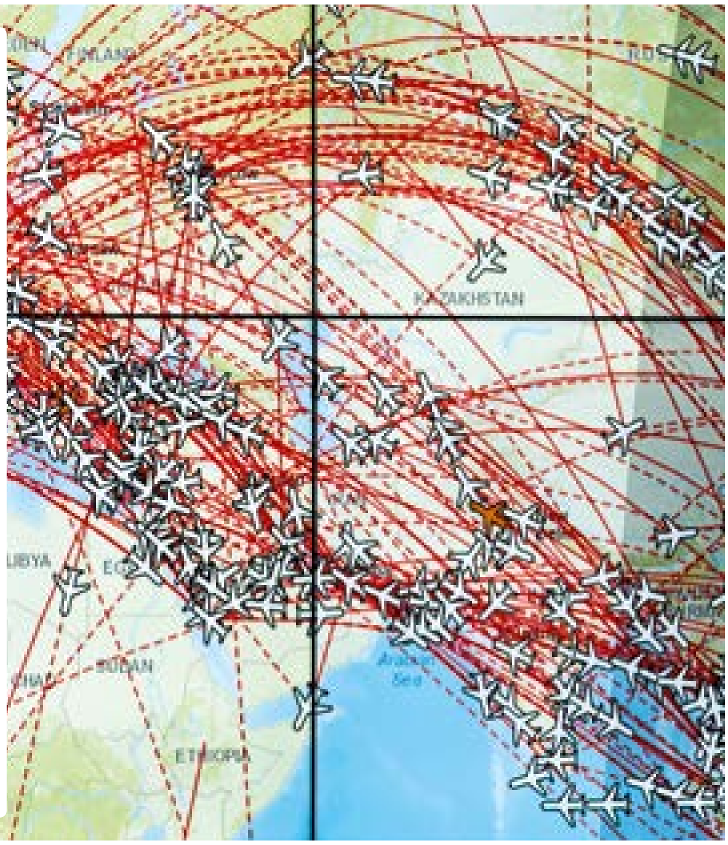
In 2020, we expect stable to low-single-digit sales growth in Civil Aerospace and operating margins 50–100bps higher year-on-year, despite a £100–150m reduction in the level of R&D capitalisation.

DELIVERING INTELLIGENT CARE

Our IntelligentEngine vision of a civil aerospace world in which our products and services are increasingly bound together by data, is spurring us on to develop new service innovations that harness digital capabilities to deliver intelligent care to our customers.

At the heart of this work is our aircraft availability centre, which proudly celebrated 15 years of providing 24-hour care during the year. We have evolved the capability of this centre during that period, further improving our ability to provide proactive support through advanced analytics and inspection techniques that help us ensure every Rolls-Royce powered engine takes off on time, every time.

In 2019, we announced further global expansion of our CareNetwork. This included the development of an additional network of overhaul bases and in-field maintenance, alongside the introduction of innovative repair providers who use new tooling and technology to provide more responsive services closer to customer operations.



PEARL TAKES TO THE SKY

The Pearl 15, the first member of the state-of-the-art Pearl engine family for business jets, officially entered service in September.

The engine, which was developed at our facility in Dahlewitz, Germany, is the exclusive engine option for the newest members of Bombardier's Global business jet family, the Global 5500 and the Global 6500.

Operating environment

Rolls-Royce key differentiators

Our continued development of advanced world-leading technology, culture of partnership with customers, and innovation in services are attributes that Civil Aerospace customers value and are difficult to imitate. These differentiators will maintain our position at the forefront of the civil aerospace industry.

Market dynamics

- Following a period of historically high growth rates, passenger air traffic reverted in 2019 to the long-run average of 4–5% growth per annum. This level is supportive of continued strong engine flying hour growth with utilisation across the Trent fleet remaining high during the year.
- Although currently subdued, we expect an improvement in widebody orders driven by a replacement cycle in the coming years.
- In business aviation, the long-term fundamental drivers of the large-class business aircraft market are good and will be sustained. In the short term, demand has softened in anticipation of customers awaiting new aircraft derivatives, and our airframers' current focus on ramping up deliveries of non-Rolls-Royce powered aircraft.
- 2019 has seen an increased focus on climate change across the world and within the airline industry. We are working with industry bodies towards more sustainable aviation through a number of initiatives.

Opportunities

- The business has a strong and growing market share on widebody aircraft produced by the world's two major aircraft manufacturers: Airbus and Boeing. We believe we are well placed to win a large share of these orders. Our current share of the widebody engine market is 38% of the in-service passenger fleet and is expected to approach 50% by the mid-2020s.
- We expect strong growth in our installed base leading to growth in services and widebody aftermarket cash margin. 90% of the current Rolls-Royce widebody fleet is covered by TotalCare service agreements.
- The Pearl family of engines won its second application with Gulfstream and, alongside the Bombardier aircraft, reinforces and secures our long-term position in the business aviation sector.
- China's COMAC and Russia's UAC joint venture, the China Russia Commercial Aircraft International Corporate (CRAIC) has been formally incorporated. CRAIC plans to develop the CR929, a long-haul widebody aircraft. Rolls-Royce is actively exploring this opportunity.

Business risks

- If our products do not achieve their required technical attributes and maturity, then customer satisfaction, unit costs and aftermarket costs may be impacted and could result in financial and reputational damage.
- If a major product failure in service is experienced, then this could result in loss of life and significant financial and reputational damage.
- If an external event or severe economic downturn significantly reduces air travel, then financial performance may be impacted.
- If aircraft manufacturers significantly reduce production rates or delay increases, or we cannot ramp up capacity to deliver planned production and services, then financial performance may be impacted.
- If our internal or external supply chain is not sufficiently resilient to events that affect our operations, then this could result in significant financial and reputational damage.
- If the business experiences significant pricing pressure in key markets, then financial performance may be impacted.
- If there are significant changes to the regulatory environment for the airline industry, then the market position of the Civil Aerospace business may be impacted.

BUSINESS REVIEW

Power Systems

Power Systems is a leading provider of high-speed and medium-speed reciprocating engines and complete propulsion and power generation systems. It serves the marine, defence, power generation and industrial markets, and includes civil nuclear operations that supply safety-critical systems.

Progress against our 2019 Group priorities

Customers

- Increased engine production by 8%.
- Continued uptake of long-term service agreements; LTSA revenue grew by 6%.
- Opened four new customer care centres and expanded digital service capability.
- Established a dedicated support centre for yacht customers.

People and Culture

- Increased diversity in Power Systems senior leadership. Women now account for 30% of the senior management team.
- Launched our Pioneer Academy to build electrical engineering skills. A first cohort of 100 engineers have started a two-year training programme.
- Opened a new vocational training centre in Friedrichshafen and celebrated 100 years of Power Systems apprenticeships.

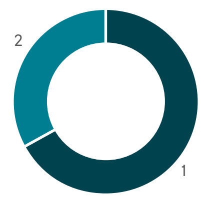
Technology

- First off-grid microgrid contract secured.
- Strategic cooperation agreements signed with GETEC and ABB.
- First orders for hybrid-rail PowerPacks from Iarnród Éireann (Irish Rail) and Porterbrook.
- Partnership with Sunseeker International to introduce hybrid technology to the yacht market.
- Announced a cooperation with Mercedes Benz innovation lab to pilot fuel cell solutions.

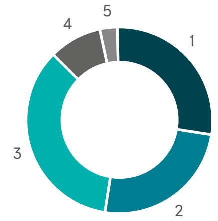
Financial

- OE revenue growth of 4% driven by strong demand in power generation.
- Services revenue growth of 4% reflecting growth in both spare parts and LTSAs.
- Book-to-bill of 1.0x despite challenging market conditions.
- 90bps improvement in operating profit margins to 10.1%.
- Increased spend on hybrid, gas, and hydrogen technology development.

Underlying revenue mix



1. OE 67%
2. Services 33%



1. Marine 28%
2. Industrial 25%
3. Power Generation 35%
4. Defence 9%
5. Civil Nuclear 3%

Underlying revenue

£3,545m

2018: £3,434m *

Underlying operating profit

£357m

2018: £315m *

Order backlog

£2.9bn

2018: £3.1bn

* 2018 figure restated to exclude the North America Civil Nuclear business

STRATEGIC REPORT

Power Systems overview 2019

Power Systems made good progress in 2019, with sales continuing to outgrow global GDP and gross margins improving due to operating leverage and a better product mix. We continued to advance our services strategy, with strong growth in LTSA sales a particular highlight. Order intake was good at £3,415m, a book-to-bill ratio of 1.0x.

Financial overview

Underlying revenue

Underlying revenue of £3,545 increased by 4%, OE revenue was up 4% driven by strong demand for mission critical power generation products, notably to serve the data centre market. This growth more than offset an expected reduction in demand from the construction and agriculture sectors, following the non-recurrence of the emissions-led pre-buy effect seen in 2018.

Services revenue rose 4%, reflecting higher spare parts sales and 6% growth in LTSAs. We continue our focus on generating greater value from our large installed base, both through a more proactive approach to spare parts sales and a greater emphasis on LTSA sales which now account for circa 12% of total service revenues.

Financial overview ^

£m	2019	2018	Change	Organic change
Underlying revenue	**3,545**	**3,434**	**+3%**	**+4%**
Underlying OE revenue	2,386	2,310	+3%	+4%
Underlying services revenue	1,159	1,124	+3%	+4%
Underlying gross profit	**909**	**866**	**+5%**	**+6%**
Gross margin %	*25.6%*	*25.2%*	*+40bps*	*+50bps*
Commercial and administrative	(374)	(363)	+3%	+4%
Restructuring	–	(1)	–	–
Research and development cost	(176)	(188)	-6%	-6%
Joint ventures and associates	(2)	1	–	–
Underlying operating profit	**357**	**315**	**+13%**	**+15%**
Underlying operating margin %	**10.1%**	**9.2%**	**+90bps**	**+90bps**

^ Commentary and figures exclude the Civil Nuclear North America Services business which has been treated as non-core following its disposal in February 2020.

Underlying operating profit

Underlying operating profit rose by 15% to £357m, led by revenue growth. Gross profit was 6% higher at £909m, helped by a 50bps increase in gross margins to 25.6%, due to better product mix. C&A costs of £(374)m were 4% higher year-on-year reflecting cost escalation, additional spend on digital solutions, and higher sales-related activities. The R&D charge reduced by £11m reflecting the timing of key projects, with cash spend modestly higher. In the coming years we expect R&D spend in Power Systems to increase as we ramp up activity on new programme investment and our electrification strategy.

PLUGGING INTO MICROGRIDS

Microgrids have a vital role to play in assisting the world's transition to lower carbon power, by providing security of supply from power generation systems that use renewable energy sources that can be intermittent.

Microgrids are small-scale local power networks in which various energy sources and storage systems – from solar cells, wind turbines and batteries to diesel or gas-powered generator sets – are integrated by means of a smart master controller.

To expand our knowledge of how microgrids function in power generation, during the year we commissioned a microgrid validation centre in Friedrichshafen, Germany, to carry out close-to-reality simulations of a variety of possible configurations.

We are already running our own microgrid at Plant 1 in Friedrichshafen. It consists of photovoltaic panels with 500 kW peak power capacity as well as gas-powered and diesel-powered gensets and an MTU battery container with 2 MWh capacity. It currently delivers 30% of the energy needed at Plant 1 during normal working hours and full coverage at weekends.

MILESTONE FOR INDIAN JOINT VENTURE

Force MTU Power Systems, the joint-venture between India's Force Motors Limited and Rolls-Royce, delivered its first Series 1600 genset to customer Perennial Technologies in 2019.

We have partnered with Force Motors to move the manufacturing of the entire line of MTU Series 1600 engines from Germany to a new manufacturing facility at Chakan, near Pune, India.

The construction of the facility is nearing completion and the first locally made engine is expected to be manufactured by mid-2020. On completion, the facility will produce MTU 10 and 12-cylinder Series 1600 units. These engines are already well-established in the market for power generation and rail applications.

Operational and strategic review

Conditions across our markets were challenging in 2019. Despite this, our financial performance remained robust, supported by a strong order book. A combination of rising energy demand in developing countries and the expansion of renewable energy sources drove orders for flexible power solutions and products such as microgrids, hybrid and gas engines, electrification and energy storage.

In 2019, we delivered 6,580 engines, excluding smaller off-highway engines. This compares to 5,976 deliveries in 2018. Our installed base increased to approximately 146,000 engines (from approximately 142,000 in 2018) which will continue to support replacement demand and drive our growing services revenue.

Power Systems has a key role to play in our drive towards low carbon power across the Group. A number of technologies that will have applications in civil aerospace markets, notably hybrid, electric, and fuel cells, are already being developed and adopted in Power Systems. Significantly, 2019 marked the last year in which Power Systems sold only fossil fuel based power solutions as we reached several important strategic milestones on this journey, including the signing of customer contracts and framework agreements to implement hybrid engine solutions for the rail sector, where we are first to market, and the yacht market, building on our leadership position with the MTU Series engines.

Since October, Power Systems has been operating its own microgrid in Friedrichshafen, which provides over 30% of the energy required for the weekly running of the plant. We successfully received the first orders for our new battery container and microgrid solutions, delivering cleaner and decentralised energy. Together with Lab1886, an innovation lab within the Daimler Group, we started a pilot project to test the use of Mercedes-Benz fuel cell technology for backup power and the supply of energy to data centres. This technology will provide safe, sustainable and emission free energy to one of the world's most significant power consuming industries. Power Systems is also researching more sustainable fuels. During the year, we signed an agreement to construct a demonstration plant to produce synthetic fuels in Brandenburg, Germany.

Continuing our push into life-cycle services, we are placing increased focus on digital services and predictive maintenance. Our digital solutions team was expanded during the year and we established a data and analytics competence centre in Munich, Germany. We also expanded our service network for yachts in La Spezia, Italy. These actions have helped to drive a steady increase in LTSAs, including the signing of a ten-year agreement with Svitzer, a global towage and marine services operator.

Expanding our geographic footprint is a key driver of our ability to outgrow underlying markets. In 2019, we strengthened our position in China, signing agreements for the delivery of more than 700 MTU engines. These included the largest ever single order of MTU gas gensets to supply over 200 MTU Series 4000s to China's VPower. In India, our Force MTU Power Systems joint venture will begin local assembly of Series 1600 engines in the first half of 2020. This enables us to be closer to our customers and to reduce operating costs. In anticipation of this move, we have ceased assembly of MTU Series 1600 engines in Überlingen, Germany.

Investing in our people is vital if we are to continue to position ourselves for growth in new markets including hybrid power. To meet our need for increased electrical engineering capability, 100 mechanical engineers undertook a course in electrical engineering as part of a new project at Karlsruhe University, Germany.

Power Systems outlook

As we enter 2020, the early indication is that conditions in a number of our end markets will remain challenging. However, we aim to out-perform our markets, driven by our strategy to increase services sales and the shift towards new technologies and integrated solutions. We are also continuing our efforts to gain market share in Asia, where Power Systems has previously been underexposed. As a result, we expect to deliver low-single-digit organic revenue growth in 2020 despite this challenging backdrop. We expect margins to improve again in 2020, increasing by 0–100bps as we take another step towards our medium-term target of mid-teens. The outbreak of COVID-19 represents a near term macro risk. In 2019, approximately 10% of Power Systems revenues were derived from the greater China region.

As part of our ongoing efforts to evaluate our portfolio and create a simpler, more efficient Group, we have taken the decision to carry out a strategic review of Bergen, our medium-speed gas and diesel engine business. In 2019, Bergen generated revenues of £239m with an operating loss of £(18)m. From 2020, Bergen will be reported within non-core businesses and has therefore been excluded from our guidance.

Operating environment

Rolls-Royce key differentiators

Power Systems will retain its strong position through technology leadership and a reputation for market-leading product performance and innovation; combined with a systems approach that allows high levels of customisation, supplemented by full lifecycle solutions.

Market dynamics

- Power Systems' presence in a diversity of end markets has helped the business navigate successfully against the backdrop of an increasingly challenging macroeconomic environment; negatively influenced by political developments leading to deferment in investment.
- Uncertainty in the resource markets, especially US fracking, after a strong 2018 dampened the opportunity for new equipment sales, however high utilisation continued to drive aftermarket service opportunities.
- Government regulations with regard to diesel engine emissions in most markets are driving the industry towards innovation. The focus is shifting towards hybrid, hydrogen and electric power solutions as well as renewable energy solutions.
- The civil nuclear market continues to have mixed fortunes, strengthening in areas with set energy policy and financing mechanisms but weakening in other areas where greenhouse gas reductions or security of supply are not being prioritised.

Opportunities

- Rising energy demand in emerging economies, particularly India and China (both large markets despite some recent softening) continue to grow and present significant opportunities for Power Systems.
- Tightening emission regulations in several regions are beneficial to the competitive position of Power Systems' high-end products, such as our Series 4000.
- The trend towards intermittent renewables such as solar and wind as part of a 'green grid' is creating demand for flexible, low-emission gas reciprocating engines. Increasing interest in flexible local energy solutions to reduce carbon emissions also presents significant new opportunities for adjacent growth in areas such as energy storage and microgrids.
- As digital information becomes essential to many economies, the data centre market is witnessing strong growth. Due to its reliability, Power Systems back-up solutions are highly regarded and the opportunity to integrate new product and service offerings into this market is significant.
- Power Systems is well placed to respond to increasing customer demand for new service offerings and propositions such as ValueCare agreements supported by decades of experience in service model innovation.
- Nuclear energy demand remains significant but large-scale projects are proving problematic to finance and construct. Industry interest in new nuclear technology is increasing and we are well placed to respond to this trend.

Business risks

- If the macroeconomic environment worsens (for example a trade war between the US and China), then this could have a material impact on the business.
- If requirements on export licenses and/or local content increase, then this may affect our ability to export to certain markets.
- If other players in the industry consolidate, then they may generate synergies or capabilities that outpace the ability of the business to get new products and services to market.
- If the CO_2 price rises above our expectations and/or the demand for fossil-free power develops faster than anticipated, then this may affect demand for Power Systems products and/or affect margins.
- If new technologies or alternative propulsion concepts emerge, then this may lead to partial substitution or downsizing of diesel engines in certain applications.
- If there is not clarity on UK energy policy and the willingness of UK Government to continue support of SMR development, then continued investment may be called into question.

BUSINESS REVIEW

Defence

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

Progress against our 2019 Group priorities

Customers

- Ramped up LiftSystem production to meet Lookheed Martin F-35B programme demand.
- Increased output from our submarines primary components operations by 300% since 2015; zero arrears in 2018 and 2019.
- Maiden flight of Boeing MQ-25 unmanned tanker, powered by the AE 3007.
- Developing cyber and digital solutions for Boeing B-52 re-engining competition.

Technology

- Launch of a new foreign object debris recording app for NAVAIR and the US Marine Corps.
- Development of aerothermal and electrical power take-off capability in support of Tempest, the UK-led next-generation fighter programme.
- MAPS (Military High Mach Advanced Propulsion System) contract signed with the UK MOD.
- Development of an integrated power and thermal management system for defensive directed energy applications.

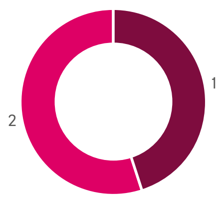
People and Culture

- Launch of Defence diversity & inclusion charter.
- Signed up to the UK's Women in Defence Charter.
- UK Armed Services Covenant Gold Award.
- Approximately 1,400 employees involved in social projects as part of Indianapolis community care week.

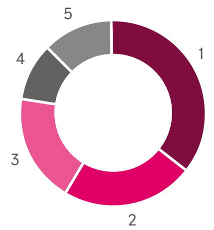
Financial

- Record order intake, with book-to-bill ratio of 1.6x, including propulsion system contract for the Royal Navy's four Dreadnought class submarines.
- Revitalisation of Indianapolis, US facilities nearing completion, on-time and on-budget.
- Continued footprint optimisation with closure of Oakland, US facility.
- R&D investment increased by 5% to support future growth opportunities.

Underlying revenue mix



1. OE 45%
2. Services 55%



1. Transport 36%
2. Combat 23%
3. Submarines 19%
4. Naval 10%
5. Other 12%

Underlying revenue

£3,250m

2018: £3,124m

Underlying operating profit

£415m

2018: £427m

Order backlog

£8.6bn

2018: £6.8bn

Defence overview 2019

Defence had an excellent year for both order intake and cash flows. Record order intake and a 1.6x book-to-bill ratio helped to drive strong cash flow performance and 26% growth in the order book in 2019. Sales were broadly stable and operating profit margins declined by 110bps, as expected, driven largely by a less profitable OE mix and increased investment in R&D to support a number of major new programme opportunities in the coming years.

Financial overview

Underlying revenue

Underlying revenue of £3,250m was up 1% on an organic basis. OE revenue was 2% lower year-on-year driven by fewer deliveries of transport engines due to the phasing of orders, including lower volumes of Trent 700s for multi-role tanker transport (MRTT) aircraft and AE series engines for the C-130J and V-22. These were partly offset by increased volumes for LiftSystem hardware for the F-35B. Service revenue was up 4%, driven by higher LTSA volume for the AE1107 and AE2100 transport engines, together with increased time and materials revenue from EJ200 services.

Financial overview

£m	2019	2018	Change	Organic change
Underlying revenue	**3,250**	**3,124**	**+4%**	**+1%**
Underlying OE revenue	1,461	1,452	+1%	-2%
Underlying services revenue	1,789	1,672	+7%	+4%
Underlying gross profit	**669**	**690**	**-3%**	**-6%**
Gross margin %	*20.6%*	*22.1%*	*-150bps*	*-160bps*
Commercial and administrative	(151)	(170)	-11%	-13%
Restructuring	(7)	(3)	+133%	+133%
Research and development cost	(105)	(100)	+5%	+4%
Joint ventures and associates	9	10	-10%	-10%
Underlying operating profit	**415**	**427**	**-3%**	**-7%**
Underlying operating margin %	**12.8%**	**13.7%**	**-90bps**	**-110bps**

Underlying operating profit

Underlying operating profit of £415m was £28m lower than the prior year, in line with expectations. Gross profit of £669m fell 6%, driven by the lower OE volumes in transport, particularly on the Trent 700 MRTTs, and lower LTSA margins due to the non-repeat of one-off customer settlements in the prior year.

A modest increase in R&D spend of £4m reflected ongoing investment to support future programmes across our Defence portfolio, with a number of attractive growth opportunities in the coming years. C&A costs were £22m lower year-on-year at £(151)m.

Operational and strategic review

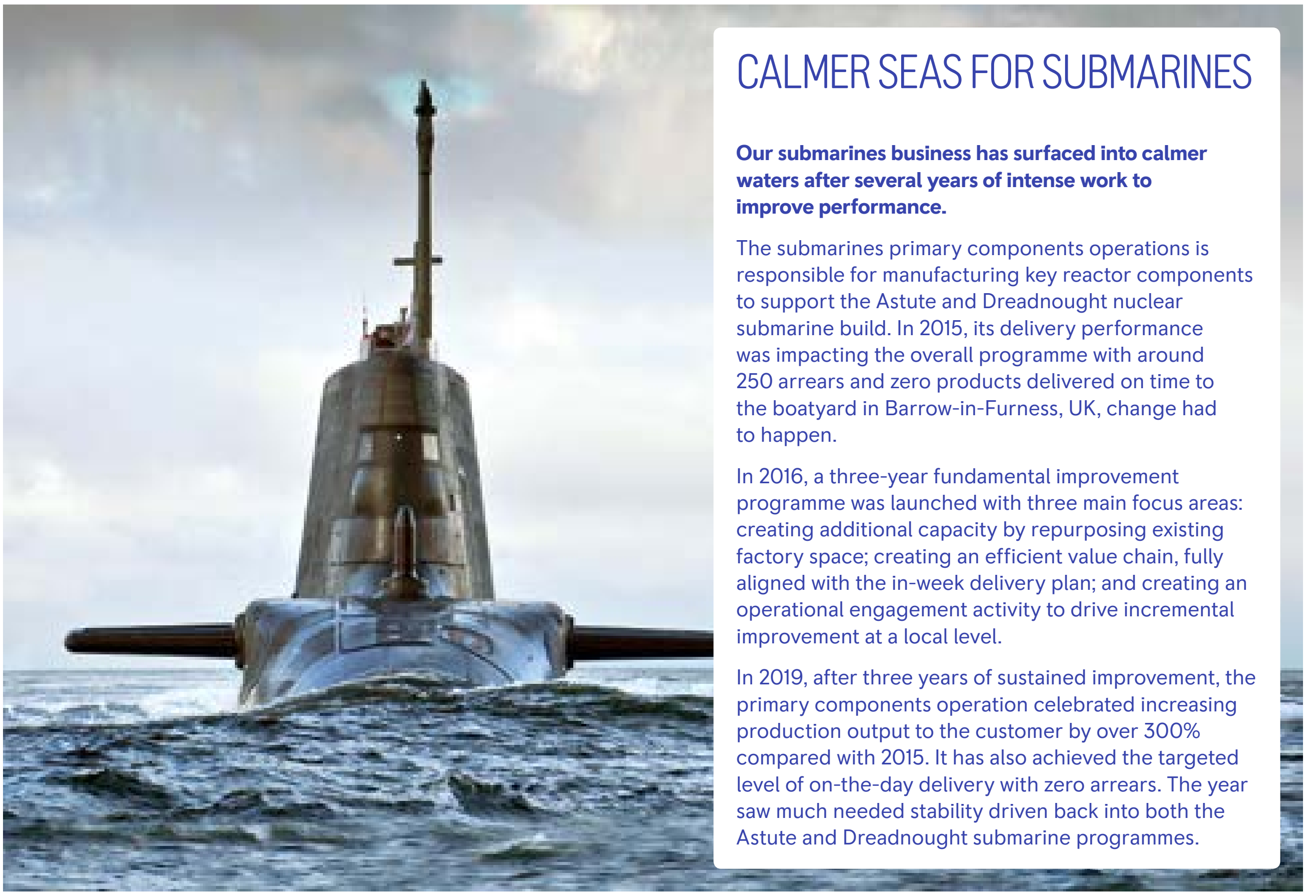
2019 was a very successful year for Defence, with record order intake, strong operational execution, and the achievement of significant milestones in our ongoing R&D projects, which will position the business to grow in the coming years in both transport and combat markets.

Our markets remained stable in 2019. The US continues to represent nearly half of the addressable defence spend globally, while the UK and Europe also remain key markets. We expect higher growth in Asia and the Middle East, driven by regional tensions. While the budget backdrop in our markets

TEMPEST GAINING STRENGTH

Rolls-Royce is playing an integral role in Team Tempest following its launch at the Farnborough Air Show in 2018, with international momentum gathering in 2019 as both Sweden and Italy signed agreements with the UK Government to partner on future combat air requirements.

The programme enables us to continue as pioneers in the combat market, building on technology developments already being demonstrated through successful tests and trials. As part of Tempest, we will deliver a power and propulsion system capability which will provide fully integrated power and thermal management capabilities. The gas turbine remains at the forefront of our contribution and the use of advanced composite materials, additive layer manufacturing techniques and new technologies will deliver a lightweight, more power dense configuration capable of operating at higher temperatures. This enhanced integrated system will result in a more intelligent, more powerful and more electric system, capable of delivering the future power needs of the air vehicle.



CALMER SEAS FOR SUBMARINES

Our submarines business has surfaced into calmer waters after several years of intense work to improve performance.

The submarines primary components operations is responsible for manufacturing key reactor components to support the Astute and Dreadnought nuclear submarine build. In 2015, its delivery performance was impacting the overall programme with around 250 arrears and zero products delivered on time to the boatyard in Barrow-in-Furness, UK, change had to happen.

In 2016, a three-year fundamental improvement programme was launched with three main focus areas: creating additional capacity by repurposing existing factory space; creating an efficient value chain, fully aligned with the in-week delivery plan; and creating an operational engagement activity to drive incremental improvement at a local level.

In 2019, after three years of sustained improvement, the primary components operation celebrated increasing production output to the customer by over 300% compared with 2015. It has also achieved the targeted level of on-the-day delivery with zero arrears. The year saw much needed stability driven back into both the Astute and Dreadnought submarine programmes.

is relatively stable, we see a number of exciting programme opportunities in the coming years, notably in the Tempest combat programme in the UK and in multiple upcoming campaigns in the US market.

Defence had a record order intake of £5.3bn, driving 26% growth in the order book. Book-to-bill in 2019 was 1.6x, taking the cumulative book-to-bill ratio over the last five years to 1.2x. The strength in 2019 was led by services, highlighting the demand driven by our installed base of over 16,000 engines. Key highlights included a five-year contract worth over $1bn to maintain AE1107 engines for the US Marine Corps, which have now reached the service milestone of over one million flying hours. Two UK MOD support contracts were signed; one for Spey naval engines, and one for the maintenance of the EJ200. A multi-year spare parts order was additionally confirmed for our Adour engines in India. OE orders grew, including four Dreadnought powerplants in submarines and a LiftFan OE order for LRIP 12 of the F-35 programme. We continued to leverage our existing installed base with the Series 3.5 upgrade kit for the T56 engine, which secured further orders from the USAF. Fewer than 5% of the C-130 aircraft in service with the US Air Force currently have the Series 3.5 upgrade kit fitted, presenting a significant opportunity for future orders.

We delivered 499 aero engines in 2019. In aerospace, three Bombardier Global 6000s, powered by our BR710 engines, were delivered to the German Special Air Mission Wing and German Air Force. LiftSystem production ramped up to meet F-35B programme demand and the Boeing MQ-25 unmanned aerial refuelling tanker, powered by the AE 3007, completed its maiden flight. In maritime, our 50th MT30 gas turbine came off the production line and we delivered key early components for the first Dreadnought submarine.

Operationally, our submarines business implemented a management restructure, reducing complexity and aligning to the needs of the customer. We continued to invest in US facilities; the revitalisation of our Indianapolis site is nearing completion while a new 24,000 sqft facility in Walpole, Massachusetts is due to be commissioned in late 2020. These actions to improve efficiency are helping us meet customer demand for cost-effective solutions while minimising the impact on our margins.

R&D investment stepped up in 2019 ahead of a period of important upcoming opportunities. We made good progress as part of Team Tempest, for which we are developing a power and propulsion system which will provide fully integrated power and thermal management. We were also awarded a two-year contract by the UK MOD to develop hypersonic propulsion systems. LibertyWorks, our dedicated US defence development unit, successfully demonstrated an integrated power and thermal management system for high-power directed energy applications. We announced an agreement with Bell Helicopter to exclusively develop an optimised propulsion system for the V280 Valor. Over 50,000 hours of engineering analysis, including digital engineering, were devoted to refine our offering for the Boeing B-52 re-engining competition and early engine tests were successfully completed in Indianapolis, US.

Defence outlook

We expect Defence to deliver stable to low-single-digit sales growth in 2020, with stable operating margins. Longer term, supported by the order intake in 2019 and the pipeline of upcoming new programme opportunities, we expect Defence growth to accelerate.

NO PILOT, NO PROBLEM

Boeing and the US Navy successfully completed the first test flight of the Boeing MQ-25 Stingray unmanned aerial refueler in 2019.

The MQ-25 is powered by a single Rolls-Royce AE 3007N engine and flew under the direction of Boeing test pilots operating from a ground control station in the US. The MQ-25 will provide the Navy with a carrier-based, unmanned, aerial refueling capability.

Operating environment

Rolls-Royce key differentiators

Advanced technology, innovation, and collaboration with partners and customers are unique hallmarks of Defence. These differentiators enable successful delivery of products and services tailored to our customers' evolving needs.

Market dynamics

- Long-term defence investment is tied to economic growth while threat levels and politics drive near-term spend; the business expects to see modest growth across the globe in the coming years.
- While higher growth areas exist in Asia and the Middle East, driven by indigenisation and regional threats, the US represents nearly half of addressable defence spend globally.
- Programme wins are generally long-term and as a result barriers to entry are high, which leads to entrenched competitors and aggressive competition for new opportunities.

Opportunities

- There is strong interest in electrification across land, sea, and air platforms; the business is exploring more electric and hybrid-electric propulsion technologies as well as power generation and thermal management for the growing directed energy systems market.
- Combat propulsion remains the largest market segment, with opportunities for current products (LiftSystem and EJ200), UK investment in future combat air technologies (Combat Air Acquisition Programme), and a large US opportunity in the Boeing B-52 re-engining competition.
- In transport, Defence is well positioned for various next generation opportunities, including with Bell on the V-280 Valor for the US Army's Future Vertical Lift programme.
- Building on our success as the preferred gas turbine provider on Australian SEA 5000 and Canadian frigate programmes, Defence is well positioned to capture other large maritime opportunities with the MT30.
- There continues to be strong service growth potential via technology insertion and emerging service opportunities using digital technology and data analytics to generate new solutions.

Business risks

- If a major product failure in service is experienced, then this may result in loss of life and significant financial and reputational damage.
- If global defence spending experiences a significant downturn, then financial performance would be impacted.
- If we do not continue to invest in improving the performance and cost of Rolls-Royce products, then market share may be lost.
- If the business suffers a major disruption in its supply chain, then delivery schedules would be delayed, damaging financial performance and reputation.
- If new applications are not secured, then the business may have to increase investment or accept erosion in capabilities.
- If electrification and digitalisation technology proceeds at a faster rate than expected, then the business may not be positioned to fully capitalise on this potential growth.
- If geopolitical issues arise impacting government-to-government relations or export controls, then our routes to market and regional sales may be impacted.

BUSINESS REVIEW

ITP Aero

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

Progress against our 2019 Group priorities

Customers

- Increased civil aviation module delivery:
  - 20% for Rolls-Royce
  - 40% for other customers
- Invested in a new facility to offer more complex engine externals product capability to customers.
- Certified as only the second company worldwide capable of providing support to the MTR390-E engine.

People and Culture

- Launched transformation project to drive continued improvement of our operating model:
  - increased standardisation across the organisation
  - simplified processes to increase efficiency
- Held CEO engagement sessions at every ITP Aero site around the globe.

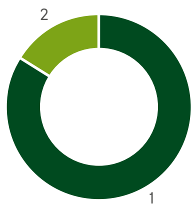
Technology

- Completed aerodynamic testing of the multi-stage intermediate pressure turbine for UltraFan.
- Demonstrated enhanced additive manufacturing capability:
  - delivery of shroud segments for the Trent XWB-84K
  - design of the TP400 rear structure vanes
  - potential for component weight reduction of up to 40% and significant cost savings.

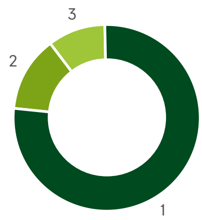
Financial

- OE sales up 19% led by higher volumes on civil aerospace programmes.
- Operating margin grew to 11.9%.
- Investing in capacity expansion in Queretaro, Mexico.
- Actions to improve manufacturing efficiency, including roll-out of additive layer manufacturing capability at Zamudio, Spain.

Underlying revenue mix



1. OE ... 84%
2. Services ... 16%



1. Civil ... 77%
2. Defence ... 13%
3. In-Service Support ... 10%

Underlying revenue

£936m

2018: £779m

Underlying operating profit

£111m

2018: £67m

Order backlog

£0.9bn

2018: £0.9bn

ITP Aero overview 2019

ITP Aero had a strong year. Underlying revenue grew 21% year-on-year, driven by increases in both aftermarket and OE sales for civil aerospace, both on Trent and non-Rolls-Royce engine programmes. Operating profit increased materially to £111m, reflecting revenue growth and improved pricing. ITP Aero's 2019 performance also benefitted from a change made to simplify its trading relationship and contractual terms with Civil Aerospace. This change was net neutral at Group level.

Financial overview

£m	2019	2018	Change	Organic change
Underlying revenue	**936**	**779**	**+20%**	**+21%**
Underlying OE revenue	782	666	+17%	+19%
Underlying services revenue	154	113	+36%	+37%
Underlying gross profit	**206**	**156**	**+32%**	**+33%**
Gross margin %	*22.0%*	*20.0%*	*+200bps*	*+200bps*
Commercial and administration	(61)	(57)	+7%	+9%
Restructuring	(1)	(2)	-50%	-50%
Research and development costs	(33)	(30)	+10%	+10%
Underlying operating profit	**111**	**67**	**+66%**	**+67%**
Underlying operating margin	**11.9%**	**8.6%**	**+330bps**	**+330bps**

Financial overview

Underlying revenue

Underlying revenue was £936m, an increase of 21% over 2018. OE growth of 19% was driven by higher engine volumes on civil programmes, with ITP Aero module deliveries up 20% on Trent engine programmes and 40% higher for non-Rolls-Royce programmes. This was partially offset by a reduction in defence sales. Aftermarket revenue increased by 37% due to higher spare parts sales, largely from Rolls-Royce engine programmes. Revenues also benefitted by circa £50m from a change made to simplify ITP Aero's trading relationship and contractual terms with Civil Aerospace. This was net neutral at Group level.

Underlying operating profit

Operating profit increased materially, by 67% to £111m, led by higher gross profit. This increase was driven by higher OE volumes and improved pricing. Profit also benefitted by circa £25m from the change in ITP Aero's trading terms with Civil Aerospace, with a corresponding negative impact in Group eliminations. C&A costs increased by 9% to £(61)m, and R&D rose by 10% to £(33)m reflecting ongoing investment in aerospace programmes.

Operational and strategic review

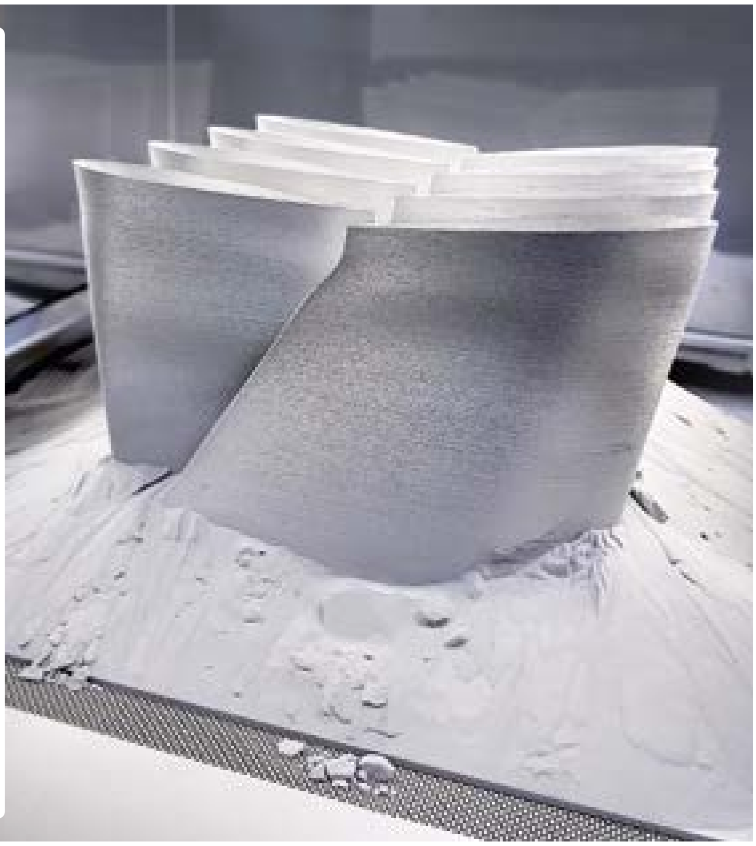
In November, ITP Aero celebrated its 30th anniversary. The business continued to grow, underpinned by strong positions across a range of large commercial aircraft and business jet platforms. In large commercial, we delivered a 20% increase in engine module deliveries for Rolls-Royce widebody programmes and a 40% increase in deliveries to other customers. In business aviation, we continued to see growth through our positions on engine programmes including the PW800 and HTF700.

LOSING WEIGHT WITH ADDITIVE LAYER TECHNOLOGY

During the year, we completed the design process and began production of the first components manufactured by ITP Aero using additive technology – often referred to as 3D printing.

The first parts to emerge are low pressure turbine seal segments for the Trent XWB-84 engine for the Airbus A350 XWB aircraft, and non-structural vanes for the TP400 engine that powers the Airbus A400M military transport aircraft.

ITP Aero has an additive layer manufacturing cell and a team of professionals dedicated exclusively to this technology at our facility at Zamudio, Spain. Thanks to investment in collaborative technology development projects, ITP Aero is able to apply in-house standards and specifications to the application of this technology in aircraft engine components that are subjected to high temperatures in-service. The proprietary design criteria used by ITP Aero is expected to result in a component weight reduction of up to 40% as well as generating significant cost savings.



Good progress was made during the year in the expansion of production facilities to meet rising demand for ITP Aero products. Investment included a new externals facility in Biscay, Spain, focusing on high technology products, and the extension of the externals facility in Queretaro, Mexico. Both sites are now open and fully operational. In addition to adding new capacity, these facilities will further improve our manufacturing efficiency, driving cost reduction across civil and defence engine programmes.

We also achieved important technology milestones in 2019. In June, the first aerodynamic tests of the intermediate pressure turbine for UltraFan were successfully carried out. UltraFan will be 25% more efficient than the first generation of Rolls-Royce Trent engines and 10% more efficient than the Trent XWB, the most efficient civil large engine in service globally.

Other significant milestones in 2019 included producing the first components designed and manufactured using additive technology. Our new additive layer manufacturing cell in Zamudio, Spain, manufactured both the low pressure turbine seal segments for the Trent XWB-84 engine and non-structural vanes for the TP400 engine. Additionally, earlier in the year we were certified as only the second provider of servicing globally for the MTR390-E engine for the Tiger helicopter.

At the end of the year, we strengthened our board and management, including the promotion of Carlos Alzola to CEO and ITP Aero board member.

ITP Aero outlook

We expect continued demand growth on newer, more fuel-efficient engine programmes in both narrowbody and widebody aircraft. We are well placed with strong positions on newer Rolls-Royce Trent engines, as well as the Pratt & Whitney 1000G engines and other non-Rolls-Royce programmes. Longer term, we have secured participation in technology projects that will contribute significantly to sustainable aviation and efficient digital transformation of production processes. These include the investigation and maturation of technologies for hybrid electric propulsion (IMOTHEP), within the EU's Horizon 2020 framework, which is focused on assessing the potential of hybrid-electric propulsion.

Following the very strong performance in 2019, we expect to deliver stable sales and margin improvement of 50–100bps in 2020. Longer term the trends outlined above will drive further good growth in profitability and cash flow.

Operating environment

Rolls-Royce key differentiators

ITP Aero will sustain its strong position through the development of advanced, world-leading technology, a culture of partnership with customers and suppliers, our broad programme portfolio and market access, and well-invested global facilities with advanced and efficient manufacturing.

Market dynamics

- The long-term trends driving demand growth in passenger aircraft remain strong. Growth in air travel is expected to stabilise close to the long-term average of 4–5%.
- Through 2019, the market has seen short-term downward pressure on widebody aircraft but the longer-term outlook remains positive.
- The short-term prospects in the narrowbody and regional markets accessed through involvement in the PW1000G programme are positive. Growth in those markets is driven by the Airbus A320neo ramp up, a trend towards airlines using the longer range A321 on routes previously served by widebody aircraft and the introduction of new regional aircraft products including Airbus A220 and the Embraer E2 family.
- In business aviation, ITP Aero enjoys a route to market as a partner on a number of engine programmes, including the PW800 which powers the Gulfstream G500/600 and Dassault Falcon 6X and the HTF7000 which now also powers the Embraer Praetor 500/600 and Cessna Longitude. Short-term demand in the business aviation sector has softened with the uncertain macro-economic environment but the long-term fundamental drivers are strong.
- With defence budgets rising and the emergence of a number of new programmes, there is potential for growth in the sector.

Opportunities

- Expected growth in widebody installed base driven by Trent engine deliveries.
- Expected growth in single aisle installed based on PW1000G engine deliveries.
- Expected participation in the next generation European Fighter (FCAS) following Spain joining France and Germany on the programme.

Business risks

- If our products do not achieve their required technical attributes and maturity, then product performance, customer satisfaction, unit costs and aftermarket costs may be impacted and could result in financial and reputational damage.
- If a product failed in service, then this could result in loss of life and significant financial and reputational damage.
- If the business suffered a major disruption in its supply chain, then delivery schedules would be delayed, damaging financial performance and reputation.
- If customer programmes were to be delayed into service or experience a cut to production rates, then our financial performance might be negatively impacted.
- If global defence spending experiences a significant downturn, then our financial performance would be impacted.

SUSTAINABILITY

As a leading industrial technology company, our activities have a significant impact on society and the environment. We understand this impact and use that understanding to inform our strategy and decision making.

We believe in the positive power of technology: the products and services we provide play a vital role in connecting, protecting and powering society.

The most significant contribution we can make to a more sustainable society is to reduce the environmental impacts of our product portfolio and accelerate the decarbonisation of the sectors in which we operate, in line with global ambitions to mitigate climate change. This is an integral part of our business strategy.

Our sustainability approach focuses also on the wider impacts we have on society, including environmental, social, ethical and cultural factors. We know we cannot consider these in isolation of each other.

We seek to understand and prioritise the issues that matter most to us and our stakeholders, including employees, investors, and broader society. We identify and prioritise topics in terms of potential impact and also take into consideration our ability to influence the issue.

Non-financial information statement

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

	Related Group policies	Related principal risks
Environmental matters See pages 41 to 44	— Health, Safety & Environment	— Climate Change — Safety
Employees See pages 45 to 48	— Security — People	— Talent and Capability — Safety
Social matters See page 46	— Charitable Contributions & Social Sponsorships	— Political Risk
Human rights See page 49	— People — Human Rights	
Anti-bribery and corruption See page 49	— Anti-Bribery & Corruption	— Compliance

— Our business model provides an insight into the key resources and relationships that support the generation and preservation of value within Rolls-Royce. See pages 12 and 13.

— Non-financial key performance indicators allow us to assess progress against objectives and monitor the development and performance of specific areas of the business. These are set out on page 15.

— Further information on Group policies can be found on www.rolls-royce.com.

— Full details of the Group's principal risks can be found on pages 50 to 54.

— Disclosures in line with the Taskforce on Climate Related Financial Disclosures (TCFD) are detailed on page 41.

POSITION ON CLIMATE CHANGE

We have an irrefutable role to play in enabling the transition towards a low carbon economy. Successful and just transition will require technological solutions that we are well placed to provide.

We have always pursued clean, safe and competitive solutions to deliver society's vital power needs. Rising global population and increased wealth is driving further demand for power and mobility. Coupled with increased understanding of the potential impacts of climate change, we recognise that future power must be low carbon.

Governance

Our framework sets out how we govern our business, manage risk and maintain consistent operating standards across the Group. Sustainability and the consideration of climate change is a core component of this.

The Safety, Ethics & Sustainability Committee oversees our approach (see pages 105 to 110). Our executive-level environment & sustainability committee, chaired by the Chief Technology Officer, is responsible for environmental and climate-related policy, strategy and co-ordinating related activities.

Our independent environmental advisory committee, comprising leading academics from the environmental, materials and climate-related fields, complements our in-house expertise.

Strategy

Climate change and its associated impacts will play a pivotal role in determining the long-term success of our organisation: it presents a variety of opportunities and risks that drive our strategic decisions. Our ability to develop technological solutions will deliver future competitive advantage over the longer-term (see pages 42 and 43).

We have a three-part approach to reducing our environmental impacts, embedded within our business strategy: continuing to pursue incremental improvements of existing products and services; developing novel low carbon technologies, including electrification; and minimising the impacts of our operations and facilities.

Managing risk and opportunity

We recognise the substantial potential risks and opportunities presented by climate change. These include risks and opportunities associated with both the physical impact of global temperature rises and the transition to a low carbon global economy.

The assessment and management of climate-related risk and opportunity is an integral part of our enterprise risk management process (see Principal Risks, pages 50 to 54). During 2019, we continued to review our exposure to climate-related risk, including considering the growing scientific understanding of the potential impacts of climate change, coupled with our position as a manufacturer of complex equipment that is currently heavily dependent on fossil fuels. In light of these changes, we have included the risk of climate change to future revenue growth as an additional principal risk.

PREPARING FOR THE FUTURE

Understanding how the business may be impacted by climate change is a key component of mitigating longer-term risk.

We have used scenario planning techniques to explore the resilience of our business model and strategy in the context of future climate change and the transition to a low carbon global economy.

Three scenarios were developed based on varying global temperature increases and societal responses – one of which aligned to the temperature rise limit of 1.5°C set out by the Intergovernmental Panel on Climate Change (IPCC). The outputs from this have been used to inform strategic decision making and risk management.

POWERING THE LOW CARBON TRANSITION

We are pioneering sustainable power through technology. We continue to invest in improving performance and reducing the impacts of our products and services, as well as developing low carbon technologies for the future.

The transition to a low carbon global economy will be dependent on the development of technological solutions that Rolls-Royce is well positioned to provide. We have a long-standing history of pioneering products and services that deliver society's power and propulsion needs.

In 2019, our technology priorities have included: supporting the operation of today's products through revitalising our service capabilities; continuing the development of a new aero engine architecture to deliver further emissions reductions into the next decade; and continuing to advance our electrification strategy. This balance between continuous efficiency gains and the introduction of novel technologies will help ensure a structured transition to a low carbon global economy.

During the year, we invested £1.46bn in gross R&D expenditure, with a total of 830 patents approved for filing. Over two-thirds of this R&D expenditure is dedicated to improving the environmental performance of our products and services.

Decarbonising aviation in particular will require cross-sector collaboration: our technologies operate as part of a wider system. During 2019, our Chief Technology Officer brought together counterparts from seven major aerospace companies to announce a joint statement on the future sustainability of aviation, including a commitment to work together pre-competitively to meet industry-level targets for reducing the sector's CO_2 impacts and support the commercialisation of sustainable alternative fuels.

Engineering and technology capabilities

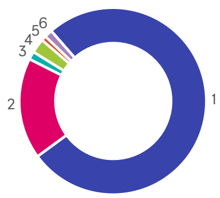
Our global engineering population supports our research and technology programmes. During the year, we have taken steps to simplify our approach to engineering competencies, enabling more flexibility in skills development and increasing our engineers' capabilities in systems thinking, electrification and digital.

Our global network of 29 University Technology Centres (UTCs) and seven Advanced Manufacturing Research Centres (AMRCs) continue to develop advanced research that can be applied in our technology portfolio and across our manufacturing operations.

830
Patents approved for filing

£1.46bn
Gross R&D expenditure

2019 Gross R&D expenditure (£m)



1. Rolls-Royce **1,118**
2. UK government **253**
3. EU funding **21**
4. US government **37**
5. German government **12**
6. Other **18**

A RECORD BREAKER TAKES TO THE SKIES

Inside an airport hanger in Gloucestershire, UK a team of engineers, designers and data specialists recruited from inside and outside Rolls-Royce are setting out to make history.

During 2019, we began the design and build of a high-speed, fully electric aeroplane unlike any seen before. Scheduled to fly in 2020, the aircraft will reach speeds of over 300mph, making it the fastest all-electric plane in history.

This Rolls-Royce project is called ACCEL, Accelerating the Electrification of Flight, and is intended to pioneer a third era of aviation and support our electrification strategy.

Through the project we are developing new skills and capabilities in electrical aviation.

SMALL REACTOR, BIG POTENTIAL

Rolls-Royce is leading a consortium of world-class companies in designing an affordable, compact nuclear power station to meet increasing demands for low carbon electricity.

We believe our compact power station design can make a significant contribution to the UK and other nations' ambitions to reach net zero carbon emissions by 2050.

The UK government's Research and Innovation agency has granted £18m initial funding, matched by the consortium, to complete vital elements of the preliminary design concept. A full UK programme could create 40,000 UK jobs and generate £52bn value for the economy, with tremendous commercial potential and an estimated global export market worth £250bn by 2050.

Revitalising service capabilities

Our services packages help our customers to maximise the availability of their engines. With growth of our in-service fleet of engines and power systems, our services innovations have provided significant additional capacity to maintain their operation in field and increase throughput in repair and overhauls. This is particularly important as we continue to work through in-service issues with the Trent 1000.

We are increasing the use of digital tools to enhance our service offerings, including using imaging technologies to automate the assessment of the condition of critical engine parts whilst the engine remains on-wing, extending engine availability.

This year, we introduced rapid new near-wing component swap procedures, avoiding the need to bring engines into repair and overhaul centres. These new methods were validated and introduced 90% faster than traditional procedure changes. Used engines and parts are collected at each of our centres worldwide. Up to 90% of a used aero engine can now be recycled, reducing our demand for resource intensive, virgin materials.

Developing new engine architecture

Looking forward, we continue to take big strides towards maturing a new aero engine architecture and related technologies. Our UltraFan design will deliver a 25% reduction in emissions relative to the first generation of Trent engines; an unprecedented efficiency leap.

In 2019, we made good progress on a series of important sub-system validations, including testing our advanced organic matrix composite fan system and the world's most high power aero gearbox, validating operability and thermal efficiency.

Advancing electrification

Rolls-Royce is leading the transition towards electrification in all our markets. The application of hybrid and electric technologies has the potential to decarbonise our technology portfolio over the longer term, particularly in ground-based transportation and power, and regional aviation.

Our self-contained business unit, Rolls-Royce Electrical, has celebrated a number of successes during the year, including: ground testing of our M250-based hybrid electric system for urban air mobility and eVTOL applications; full speed testing of the 2.5 MW generator that, coupled with our AE2100 aero gas turbine, will power the E-Fan X hybrid flight demonstrator in 2021; and making significant progress with the development of all-electric flight technologies within our ACCEL programme.

The acquisition of the eAircraft business, from Siemens, has given us a leading position in electrical technologies for aero applications and provides a basis for increasing the delivery of advanced electrical components to a range of customers.

Within Power Systems, we are increasing the production of mobile hybrid power systems for rail and marine applications. We are also applying our electrical competencies within our microgrid solutions, which are supporting the accelerated uptake of renewable energy as well as providing vital back-up power and storage.

IMPACTS FROM OPERATIONS AND FACILITIES

Understanding and managing the environmental impact of our operations is a key part of being a responsible and resilient business. We seek to consider and mitigate the environmental impact of our activities and major business decisions.

During the year, we have taken steps to strengthen our understanding of materials consumption across our operations, identifying opportunities to optimise use and avoid wastage. Half of our top 20 waste-producing sites have completed waste-mapping reviews, identifying and prioritising areas for improvement with an estimated cost saving of approximately £1.6m identified to date.

We continue to invest in installing low carbon and renewable energy sources across our global estates, including completing a solar PV installation in Friedrichshafen, Germany. Coupled with a Rolls-Royce microgrid to provide stability of supply, this installation will deliver 30% of the site's energy demand, as well as acting as a showcase for our microgrid technology.

During 2019, we made significant progress towards our long-term zero carbon operations target, entering into a green power purchase agreement (PPA) part way through the year for all our UK purchased electricity, decreasing our scope 1 & 2 emissions by 21%. At the same time, we have continued to invest in energy efficiency opportunities to reduce our overall power demand, including upgrading lighting and heating systems.

CLEANING UP ON COOLANT

We continue to strengthen our waste management processes, with a particular focus this year on alternative treatments for liquid waste. Almost all our manufacturing sites rely on using coolant as a vital part of our machining processes.

During 2019, we worked with one of our AMRCs to introduce novel technologies to clean and filter 'used' coolant, doubling its useable life. This reduces our coolant waste by 50%, contributing to our waste reduction target, as well as decreasing cutting fluid spend.

These technologies and improved working practices developed in the UK trial are now being rolled out worldwide. We intend to share this capability with our supply chain.

Absolute GHG emissions ($ktCO_2e$)

285 $ktCO_2e$

2030	TARGET	0
2019		285
2018		360
2017		377
2016		395
2015		420
2014	BASELINE	472

Target: Achieve zero scope 1 + 2 GHG emissions by 2030 [1,2,3]

The emissions associated with our operations has reduced by 40% since 2014. This has been achieved through continued decarbonising of our energy systems and increased use of generated or purchased renewable energy.

Energy consumption (MWh/£m)

89 MWh/£m

2025	TARGET	63
2019		89
2018		93
2017		97
2016		98
2015		110
2014	BASELINE	126

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

Our energy consumption has reduced by 26% since 2014 as we continue to invest in improving the energy efficiency of our offices and manufacturing facilities. This includes heating and lighting upgrades.

Total solid and liquid waste (t/£m)

4.22 t/£m

2025	TARGET	3.44
2019		4.22
2018		4.79
2017		4.60
2016		3.99
2015		4.04
2014	BASELINE	4.59

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

Total waste generated in our operations has reduced by 13% since 2014. We continue to focus on identifying opportunities to prevent the creation of waste at source in our manufacturing processes.

Waste to landfill (000 tonnes)

2.3 kilotonnes

2020	TARGET	0
2019		2.3
2018		2.7
2017		3.6
2016		4.5
2015		6.6
2014	BASELINE	7.8

Target: Achieve zero waste to landfill by 2020 [1,2]

The amount of waste sent to landfill has reduced by 71% since 2014. This has been achieved through continued investment in waste management improvements and the use of alternative recovery and recycling options.

1 External assurance over the STEM, energy, GHG, waste and TRI rate data provided by Bureau Veritas. See page 203 for their sustainability assurance statement.
2 Data has been reported in accordance with our basis of reporting, available at www.rolls-royce.com/sustainability. Data for prior years has been restated to reflect the disposal of the Commercial Marine business. Data associated with ITP Aero is included in the GHG, energy and total waste targets from 2017 only.
3 Emissions associated with product test and development, critical to ensuring product safety, and power generation are excluded from our GHG target. Statutory GHG emissions data, including emissions from these sources, are detailed on page 209. Our energy and total waste reduction targets are normalised by revenue.

PEOPLE AND CULTURE

It is through our people that we fulfil our potential, achieve our vision and deliver our strategy.

We continue to focus on driving the right culture through embedding our values and behaviours. We are committed to creating the right working environment where each of us is able to be at our best. This continues to be a critical lever in all we do.

Progressing our transformation

From the outset our transformation programme has been designed as more than a headcount reduction exercise (see page 17). It is a strategic change in our culture, our people, and our ways of working. Embedding our people framework is a core element in achieving this.

During 2019, our efforts have focused in three areas: enhancing leadership capability; embedding our values and behaviours; and eradicating bullying and harassment. We have made progress on embedding our values and behaviours through actions like a robust communications campaign, leading activities to engage our population and hosting 'let's talk' sessions (see page 46). Our values and behaviours are now integrated into our processes and systems, including performance management, reward and employee learning.

Enhancing our leadership

In 2018, we refreshed our enterprise leadership group (ELG) through restructuring, and we continue to refresh the whole leadership population through internal movements and external hiring.

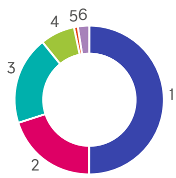
During 2019, we introduced our leadership expectations, an extension of our people framework, which provide clear indicators of success for our leaders to live up to our values and behaviours.

We continue to refresh our leadership learning and development programmes. This includes updating our core leadership learning programmes, including a licence to operate curriculum, and building key capabilities in coaching, driving performance and being inclusive. This is a critical investment in ensuring our leadership remains fit for the future.

Capabilities and skills

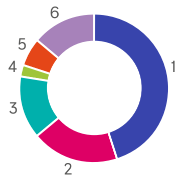
We work hard to ensure we have the right skills and capabilities in place to execute our strategy. During 2019, we invested £28.7m in employee learning and development (2018: £27.1m), delivering 1.4m hours of

51,700 employees total (monthly average) *



1. Civil Aerospace 26,100
2. Power Systems 10,400
3. Defence 9,900
4 ITP Aero 3,900
5. Head office 100
6. Non-core businesses 1,300

Employees in 50 countries (monthly average) *



1. UK 23,300
2. Germany 9,800
3. USA & Canada 7,000
4 Nordics 1,300
5. Spain 3,200
6. Rest of World 7,100

Embedding our people framework

Our people framework provides the backbone of our employee development and engagement activities. This is particularly important as we progress our restructuring programme and continue to embed and evolve our culture to support our purpose, vision and strategy.

Care
Creating a working environment where each of us is able to be at our best.

Growing capabilities
Key capabilities needed to secure emerging opportunities:
- systems integration
- electrical engineering
- data sciences

Growing behaviours
Key behaviours needed to secure emerging opportunities:
- embrace agility
- be bold
- pursue collaboration
- seek simplicity

Core competencies
Key competencies needed to safeguard our competitiveness:
- engineering pre-eminence
- programme management
- business acumen

Core values
Key values needed to safeguard our competitiveness:
- operate safely
- trusted to deliver excellence
- act with integrity

* Employee headcount data is calculated as the average number of full time equivalents throughout the year.

LET'S TALK

Between May and September our enterprise leadership group hosted over 110 engagement sessions with small groups of employees selected through a ballot process.

These 'let's talk' sessions were introduced to create opportunities for meaningful dialogue with our leadership group. The informal format and small group size allowed people to be seen, heard and understood. These sessions generated valuable insights into how our restructuring and cultural change programmes are landing and how employees see the future.

In total, more than 3,000 people took part across 17 sites.

training (2018: 1m hours). We have focused on developing skills in business acumen, digital and data sciences, and programme management. Interactive learning opportunities, forums and online platforms have been utilised to develop these capabilities throughout the organisation. We are investing circa £4m in a new learning proposition that brings together all our learning offerings in one place.

We continue to acquire talent to support our electrical strategy, including through the acquisition of Siemens' eAircraft business and the introduction of a specialist learning offering within our Power Systems business.

Talent management

Developing our talent strategy and future pipelines continues to be a core focus. We have considerably improved succession planning through the implementation of a new talent review process. This has standardised our approach to assessing potential and managing development needs, as well as proactive engagement of external talent, to improve the quality and diversity of our succession planning.

In 2018, we began work to launch our career framework, a refreshed approach to the way we manage careers and talent. Our management job levels have been broadened to remove complexity and enable greater movement between roles. In 2019, 1,150 managers were promoted internally (2018: 1,340) and our employee turnover rate remained stable at 7.5% (2018: 7.6%).

We have introduced practical tools for managers to help drive their own careers and to better support their teams. This encourages individuals to take more ownership of their personal development. We have also introduced training and tools to enable leaders to have career conversations that offer broader and more agile career development options for all.

Employee engagement

We believe that positive engagement is a result of our leadership and working environment. Our approach to engagement is founded on the premise that engagement happens locally and should be owned and driven by local teams and leaders.

We provide a variety of channels to communicate and engage with our employees and their representatives. This includes employee newsletters, magazines and team briefings, as well as our digital communication channels. We work closely with elected employee representatives through well-established frameworks, including our European Works Council. Our employee forums ensure everyone has the opportunity to contribute their views.

This year, we introduced a new employee opinion survey, in partnership with Gallup. This survey is more streamlined, moving from 64 questions to 12, encouraging participation by removing the burden of responding. We ran two surveys during the year as we embedded this new approach and increased our focus on measuring and actioning the results; 58% of employees completed the survey in April, and 72% in November. The results from the surveys are a key measure in our annual bonus plan, see page 15 and 89.

We also monitor feedback from current and past employees through Glassdoor, who awarded us #30 on their 'Best Places to Work in the UK'. Our Chief Executive also ranks #9 on their 'Top CEOs in the UK', with an 85% approval rating.

STEM and communities

Our ability to attract and recruit the right people with the right skills in the future is dependent on there being a pipeline of available talent. To support this we focus on building awareness and engagement in science, technology, engineering and maths (STEM) with young people from an early age, as well as those who may have influence over their future career choices such as teachers, parents and carers.

We are now 27% towards our 2030 target to reach 25 million of tomorrow's pioneers through our STEM programmes, with 1.25m people engaged in STEM activities during 2019 [1]. These activities vary from individual classroom activities and community group workshops, to flagship initiatives such as the Rolls-Royce science prize.

Our broader community investment activities are intended to build positive relationships and engagement opportunities in communities local to our operations, with a focus on environment, education, arts and culture. During 2019, we invested £7m in supporting local communities, including £3.4m in cash contributions and sponsorships. Over 96,000 hours of employee time was committed to community and STEM projects as part of our wider employee engagement approach.

[1] External assurance over the STEM, energy, GHG, waste and TRI rate data provided by Bureau Veritas. See page 203 for their sustainability assurance statement.

UK PENSIONS REVIEW

During 2019, we undertook two actions to manage our pension obligations for current and former UK employees.

The Group carries significant post-retirement liabilities on our balance sheet. During the year, we supported the Trustee of the UK pension plan to fully insure liabilities for around 33,000 former employees with Legal & General Assurance Society. This removes future risk for the Group whilst providing former employees with greater certainty over the delivery of their benefits.

Our UK pension plan closed to new hires in 2007. In 2019 we consulted on changes to the plan, impacting 2,700 managers. This was undertaken in consideration of increasing future service costs, the balance sheet risk of future pension liabilities, as well as the increasing imbalance of overall reward for UK employees who joined the Company before or after 2007. The proposed changes have been agreed and will take effect from 1 March 2020. The Board supported each of these actions after considering in detail the impact on current and former employees and the financial impact on the Group.

Health, safety and wellbeing

Ensuring the wellbeing of our people and those who work with us through providing a safe place of work and minimising potential exposure to harm is a key component of our care promise. This year we introduced mandatory HSE training for all managers. Additional leadership training has been conducted for the Executive Team.

In 2018, we initiated a programme of comprehensive safety reviews following a series of major and high potential incidents, including two fatalities in 2017. The programme remains on track, with 88% of sites in scope having been reviewed and a systematic approach to managing identified areas for improvement implemented. The objectives of this programme are to identify latent risks across our operations and to assess individual sites' HSE maturity, providing site based leadership with greater visibility and understanding of hazards, controls and residual risks.

LiveWell is our internal global accreditation scheme for site-based wellbeing provisions; this acts as a framework for sites to identify specific health and wellbeing requirements in their workplace, and implement improvements. At the end of 2019, 86% of our sites have achieved LiveWell accreditation, recognising the steps they have taken to support employees in making healthy and sustainable lifestyle choices in the workplace. More than 44,000 employees worldwide have benefited from these workplace interventions.

Mental wellbeing continues to receive a high public profile and our analysis confirms this is a significant source of concern for our employees and a cost to the business. In 2019, we introduced a new toolkit to enable teams to assess their workplace mental health and develop action plans to address any concerns. Our mental health champions programme continues to grow and we now have over 580 trained mental health first aiders.

For more information on our safety performance, including TRI rates, see the Safety, Ethics & Sustainability Committee Report, pages 105 to 110.

Accelerating diversity & inclusion

Improving diversity & inclusion remains a strategic priority for the Group. During 2019, we have refreshed our strategy and associated policies and sought to accelerate progress in its implementation. Our approach focuses on four key areas: leadership and governance; attraction and recruitment; retention; and development.

We continue to leverage external partners to substantiate our approach, including participation in the Women in Aviation and Aerospace Charter; National Action Council for Minority Engineers; and the General Counsel Diversity Charter.

Our Executive Team currently comprises nine members, all of whom are male. The Group has a 2020 gender diversity target for the Executive Team of 23%. The detailed succession plan for the Executive Team currently comprises 44% females (2018: 35%). The Executive Team, Company Secretary and their direct reports comprise 82 individuals, 21 (26%) of whom are female. Currently 20% of our ELG are female (2018: 14.7%), as are half our Board apprentices.

In 2019, we revised our diversity & inclusion and anti-bullying and harassment policies to align to our strategy and values and behaviours. Our policies ensure that all employees, regardless of gender, race, religion, physical abilities or any other characteristics, are treated with dignity and respect, and feel safe and empowered to work without fear of bullying and harassment.

We give full and fair consideration to all employment applications from people with disabilities and support disabled employees in the workplace, helping them to make best use of their skills and expertise to reach their full potential.

For more information on the Board diversity policy, see Nominations & Governance Committee Report, page 78.

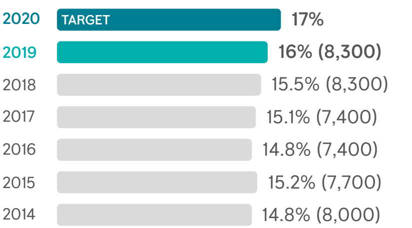
Progress against our 2020 targets

We are taking deliberate action to create a more balanced and representative employee population, in which everyone can be at their best. We have targets in place to increase the representation of women at all levels by the end of 2020. These are supported by additional local and business targets to address local diversity challenges. We are currently working towards developing a new set of diversity targets out to 2025, to be published during 2020.

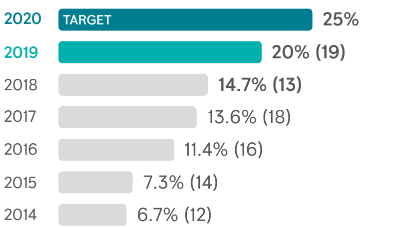
Due to the introduction of the new employee engagement survey, Gallup Q12, we no longer measure a separate inclusiveness score. This is now embedded within our broader measures of employee engagement, linked to our remuneration approach.

For more information on our employee engagement measure, see KPIs on page 15.

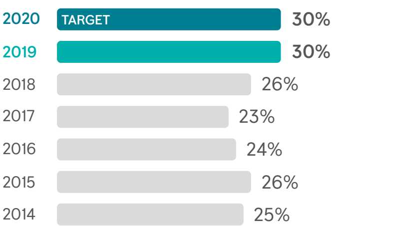
Female employee population[1]



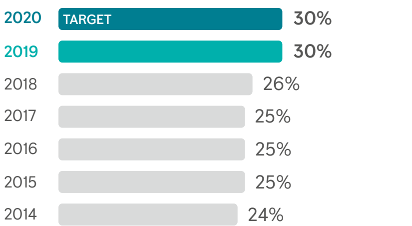
Female senior manager population[2]



Female graduate population[3]



Female high potentials population[3]



[1] Employee headcount data is calculated as the average number of full time equivalents throughout the year. Certain joint ventures are classified as joint operations, 1,300 employees associated with joint operations are not included within our overall headcount or diversity data.
[2] Senior manager population for 2018 and 2019 is calculated as Executive Team and ELG population (2019 total: 94, 2018 total: 88), prior years data refers to the senior leadership team that was replaced by the ELG through restructuring in 2018.
[3] The graduate and high potentials targets refer to the percentage of employees on these development programmes as at 31 December each year.

BUILDING A DIVERSE TALENT PIPELINE

We continue to focus on early careers recruitment as an opportunity to bring more diverse talent into the organisation.

In 2019, 184 graduates and 353 apprentices joined Rolls-Royce on early career development programmes. These provide a vital pipeline of talent into engineering and other functions, including finance, procurement and project management.

Our graduate intake was 32% female (2018: 32%). Apprentice starters were 16% female (2018: 21%), this decline was driven in part by the fact we only recruited engineering apprentices this year.

ETHICS AND COMPLIANCE

Maintaining high standards of ethics and compliance are fundamental to our continued success. We work hard to create a working environment where everyone at Rolls-Royce and everyone we work with can be at their best.

We are committed to maintaining the highest ethical standards and have a suite of global policies and processes in place to avoid any potential complicity in misconduct.

Our Code of Conduct (Our Code) and associated policies set out the values and behaviours we expect everyone to demonstrate. They also provide guidance on how to apply these principles in our daily decisions. In 2019, 99% of managers certified their commitment to adhere to the principles set out in Our Code (2018: 99%). We flow these principles to our suppliers through our Supplier Code of Conduct. All suppliers are contractually required to adhere to this, or a mutually agreed alternative.

We encourage speaking up in the event of a question or concern and provide a variety of channels through which to do so. For example, we now have 150 employees trained as local ethics advisors who can act as first point of call. During the year, we have focused on supporting our leadership population in how to listen to someone raising a concern and how to follow up.

We have a zero tolerance approach to misconduct of any kind and will take disciplinary action, up to and including dismissal, in the event of a breach of Our Code. In 2019, 85 employees (2018: 59) left the business for reasons related to breaches of Our Code.

Anti-bribery and corruption

Our Code and associated policies clearly set out our commitment not to tolerate bribery or corruption of any form. In 2019, our ongoing anti-corruption programme focused particularly on managing conflicts of interest and confidential information. This has targeted training for higher-risk teams and individuals.

In addition, we have continued to strengthen our anti-bribery due diligence approach. The level of due diligence activity carried out is dependent on the level of risk that a particular third party provides and may include in-person interviews and site visits, as well as external due diligence reports from specialist corporate intelligence providers. We also conduct extensive due diligence into potential joint ventures as well as supporting existing joint ventures in their ethics and compliance programmes.

Human rights and anti-slavery

Our commitment to protecting and preserving the human rights of our employees, and those whom may be impacted by our business operations or supply chain, is embedded within Our Code, our Human Rights policy and our Supplier Code of Conduct.

Our approach to identifying and assessing modern slavery risk is embedded within our broader risk management approach. Due diligence is embedded within our operating systems and processes, including recruitment and procurement processes.

More information on our approach can be found in our anti-slavery and human trafficking statement, available at www.rolls-royce.com.

For more information on our ethics approach see the Safety, Ethics & Sustainability Committee Report, pages 105 to 110.

TREATING OTHERS WITH DIGNITY AND RESPECT

This year's mandatory ethics training focused on treating others with dignity and respect, linked to our anti-bullying and harassment campaign.

This comprised individual study and team discussions on real-life cases of bullying and harassment experienced in the Group. 97% of in-scope employees completed the training (2018: 98%).

We have strengthened our investigation process for allegations related to bullying and harrassment. During the year, five employees left the organisation as a result of these investigations.

PRINCIPAL RISKS

Our risk and internal control system

The Board has established procedures to manage risk and oversee the risk management system (RMS). The Board has also established procedures to determine the nature and extent of the principal and emerging risks the Group is willing to take in order to optimise its commercial opportunities and achieve its long-term strategic objectives. The Audit Committee reviews the Group's internal financial controls which form a subset of the broader set of controls, and also reviews the RMS and its effectiveness. During the year, the Board completed a robust assessment of both our principal and emerging risks.

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

How we manage risk

Risks are identified by individuals across all businesses and functions and at many layers of the organisation by considering what could stop us achieving our strategic, operational or compliance objectives or impact the sustainability of our business model. Risk owners assess the risks, likelihood and impact, taking into account current mitigating control activities, identifying where additional activities may be needed to bring the risk within our risk appetite. Risk owners take into account 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. 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 Board and Board committee meetings.

During the year, we continued to refine our risk appetite metrics and to use these more systematically in concluding on the effectiveness of mitigating activities. We also continued to strengthen the controls in place over risks at remote sites. Our plans for 2020 include simplification of our risk policies and guidance and additional support for risk owners in assessing the effectiveness of mitigating control activities.

Principal risks

Our principal risks are identified and managed in the same way. Principal risks are owned by at least one member of the Executive Team and subject to a deep dive at an Executive Team meeting at least once each year, before a review by the Board or a Board committee. The Board has completed a review of the principal risks and concluded that there are no changes in nature except for the elevation of the risk of climate change as described below. A description of all of the principal risks, how we manage them, the main mitigating control activities, the change in status and how these underpin our priorities is set out on pages 51 to 54.

Our risk and internal control system

Risk Management	Risks facing the business are identified and assessed on a regular basis.
Internal control	Internal controls are designed and deployed to mitigate these risks to an accepted level.
Assurance	Assurance activities assess whether the controls are effective and risks are mitigated to an acceptable level in practice.

Emerging risks

Our emerging risks are also identified and managed this way. As we committed last year, given the additional focus on emerging risks this year, we have introduced additional activities to identify emerging risks. These include workshops, facilitated together with the central strategy team, and the use of an app, developed with digital support by R^2 Data Labs, to collect insight from diverse stakeholder groups across the organisation. Questions were posed to identify items that could translate into longer-term issues or opportunities, beyond the period considered for viability, that could significantly impact or challenge our current strategy and business model.

Any risks identified have been recorded in RMS and are being managed and monitored alongside our existing risks.

Following the UK's exit from the European Union on 31 January 2020, we continue to monitor the potential outcomes for the UK's future relationship with the EU through our steering group which has remained active during 2019 and will remain active until the outcome is clear and any necessary mitigation plans are in place. We model potential impacts and include these in our assessment of strategic, operational and compliance risks, adjusting mitigation plans where necessary including where we build or hold inventory, testing additional logistics options and reviewing supplier readiness. We ensure regular dialogue takes place with all stakeholders including customers, suppliers, employees, governments and regulatory agencies. The Board is regularly updated on the latest risk assessment and mitigating activities.

Growing appreciation of the potential impact of climate change on the environment combined with our position as a global leader in the manufacture, service and operation of assets that are dependent on the use of fossil fuels, has increased our exposure to a wide variety of climate-related risks. In light of this, we have included the risk of climate change to future revenue growth as an additional principal risk. More detail on how we manage this, the main mitigating control activities and how these underpin our priorities is set out on page 52.

2019 Group priorities

1 Customers	2 Technology
3 People and culture	4 Financial progress

Change in risk level in 2019

Increased	Decreased
Static	New risk

PRINCIPAL RISK OR UNCERTAINTY	HOW WE MANAGE IT	KEY CONTROLS	CHANGE	PRIORITY
SAFETY Failure to meet the expectations of: i) our customers to provide safe products; or ii) the people who work for or with us to provide a safe and healthy place of work which minimises the impact on the environment; would adversely affect our reputation and long-term sustainability.	We manage product safety by: — Ensuring clear accountability for safety and a culture that puts safety first. — Applying our engineering design and validation process from initial design, through production and into service to reduce the safety risks so far as is reasonably practicable; always ensuring that we meet or exceed the relevant company, legal, regulatory and industry requirements. — Operating a safety management system, governed by the product safety assurance board, and subject to continual improvement based on review of existing and emerging threats, experience, and industry best practice. — Ensuring that our products and those of our suppliers conform to their specifications. — Ensuring that everyone receives appropriate product safety awareness training. We manage people's safety and wellbeing by: — Ensuring clear accountability for HSE and a culture that puts operating safely first. — Refreshing our global HSE policy and introducing our Zero Harm programme. — Operating an HSE management system, including reporting, investigating and learning lessons from incidents. — Driving sustainable use of resources. This principal is subject to review by the Safety, Ethics & Sustainability Committee.	For the safety of our products: — Company product safety assurance committee — Business product safety committee — Quality compliance audit — Engineering technical audit — Crisis management team For people's safety and wellbeing: — HSE management system — HSE accountability framework — HSE committee — Crisis management team — Environment & sustainability committee		1 2 3
BUSINESS CONTINUITY The major disruption of the Group's operations, which results in our failure to meet agreed customer commitments and damages our prospects of winning future orders. Disruption could be caused by a range of events, for example: extreme weather or natural hazards (for example, earthquakes, floods); political events; financial insolvency of a critical supplier; scarcity of materials; loss of data; fire; or infectious disease. The consequences of these events could have adverse impact on our people, our internal facilities or our external supply chain.	— Sustaining investment in adequate capacity, modern equipment and facilities, dual sources of supply and researching alternative materials. — Promoting and developing resilience within our external supplier partners. — Providing a supplier finance programme in partnership with banks to enable our suppliers to benefit from the Rolls-Royce credit rating and access funds at low interest rates. — Building a resilient culture through flexible and collaborative working, using our single Group-wide incident management framework. — Developing, maintaining and regularly exercising effective business continuity and crisis management plans to prepare our people to respond quickly and confidently to any business disruption. — Sharing lessons learned identified through exercises or incidents. — Scanning the horizon to provide awareness of emerging risks/potential incidents. This principal risk is subject to review by the Audit Committee.	— Incident management framework — Business continuity readiness assessment — External supplier audits and robust contractual agreements — Training and exercising in incident response and recovery — Environment & sustainability committee		1 3 4

PRINCIPAL RISK OR UNCERTAINTY	HOW WE MANAGE IT	KEY CONTROLS	CHANGE	PRIORITY
CLIMATE CHANGE Understanding the impact of climate change and our products increases our susceptibility to physical and transitional climate-related risks. We will need to transition our products and services to a lower carbon economy. Failure to consider changes in atmospheric conditions could result in changes in maintenance and overhaul requirements, affecting revenues generated by our in-service fleet and jeopardising the viability of a services-based business model. 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.	— Investment in our existing product range to reduce its carbon impact, and in zero carbon technologies to replace our existing products. — Partnering programme to introduce the skills, capability and hunger to rapidly develop class-leading solutions. — Seeking a balanced portfolio of products, customers and revenue streams to reduce our dependence on any one product, customer or carbon emitting fuel source. — Clear communication and acknowledgment of our role in the problem and the solution, and the actions we are taking to enact a credible plan of action in line with societal expectations. This principal risk is subject to review by the Board and the Safety, Ethics & Sustainability Committee.	— Strategic reviews — Science & Technology Committee — Environment and sustainability committee	+	1 2 3 4
COMPETITIVE ENVIRONMENT The presence of competitors in the majority of our markets means that the Group is susceptible to significant price pressure for original equipment or services. Our main competitors have access to significant government funding programmes as well as the ability to invest heavily in technology and industrial capability. Disruptive technologies or new entrants with alternative business models could also reduce our ability to sustainably win future business, achieve operating results and realise future growth opportunities.	— Horizon scanning for emerging technology and other competitive threats, including patent searches. — Establishing our Innovation Hub to invest in innovation, manufacturing and production, and ensure continuing governance of technology programmes. — Enhancing our capabilities to access, invest in and develop key technologies and innovative service offerings which differentiate us competitively. — Improving the quality, delivery and durability of our products and services through investment in innovation, manufacturing and production capabilities. — Forming strategic partnerships and conducting joint research programmes with our partners. — Driving down cost to improve margins. — Protecting credit lines. — Strengthening our balance sheet to enable access to cost-effective sources of third party funding. This principal risk is subject to review by the Board.	— Financial performance review — Strategic planning process — Investment review committee — Science & Technology Committee — Data Security Committee	<>	1 2 4
COMPLIANCE Non-compliance by the Group with legislation, the terms of the DPAs or other regulatory requirements in the heavily regulated environment in which we operate (for example, export controls; use of controlled chemicals and substances; anti-bribery and corruption; and tax and customs legislation). This could affect our ability to conduct business in certain jurisdictions and would potentially expose the Group to: reputational damage; financial penalties; debarment from government contracts for a period of time; and suspension of export privileges (including export credit financing), each of which could have a material adverse effect.	— Taking an uncompromising approach to compliance. — Operating an extensive compliance programme. Global mandatory policies, processes and training are disseminated throughout the Group and are updated from time to time to ensure their continued relevance, and to ensure that they are complied with, both in spirit and to the letter. — Regular reviews of the strength of relevant teams including the ethics, anti-bribery and corruption, compliance, tax, sustainability and export control teams. — A legal team is in place to manage any ongoing regulatory investigations. — Engaging with all relevant external regulatory authorities. — Implementing a comprehensive REACH compliance programme. This includes ensuring that we and our supply chain are covered by REACH authorisations for a number of chemicals needed for our products, establishing appropriate data systems and processes and working with our suppliers, customers and trade associations. This principal risk is subject to review by the Safety, Ethics & Sustainability Committee.	— Governance model — Compliance and export control teams — Governance team — Legal team	<>	3 4

PRINCIPAL RISK OR UNCERTAINTY	HOW WE MANAGE IT	KEY CONTROLS	CHANGE	PRIORITY
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.	— Implementing defence in depth through deployment of multiple layers of software and processes including web gateways, filtering, firewalls, intrusion, advanced persistent threat detectors and integrated reporting. — Running security and network operations centres. — Actively sharing cyber security information through industry, government and security forums. — Information and product assurance processes. — Training and awareness to improve cyber security culture. This principal risk is subject to review by the Audit Committee through its Data Security Committee.	— Data Security Committee — IT executive — Product cyber security working groups in high risk areas — Information assurance and engineering processes — Crisis management team	<>	1 2 3
MAJOR PRODUCT PROGRAMME DELIVERY Failure to deliver a major programme on time, within budget, to technical specification or falling significantly short of customer expectations, or not delivering the planned business benefits, 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.	— Major programmes are subject to Board approval. — Reviewing major programmes at levels and frequencies appropriate to their criticality and performance, against key financial and non-financial deliverables and potential risks throughout the programmes lifecycle. — Investing in facilities and people to manage the level of disruption to our customers from Trent 1000 in-service issues and developing longer-term solutions to these issues. — Conducting technical audits at pre-defined points which are performed by a team that is independent from the programme. — Requiring programmes to address the actions arising from reviews and audits and monitoring and controlling progress through to closure. — Applying knowledge management principles to provide benefit to current and future programmes. This principal risk is subject to review by the Board.	— Rolls-Royce management system — Operational performance review — Project audit and risk assurance reviews — Gated business and technical reviews — Quality compliance audit — Quality committee	<>	1 2 4
MARKET AND FINANCIAL SHOCK The Group is exposed to a number of market risks, some of which are of a macro-economic nature (for example, foreign currency, oil price, interest rates) and some of which are more specific to the Group (for example, liquidity and credit risks, reduction in air travel or disruption to other customer operations). Significant extraneous market events could also materially damage the Group's competitiveness and/or creditworthiness. This would affect operational results or the outcomes of financial transactions.	— Maintaining a strong balance sheet, through managing cash balances and debt levels. — Providing financial flexibility by maintaining high levels of liquidity and an investment grade credit rating. — Sustaining a balanced portfolio through earning revenue both from the sale of original equipment and aftermarket services, providing a broad product range and addressing diverse markets that have differing business cycles. — Deciding where and what currencies to source in, and where and how much credit risk is extended or taken. The Group has a number of treasury policies that are designed to hedge residual risks using financial derivatives (foreign exchange, interest rates and commodity price risk). — Review debt financing and hedging in light of volatility in external financial markets caused by external events, such as Brexit or other geopolitical changes. This principal risk is subject to review by the Audit Committee.	— Financial performance review — Financial risk committee — Operational performance review — Group finance, treasury and tax teams	↑	4

PRINCIPAL RISK OR UNCERTAINTY	HOW WE MANAGE IT	KEY CONTROLS	CHANGE	PRIORITY
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.	— Where possible, diversifying our global operations to avoid excessive concentration of risks in particular areas. — The Group's businesses, strategic marketing network and global government relations teams proactively monitoring local situations. — We develop and maintain relationships with governments and stakeholders and proactively influence policy, regulation and legislation where it affects us. — Steering committee to co-ordinate activities across the Group and minimise the impact of Brexit. This principal risk is subject to review by the Board.	— Global government relations network — Group tax and export control teams — Strategic planning process — Brexit steering committee	<>	1 2 3 4
STRATEGIC TRANSFORMATION Failure to deliver our strategic transformation, including changing our behaviours could result in: missed opportunities; dissatisfied customers; disengaged employees; ineffective use of our scarce resources; and increasing the likelihood of other principal risks occurring. This could lead to a business that is overly dependent on a small number of products and customers; failure to achieve our vision; non-delivery of financial targets; and not meeting investor expectations.	— Implementing a new organisational operating model. — Focusing on behaviours to drive cultural change. — Simplifying the processes in our Rolls-Royce management system, whilst ensuring we comply with our legal, contractual and regulatory requirements. — Horizon scanning and scenario planning. — Investing in products with lower emissions, reducing our impact on climate change. — Employee innovation portal. This principal risk is subject to review by the Board and the Safety, Ethics & Sustainability Committee.	— Executive Team — Gated reviews	<>	1 2 3 4
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, business plans and projects.	— Attracting, rewarding and retaining the right people with the right skills globally and locally in a planned and targeted way, including regular benchmarking of remuneration. — Developing and enhancing organisational, leadership, technical and functional capability to deliver global programmes. — Continuing a strong focus on individual development and succession planning, recognising the changing nature of careers and expectations of work. — Proactively monitoring retirement in key areas and actively managing the development and career paths of our people with a special focus on employees with the highest potential. — Embedding a lean, agile, high-performance culture where everyone can be at their best that tightly aligns Group strategy with individual and team objectives. — Incentivising and effectively deploying the critical capabilities, skills and people needed to deliver our strategic priorities, plans and projects whilst implementing the Group's major programme to transform its business, to be resilient and to act with pace and simplicity. — Tracking engagement through regular employee opinion surveys and a commitment to drive year-on-year improvement to employee engagement. This principal risk is subject to review by the Nominations & Governance Committee.	— Remuneration Committee — Executive Team — ELG — People leadership team	<>	1 2 3 4

GOING CONCERN AND VIABILITY STATEMENTS

Introduction

Rolls-Royce operates an annual planning process. Our plans and risks to their achievement are reviewed by the Board and, once approved, are cascaded throughout the Group and are used as the basis for monitoring our performance, incentivising employees and providing external guidance to our shareholders.

The processes for identifying and managing risk are described on pages 50 to 54. As described on these pages, the risk management process, and the going concern and viability statements, are designed to provide reasonable but not absolute assurance.

Going concern

The going concern assessment considers whether it is appropriate to prepare the financial statements on a going concern basis. The Board has also considered the net liability position at 31 December 2019 and the going concern status of the Group's material subsidiaries.

As described on page 204, the Group meets its funding requirements through a mixture of shareholders' funds, bank borrowings, bonds and notes. At 31 December 2019, the Group had borrowing facilities of £5.6bn (excluding lease liabilities of £2.4bn) and total liquidity of £6.9bn, including cash and cash equivalents of £4.4bn and undrawn facilities of £2.5bn. £435m of the facilities mature in 2020 (excluding lease liabilities of £340m).

The Group's forecasts and projections, taking into account reasonably possible changes in trading performance, show that the Group has sufficient financial resources. The Directors have reasonable expectations that the Company and the Group are well placed to manage business risks and to continue in operational existence for the foreseeable future (which accounting standards require to be at least a year from the date of this report) and have not identified any material uncertainties to the Company's and the Group's ability to do so.

On the basis described above, the Directors consider it appropriate to adopt the going concern basis in preparing the Consolidated Financial Statements (in accordance with the Guidance on Risk Management, Internal Control and Related Financial and Business Reporting published by the FRC in September 2014).

Viability

The viability assessment considers solvency and liquidity over a longer period than the going concern assessment. Consistent with previous years, we have assessed our viability over a five-year period which is in line with our five-year medium-term planning process. Inevitably, the degree of certainty reduces over this longer period.

In making the assessment, severe but plausible scenarios have been considered that estimate the potential impact of principal risks arising over the assessment period, for example: the loss of a key element of the supply chain, the impact on aircraft travel of a global pandemic, a trade war between major trading blocs or worsening or new in-service issues on Civil Aerospace programmes.

The scenarios assume an appropriate management response to the specific event, but not broader mitigating actions which could be undertaken, which have been considered separately. The cash flow impacts of these scenarios were overlaid on the five-year forecast to assess how the Group's liquidity and solvency would be affected. Reverse stress testing has also been performed to assess the severity of scenario that would have to occur to exceed headroom, including a scenario where existing borrowing facilities could not be refinanced as they mature.

The assessment took account of the Group's current funding, forecast requirements and existing committed borrowing facilities.

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:

- that maturing facilities, including the Group's revolving credit facility (RCF), will be refinanced and the Group is able to drawdown its existing facilities as required;
- the Group currently has access to global debt markets and expects to be able to refinance these facilities on commercially acceptable terms;
- the Group's medium and long-term financing plans are designed to allow for periods of adverse conditions in world capital markets but not a prolonged period (say 12 months) where debt markets were effectively closed to the Group and the RCF not available;
- that in the event of one or more risks occurring, which has a particularly severe effect on the Group, all potential actions, such as constraining capital spending and reducing or suspending payments to shareholders, would be taken on a timely basis. The Group believes it has the early warning mechanisms to identify the need for such actions and the ability to implement them on a timely basis if necessary; and
- that implausible scenarios, whether involving multiple risks occurring at the same time or the impact of individual risks occurring that cannot be mitigated by management actions to the degree assumed, do not occur.

s172 STATEMENT

The Board believes that, individually and together, they have acted in the way they consider, in good faith, would be most likely to promote the success of the Company for the benefit of its members as a whole, having regard to the stakeholders and matters set out in s172(1)(a–f) of the Companies Act 2006 in the decisions taken during the year ended 31 December 2019.

This illustration sets out the Board's approach to decision making, its stakeholder engagement, why its stakeholders matter and some key decisions made during 2019. To give greater understanding to this, we have provided clear cross-referencing to where more detailed information can be found in this Annual Report.

The Board's approach

We remain a particularly active Board, seeking opportunities outside the boardroom to find out what is happening across the organisation

Purpose, vision and strategy (see page 10)

- clearly articulated purpose recognising our role in society
- corporate narrative aligned with both vision and strategy

Group policies (see page 40)

- annual review of Group policies
- new mandatory training introduced in 2019 (see page 1110)

Culture and people (see page 45)

- review of the culture change agenda (see page 67)
- Code of Conduct clearly communicated and enforced (see page 49)
- continued support for the people framework (see page 45)

Board's structure (see page 65)

- role of the Board and its matters reserved, reviewed annually
- clear focus of the Board's committees, annual review of terms of reference
- clearly defined roles and responsibilities for Board members and the Company Secretary

'freedom within a framework' (see page 61)

- communication of freedom within a framework culture
- Rolls-Royce management system simplification
- new decision rights model

Risk and internal control framework – see page 50

- all risks and mitigating actions subject to a detailed annual review at Board level (see pages 68 and 80)
- reviewed process for the preparation of both going concern and viability statements (see page 55)

OUR PURPOSE
At Rolls-Royce we pioneer the power that matters to connect, power and protect society

Our stakeholder engagement

Our activities are global and complex. Touching upon a wide variety of stakeholders, we aim to create trusted relationships to understand the needs of all our stakeholders so we can continue to deliver value and build a resilient business

See page 70 for the Board's engagement with our stakeholders. See page 12 for our business model

Customers

Focusing on the needs of our customers is critical to the success of our business. We maintain a high degree of customer intimacy in order to anticipate and understand the future power needs of our customers, building on our years of experience in delivering for our markets. We collaborate and innovate with our customers to improve product performance and value

Investors

Continued access to capital is vital to the long-term performance of our business. We work to ensure that our investors and investment analysts have a strong understanding of our strategy, performance, ambition and culture

Employees

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

Partners

Our external supply chain and our suppliers are vital to our performance. We engage with them to build trusting relationships from which we can mutually benefit and to ensure they are performing to our standards and conducting business to our expectations

Communities

We are committed to building positive relations with the communities in which we operate. We support communities and groups, local and relevant to our operations, particularly educational outreach

Governing bodies and regulators

We engage with national governments, national/transnational agencies and key politicians and regulators to ensure that we can help shape policy, have licence to operate, attract funding, enable markets and ultimately win business. We work with governments globally where we have operations or future business opportunities

DELIVERED WITH INTEGRITY
We discuss how we maintain high standards of ethics and compliance and their fundamental importance to our continued success on page 49

Our principal decisions during 2019

More discussion on these decisions can be found in the Board focus on page 67

UK pensions review (see pages 47 and 67)

- transfer of certain pension risk liability and balance sheet impact
- changes to the defined benefit pension scheme for UK managers

Climate change impact (see pages 52 and 68)

- elevation of risk of climate change to future revenue growth

New midsize airplane platform (NMA)

- withdrawal from engine competition to power Boeing's NMA platform (see page 67)
- continue to focus on our UltraFan demonstrator programme (see page 26)

Trent 1000 mitigation actions (see pages 8 and 68)

- strong focus on customer and accounting impact of technical and operational challenges including risks to the programme
- increased stock of spare engines and accelerated growth in the MRO network to meet long-term servicing demands

Enhanced capital allocation discipline

- set as a 2019 priority (see page 7)
- agreed approach and overview of capital allocation as part of our freedom within a framework culture (see page 61)
- strengthening the balance sheet and monitoring our credit rating risk (see page 17)

Payments to shareholders

- continued policy and recommendation to shareholders of final shareholder payment (see page 5)

Strategic Report
signed on behalf of the Board

Warren East
Chief Executive

28 February 2020

DIRECTORS' REPORT

Our focus on the UK Corporate Governance Code 2018

Compliance with the UK Corporate Governance Code 2018

The Company is subject to the principles and provisions of the UK Corporate Governance Code 2018 (the Code), a copy of which is available at www.frc.org.uk. For the year ended 31 December 2019, the Board considers that it has complied in full with the provisions of the Code with the exception of provision 32 regarding Irene Dorner's appointment as Chairman of the Remuneration Committee. An explanation of this can be found on page 59.

Board Leadership and Company Purpose

- We believe our Board is particularly active. Our Directors' report provides examples of our leadership and engagement with our stakeholders (see page 70).
- We developed the corporate narrative during the year to further define and articulate the Group's purpose (see page 67).
- Our transformation programme is designed to ensure we have the right resources and skills to execute our strategy (see pages 45 and 67).
- Our Code and associated policies ensure our workforce can meet our expected values and behaviours. We encourage speaking up through our Ethics Line (see page 49).

Division of Responsibilities

- We clearly define the roles of the Chairman and the Chief Executive and fully support the separation of the two roles.
- The Board believes it operates effectively with the appropriate balance of independent Non-Executive Directors (NEDs) and executive directors (see pages 62 to 64).
- When considering external appointments for our NEDs, prior Board approval is required to ensure there is no compromise on time commitment (see page 77).
- Our Board evaluation highlighted the quality of the information provided to the Board (see page 74).

Composition, Succession and Evaluation

- We have a clear process when considering appointments to the Board (see page 77).
- As part of our focus on succession planning, we review the skills and attributes required.
- Our Board biographies and related charts demonstrate the skills, experience and knowledge of our Directors (see pages 62 to 64).
- In 2019, Belinda Hudson Limited carried out an annual evaluation of the Board. The methodology and progress can be found on page 74.

Remuneration

- Our remuneration policy has been revised this year and will be put to the shareholders for approval at our 2020 AGM. Key changes are set out on page 89 and clear links to our KPIs can be found on page 14.
- The Remuneration Committee, comprising only NEDs, is responsible for developing the policy and determining executive and senior management remuneration. This is discussed in the Remuneration Report on page 85.
- No Director is involved when deciding their own remuneration outcome.

Audit, Risk and Internal Control

- We recognise the importance and benefits of ensuring both the internal audit function and the external auditors remain independent. See pages 83 to 84.
- The Board presents a fair, balanced and understandable (FBU) assessment of the Company's position and prospects. To enable us to do so, the Audit Committee review the processes used to prepare and verify the FBU statement (see page 81).
- Our risk and control environment is reviewed by the Audit Committee. The Board considered both emerging and principal risks during the year (see page 68).

CHAIRMAN'S INTRODUCTION TO DIRECTORS' REPORT

SIR IAN DAVIS
Chairman

Introduction

In early 2019, we considered the key trends in UK governance and this created a background for our discussions throughout the year. We recognised the increasing emphasis on corporate purpose, culture, risk and the scrutiny of financial, audit and ethical integrity. Environmental, social and governance (ESG) issues are areas of increasing importance to investors and society. There are more calls for democratisation of companies and boards particularly through emphasis on worker engagement and transparency of everything. We have responded by clearly articulating our purpose, with supporting communications to all key stakeholders. We have reviewed our plans to manage and mitigate our risks and we have found ways of assessing and calibrating culture and behaviours, maintaining focus through a period of transformation and restructuring. We have also spent time ensuring that our accountabilities and expectations are clearly articulated internally under our 'freedom within a framework' concept (see page 61).

Diversity & inclusion (D&I) remain a priority. We have high ambitions but also clear targets which are tracked by the Board to ensure they are achieved. Each member of the Executive Team has personal accountability for diversity in their own area. The Board is temporarily not meeting our stated Board diversity policy objective but we have a very clear aim to rectify this.

We remain a particularly active Board. We seek opportunities outside the boardroom to find out what is happening across the organisation and gain assurance that the Group is operating responsibly and effectively. You will see examples of this as you read through the Directors' Report.

Corporate culture

We continue to create a working environment where every employee at Rolls-Royce is able to be at their best. As a Board, we take every opportunity to assess progress and impacts on culture and behaviour. This has included how we look at talent and succession (see page 77), governance initiatives (page 78), diversity and inclusion, employee engagement and our career framework (pages 67 and 71) in the Directors' Report and the People and Culture report on page 45.

We rolled out anti-bullying and harassment training across the Group in reaction to a trend that was beginning to emerge from feedback to our Ethics Line in 2018 (see page 49).

Lord Gold presented his final report to the Serious Fraud Office in August 2019, in which he noted the exemplary progress made in improving the Company's approach to ethics and anti-bribery and corruption compliance. This concludes Lord Gold's work with us and I would like to thank him for his diligence and commitment which has helped us shape our ethics and compliance programmes. We are committed to continuing our communication and training to employees as well as our monitoring and assurance work.

This means that all our employees are enabled to act with integrity and are able to speak up via our Ethics Line and to call on the support of their local ethics advisers. The Board reviewed the speak-up cases reported through the Ethics Line twice during the year. These are the subject of prior review by the Safety, Ethics & Sustainability Committee, who support the Board in our deliberations in this area. You can read more about this on pages 67 and 110.

HSE, occupational safety and wellbeing remain priorities for the Group. Whist there was improvement in some areas of the business, we were disappointed that the overall total reportable injury (TRI) rate remained flat year-on-year. This will be an area of particular focus in 2020.

Product safety has been an important issue for our industry this year. We have focused on our product safety training and on how safety risk is managed through a time of transformation. We continue to pursue our goal of continuous product safety improvement – this is fundamental to our licence to operate and to the sustainability of our business.

For more information on D&I and employee engagement see People and Culture on page 45.

Board developments

We are very sorry that Ruth Cairnie stepped down from the Board at the end of 2019 to allow her more time to focus on her other commitments, following her appointment as chair of Babcock International Group PLC. Following Ruth's departure, Irene Dorner was appointed as Chairman of the Remuneration Committee, with effect from 1 January 2020. While we note the Code requirement that remuneration committee chairs should have served on a remuneration committee for at least 12 months prior to their appointment, we have every confidence that Irene has the appropriate experience and skills to carry out the role. She formally joined the Remuneration Committee on 1 August 2019. Irene is Employee Champion on the Board, a role she has held for three years. Her role on the Audit Committee over the last four years gives her excellent insights into the financial performance measures and targets for the long and short-term incentive schemes. She has also attended six Remuneration Committee meetings since joining the Board and is therefore familiar with the discussions and workings of the Committee. Irene also has experience of HR in her executive career having spent two years as general manager, human resources for a UK unionised workforce of 55,000 at HSBC. Irene joined Ruth to consult with shareholders on the remuneration policy that will be voted on by shareholders at the 2020 AGM and both attended the joint briefing during the year on wider workforce engagement (see page 86). Irene stepped down from the Audit Committee in December 2019.

Ruth's unexpected departure from the Board temporarily left us short of our own Board diversity targets. However, I am pleased that we have recently announced the appointment of Dame Angela Strank, currently chief scientist and head of downstream technology at BP and a member of their executive management team. Dame Angela will join our Board on 1 May 2020.

Brad Singer also stepped down from the Board in December 2019. As a partner and chief operating officer of ValueAct Capital, he offered a valued external perspective during his time as a Director.

We have continued to push for increased financial and accounting transparency and the reports that follow demonstrate this. We have enhanced our Board expertise on finance and accounting with the appointment of George Culmer in January 2020.

Nick Luff will take over as Chairman of the Audit Committee following the 2020 AGM The Audit Committee looks at our principal risk regarding cyber threat and has formed a sub-committee focused on data security, on which both Nick and George sit. The sub-committee met for the first time in January 2020 and the Audit Committee look forward to hearing their insights during the course of the coming year.

We have decided to retain both Lewis Booth and Sir Frank Chapman for a further period. This is discussed on page 77.

ESG

We have raised the profile of environmental and sustainability issues and aligned the transparency on these issues across the Safety, Ethics & Sustainability Committee and the Science & Technology Committee, as we said we would do last year. We also held our first ESG event in April with investors, on which you can read more on page 78. Sir Frank Chapman and I also attended executive-level committee meetings on the environment and sustainability, enabling us to gain deeper insights while visibly supporting management's goals in these areas. Our purpose clearly reflects the important role we play in society with pioneering sustainable power (see page 10).

Governance

While the Directors have always engaged with and had the best interests of all our stakeholders at the centre of our discussions, the revisions to the Code in 2018 have brought the reporting into more focus and our activities as a Board are reported on page 67. In addition, each of our Non-Executive Directors does much to contribute and represent Rolls-Royce as they go around the world.

We have continued with our governance agenda and gave particular focus in 2019 to our internal governance, developing and articulating our freedom within a framework concept. This defines the framework in which the businesses have the maximum freedom, responsibility and accountability for their performance. Within this are a set of core non-negotiables including common safety standards, Our Code and mandatory Group policies as well as our common approach to talent and performance management and processes, reward and career development. A key element of our transformation programme has been the simplification of the Rolls-Royce management system and the Board's focus has been to ensure that the key principles which keep our products safe are retained.

The framework supports the management focus on culture and behaviours by reinforcing the need for simplification and stripping out unnecessary duplication and bureaucracy, making accountabilities and expectations clear. You can read more about our framework on pages 61 and 78.

Looking forward

We will continue to focus on culture and behaviour as we look to stabilise the operational performance of the business and our cost base. While we pride ourselves on innovative governance, what drives us is the need for governance to fit the needs of the business and to ensure we add value in all that we do. We will continue to do this throughout 2020.

Sir Ian Davis
Chairman

FREEDOM WITHIN A FRAMEWORK

The Executive Team has defined the framework in which the Businesses have the maximum freedom, responsibility and accountability for their performance.

The framework sets out how we are organised as a Group. Having the framework in place enables us to manage risk, drive critical business decisions and maintain standards across the Group. It means we can act with pace and confidence in a way that meets the expectations of our stakeholders.

The framework sets out the roles of the businesses, the Head Office, Group Businesses Services and the Innovation Hub and defines what we mean by empowered businesses.

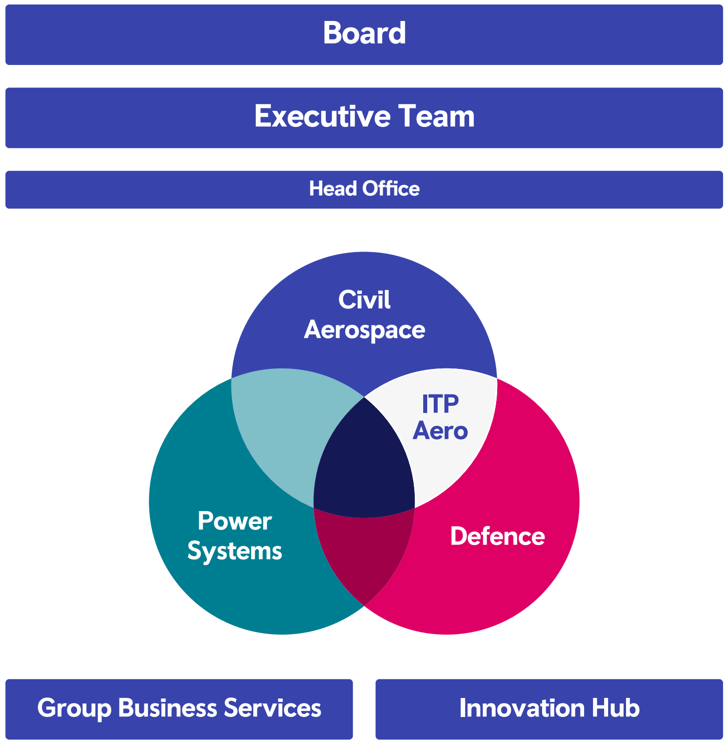
Our people section sets out the capabilities, behaviours, competencies and values which enable us to deliver our strategy.

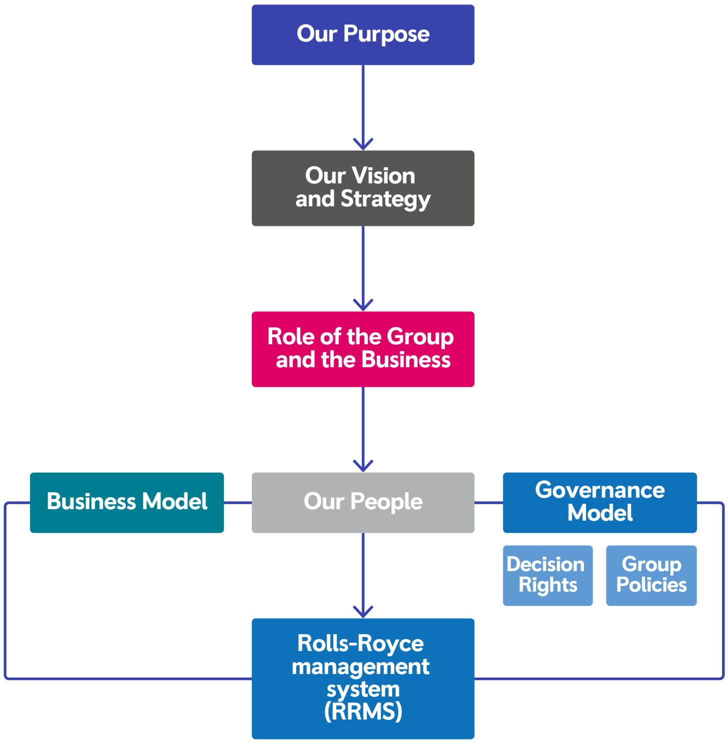
The governance model clarifies decision-making rights and points of accountability and includes a tool for all key decision-makers to access, to support them in their decision-making. It includes details of all governance bodies and decision-making committees within the Group that they may need to consult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

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

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

You can read more about our framework on pages 60 and 78.





DIRECTORS' REPORT

BOARD OF DIRECTORS

1. SIR IAN DAVIS

NG

Chairman of the Board
Chairman, Nominations & Governance Committee

Appointed to the Board in March 2013 and as Chairman in May 2013.

Career Sir Ian was a partner at McKinsey for 31 years and, during his time, served as chairman and worldwide managing director. Sir Ian was knighted in 2019 for services to business.

Board skills and experience Sir Ian brings significant financial and strategic experience and has worked with and advised global organisations and companies. This enables him to draw on knowledge of diverse issues and outcomes to assist the Board.

Other principal roles BP p.l.c., senior independent director; Johnson & Johnson Inc., non-executive director; McKinsey & Company, senior partner emeritus

2. WARREN EAST CBE

Chief Executive

Appointed to the Board in January 2014 and as Chief Executive in July 2015.

Career Warren is an engineer and joined ARM Holdings plc in 1994 where he was CEO from 2001 until 2013. He is a fellow of the Institute of Engineering and Technology; the Royal Academy of Engineering; the Royal Society; and the Royal Aeronautical Society. He was awarded a CBE in 2014 for services to the technology industry.

Board skills and experience Warren brings a deep understanding of technology and developing long-term partnerships. He also has proven strategic and leadership skills within a global business and a strong record of value creation.

Other principal roles ASML Holdings NV, member of the supervisory board (with effect from 22 April 2020)

3. STEPHEN DAINTITH

Chief Financial Officer

Appointed in April 2017.

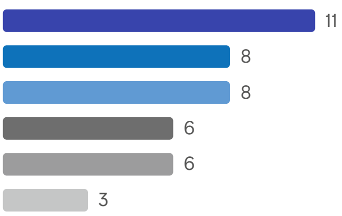
Career Stephen is a chartered accountant. His previous roles include CFO of Daily Mail and General Trust plc from 2011 to 2017. He was CFO and COO of Dow Jones in New York and CFO of News International in London, both part of News Corporation. Prior to this, he held executive positions at British American Tobacco p.l.c.

Board skills and experience Stephen has a strong understanding of international business and an appreciation for looking beyond numbers to help improve performance. His change management experience allows him to make a significant contribution to the long-term growth of the business.

Other principal roles 3i Group plc, non-executive director

Composition of the Board (at 28 February 2020)

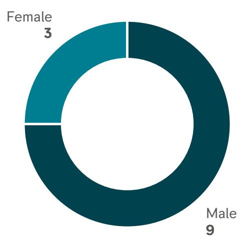
Board skills and experience



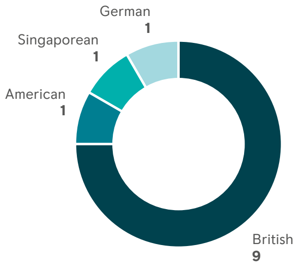
Number of Directors with:
- Chairman/CEO/CFO experience
- Related industry/operational
- Financial
- Engineering/technology
- Safety/regulatory/risk
- Remuneration/HR

* According to the Company's Articles, at least 50% of our Directors must be British citizens.

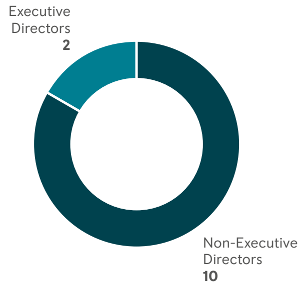
Board members by gender



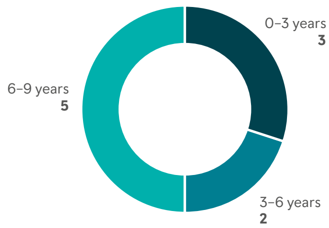
Board members by nationality *



Balance of the Board



Non-Executive Directors' tenure

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4. LEWIS BOOTH CBE

NG A R

Independent Non-Executive Director
Chairman, Audit Committee

Appointed in May 2011.

Career After gaining a bachelor of engineering degree with honours in mechanical engineering, Lewis began his career with British Leyland. He spent 34 years at Ford Motor Company including as executive vice president and CFO. He was awarded a CBE in 2012 for services to the UK automotive and manufacturing industries.

Board skills and experience Lewis has considerable financial expertise and experience, of great benefit to both the Board and in his role as Chairman of the Audit Committee. He brings a global perspective and is recognised as one of the strongest and most experienced international leaders in his sector.

Other principal roles Mondelez International Inc., director

5. SIR FRANK CHAPMAN

NG SES ST

Independent Non-Executive Director
Chairman, Safety, Ethics & Sustainability Committee

Appointed in November 2011.

Career Sir Frank is a chartered engineer. With more than 40 years spent in the oil & gas sector, he was chief executive of BG Group plc for 12 years and chairman of Golar LNG Limited. He is a fellow of the Royal Academy of Engineering, the Institute of Mechanical Engineers and the Energy Institute. He was knighted in 2011 for services to the oil & gas industry.

Board skills and experience Sir Frank has an outstanding record of business achievement, a life-long passion for engineering and innovation and a deep understanding of technology. His significant industrial and safety experience are invaluable to the Board and its committees.

Other principal roles NextDecade Corporation, non-executive director; Myeloma UK, vice chairman

6. GEORGE CULMER

NG A SES

Independent Non-Executive Director

Appointed in January 2020.

Career George is a chartered accountant. Having started his career with Coopers & Lybrand, he has held senior financial positions with Prudential, Zurich Financial Services and RSA Insurance Group where he was chief financial officer. Until August 2019, George was CFO at Lloyds Banking Group, a position he held for 7 years.

Board skills and experience George has significant experience gained in large, international, highly regulated groups and has proven business leadership credentials. Together with this, he brings to the Board and its committees change leadership and transformation experience gained from within complex groups.

Other principal roles Aviva plc, senior independent non-executive director

7. IRENE DORNER

NG R SES

Independent Non-Executive Director
Chairman, Remuneration Committee
Employee Champion

Appointed in July 2015.

Career Irene was CEO and president of HSBC, US until retiring in 2014. During her 30-year career with HSBC, she held a number of international roles including CEO of HSBC in Malaysia. Irene is an honorary fellow of St Anne's College Oxford. She qualified as a barrister-at-law in London and from 2015 to 2016, was a consultant at PwC.

Board skills and experience With a strong background in risk management, gained from the financial sector, Irene brings valuable insight as part of her role on our Board committees. As a passionate advocate of diversity & inclusion, she has embraced the role of Employee Champion and ensures the views of the workforce are properly reflected in the Board's discussions.

Other principal roles Taylor Wimpey, chair; AXA SA, director; Control Risks Group, chair

8. BEVERLY GOULET

NG A R

Independent Non-Executive Director
Employee Champion, North America

Appointed in July 2017.

Career Beverly, a US national, started her career as a securities and M&A lawyer and has spent a considerable amount of her career in the airline industry. From 1993, Beverly was a key member of the executive team of American Airlines where she served in a number of senior roles.

Board skills and experience Beverly brings valuable knowledge and operational experience gained from within the airline sector. Together with her expertise in finance, treasury, strategy, legal and governance matters, she actively takes part in the development and strengthening of our business.

Other principal roles Xenia Hotels and Resorts Inc., non-executive director; Texas Women's Foundation, board member; American Airlines Federal Credit Union, board chair; Rolls-Royce North America Holdings, Inc., board member

9. LEE HSIEN YANG

NG A SES

Independent Non-Executive Director

Appointed in January 2014.

Career A Singaporean, Hsien Yang was chief executive of Singapore Telecommunications Limited for 12 years. He was a former member of the Rolls-Royce International Advisory Board, he served as chairman and non-executive director of Fraser and Neave Limited from 2007 to 2013 and Chairman of the Civil Aviation Authority of Singapore.

Board skills and experience Hsien Yang combines a strong background in engineering with extensive international business and management experience in a key market for the Company. His significant industrial and financial skills prove valuable in his committee memberships.

Other principal roles INSEAD South East Asia Council, president


10


11


12


13


14

Key

- NG Nominations & Governance Committee
- A Audit Committee
- R Remuneration Committee
- SES Safety, Ethics & Sustainability Committee
- ST Science & Technology Committee

10. NICK LUFF

NG A SES

Independent Non-Executive Director

Appointed in May 2018.

Career Nick is a chartered accountant. He is chief financial officer of RELX plc, playing a key role in driving shareholder returns as the company transforms its business and simplifies its corporate structure. Nick was previously CFO of Centrica plc for seven years and, prior to that, P&O Group. Nick has formerly been audit committee chairman and a non-executive director of both Lloyds Banking Group plc and QinetiQ Group plc.

Boards skills and experience Nick has broad financial skills and a track record of driving business performance. In addition, he has extensive non-executive experience. This exposure together with both financial and accounting expertise and a passion for engineering is invaluable to the Board.

Other principal roles RELX plc, chief financial officer

11. SIR KEVIN SMITH CBE

NG R ST

Senior Independent Director
Chairman, Science & Technology Committee

Appointed in November 2015.

Career Sir Kevin was group chief executive of GKN plc for nine years. Before GKN, he spent nearly 20 years with BAE Systems in a number of senior executive positions. He has an honorary fellowship doctorate from Cranfield University and is an honorary fellow of the University of Central Lancashire. He was awarded a CBE in 1997 and knighted in 2006 for services to industry.

Board skills and experience Sir Kevin has extensive industrial leadership experience and a deep knowledge of engineering and manufacturing businesses, as well as the aerospace industry. He makes a significant contribution to the growth and development of our key strategies, both as a member of the Board and as Chairman of the Science & Technology Committee.

Other principal roles L.E.K. Consulting, European advisory board member

12. PAMELA COLES

Company Secretary
Chief Governance Officer

Appointed in October 2014.

Career Pamela is a fellow of The Chartered Governance Institute. She joined Rolls-Royce from Centrica plc, where she was head of secretariat. Pamela's previous roles also include group company secretary and a member of the executive committee at The Rank Group plc and company secretary and head of legal at RAC plc.

Skills and experience Pamela is an expert in corporate governance and company law. With a pragmatic approach to how the Governance Team supports the business, she has been instrumental in supporting the Chairman and the Non-Executive Directors to build strong relationships with the management team and has been able to offer advice and guidance on a wide range of topics.

Other principal roles E-ACT, non-executive director

13. JASMIN STAIBLIN

NG ST

Independent Non-Executive Director

Appointed in May 2012.

Career A German national, Jasmin was the CEO of Alpiq Holding AG from 2013 to 2018. Prior to this, she held a number of senior positions in the ABB Group working in Switzerland, Sweden and Australia, becoming CEO of ABB Switzerland from 2006 until 2012.

Board skills and experience Jasmin combines a strong background in advanced engineering and deep technology knowledge with extensive international business experience in the industrial sector. With a background dominated by science and technology, she makes a significant contribution both to the Board and as a member of the Science & Technology Committee.

Other principal roles Zurich Insurance Group, non-executive director; NXP Semiconductors N.V., non-executive director; Georg Fischer AG, non-executive director

14. DAME ANGELA STRANK

NG SES ST

Independent Non-Executive Director

To join the Board in May 2020.

Career Dame Angela is a chartered engineer and is currently chief scientist and head of downstream technology at BP and a member of their executive management team. She joined BP in 1982 and has held a number of senior executive roles. She is a fellow of the UK Energy Institute, the Institute of Chemical Engineers, the Royal Academy of Engineers and the Royal Society. Dame Angela received a DBE in 2017 for services to the oil & gas industry and for encouraging women into STEM careers.

Skills and experience Dame Angela brings a proven track record in managing engineering operations and technology and digital research and development programmes. She is a recognised role model for women in both the energy industry and STEM careers in business and industry.

Other principal roles Severn Trent plc, non-executive director

Board committee membership *

	NG	A	R	SES	ST
Sir Ian Davis	C				
Lewis Booth	■	C	■		
Sir Frank Chapman	■			C	■
George Culmer	■	■		■	
Irene Dorner	■		C	■	
Beverly Goulet	■	■	■		
Lee Hsien Yang	■	■		■	
Nick Luff	■	■		■	
Sir Kevin Smith	■		■		C
Jasmin Staiblin	■				■

C Chairman
* at 28 February 2020

Full Directors' biographies can be found at www.rolls-royce.com

CORPORATE GOVERNANCE

The Board

The role of the Board

The Board is ultimately responsible to shareholders for the direction, management, performance and long-term sustainable success of the Company. It sets the Group's strategy and objectives and oversees and monitors internal controls, risk management, principal risks, governance and viability of the Company. In doing so, the Directors comply with their duties under section 172 of the Companies Act 2006 (see page 56).

The Board has established certain principal committees to assist it in fulfilling its oversight responsibilities, providing dedicated focus on particular areas, as set out below. Each committee chairman reports to the Board on the committee's activities after each meeting.

In addition to the Board's principal committees, it has established a sub-committee of Directors who each hold an appropriate level of UK national security clearance for the purpose of receiving and considering, on behalf of the Board, any UK classified information relating to the Group's programmes and activities. Beverly Goulet, a US national and independent Non-Executive Director, also sits on the board of Rolls-Royce North America Holdings, Inc. to create a link between the Board and the Group's North American governance structure.

Key matters reserved to the Board

- The Group's long-term objectives, strategy and risk appetite
- The Group's organisation and capability
- Stakeholder engagement
- Overall corporate governance arrangements including Board and committee composition, committee terms of reference, Directors' independence and conflicts of interest
- Internal controls, governance and risk management frameworks
- Changes to the corporate or capital structure of the Company
- Annual Report and financial and regulatory announcements
- Significant changes in accounting policies or practices
- Annual budgets and financial expenditure and commitments above levels set by the Board
- Overview of speak up cases reported through the Ethics Line

The Board committees

Nominations & Governance Committee	Audit Committee	Remuneration Committee	Safety, Ethics & Sustainability Committee	Science & Technology Committee
Board and committee composition	Financial reporting	Remuneration policy	Product safety	Technology strategy
Board nominations	Internal controls and risk management	Incentive design and setting of targets	HSE	Cross-sector technology
Succession planning for Directors and senior management	Internal audit	Executive and senior management remuneration review	Sustainability	Technology capabilities and skills
Corporate governance	External audit	Workforce remuneration review and related policies	Ethics and compliance	Technology trends and risks
Oversight of principal risk – talent and capability	Oversight of principal risks – business continuity, market and financial shock, cyber threat		Oversight of principal risks – safety, compliance, climate change, strategic transformation	

Roles and responsibilities

The roles of the Chairman and Chief Executive are clearly defined and the Board supports the separation of the two roles. The Chairman is responsible for the leadership and effectiveness of the Board. The Chief Executive is responsible for the running of the Group's business and leads the Executive Team which comes together to communicate, review and agree on issues and actions of Group-wide significance. Non-Executive Directors support the Chairman and provide objective and constructive challenge to management. The Senior Independent Director (SID) provides a sounding board for the Chairman and serves as an intermediary for the Chief Executive, other Directors and shareholders when required. The Company Secretary makes sure that appropriate and timely information is provided to the Board and its committees and is responsible for advising and supporting the Chairman and Board on all governance matters. All Directors have access to the Company Secretary and may take independent professional advice at the Company's expense in conducting their duties.

Board and committee meetings held in 2019

At the end of most scheduled meetings, the Chairman holds meetings with the Non-Executive Directors without the Executive Directors or management present.

Two additional scheduled meetings of the Audit Committee were added to the 2019 calendar, one additional meeting ahead of both the 2018 preliminary and 2019 interim results, to ensure the Committee was appropriately briefed ahead of time.

The Board held an unscheduled meeting in March to review the future opportunities for ITP Aero and in October to follow up on discussions raised at the meeting in September.

The Remuneration Committee also held an unscheduled meeting in February to follow up on discussions at the January meeting regarding executive reward.

Non-attendance

Board members are sometimes unable to participate in certain Board and committee meetings due to other business commitments. For 2019, attendance was 100% for all directors. However, if any Directors were unable to attend a meeting, they would communicate their opinions and comments on the matters to be considered via the Chairman of the Board or the relevant committee chairman.

Board and committee members and attendance at scheduled meetings in 2019

	Board (9 meetings)	Nominations & Governance (6 meetings)	Audit (7 meetings)	Remuneration (7 meetings)	Safety, Ethics & Sustainability (3 meetings)	Science & Technology (4 meetings)
Sir Ian Davis	9/9	6/6				
Warren East	9/9					
Stephen Daintith	9/9					
Lewis Booth	9/9	6/6	7/7	7/7		
Ruth Cairnie (stepped down 31 December 2019)	9/9	6/6		7/7		4/4
Sir Frank Chapman	9/9	6/6			3/3	4/4
Irene Dorner	9/9	6/6	7/7	3/3 [1]	3/3	
Beverly Goulet	9/9	6/6	7/7	7/7		
Lee Hsien Yang	9/9	6/6	7/7		3/3	
Nick Luff	9/9	6/6	7/7		3/3	
Brad Singer (stepped down 9 December 2019)	8/8					4/4
Sir Kevin Smith	9/9	6/6		7/7		4/4
Jasmin Staiblin	9/9	6/6				4/4

[1] Irene Dorner was appointed to the Remuneration Committee in August 2019. She stepped down from the Audit Committee at the end of 2019.

Board's focus during the year

Area of focus	Key matters considered	Outcome
Group purpose	Corporate narrative	During the year, the Executive Team developed the corporate narrative to further define and articulate the Group's purpose – to connect, power and protect society (see page 10). The corporate narrative aligned with the Group's vision and strategy and with the Board's engagement and focus on ESG issues, as demonstrated through the ESG shareholder event (see page 78).
Strategy	Review of the Group's strategy and acquisition of Siemens' eAircraft business	The Board received regular updates on strategy throughout the year and, in September, held a two-day meeting with the Executive Team focused on operational and financial progress against the Group's short and long-term plans. The Board received detailed updates on progress with the execution of the transformation programme, particularly with the simplification initiatives, cost reduction, skills alignment to future requirements and the cultural agenda. In May, the Board held its meetings in Bristol, UK at our main UK-based Defence site and received an update on the Defence business strategy. At that meeting, the Board also received an update on the Group's Services strategy across both the Defence and Civil Aerospace businesses. The agreement to acquire Siemens' eAircraft business in June accelerated the delivery of the Group's electrification strategy.
	Withdrawal from engine competition for new midsize airplane platform (NMA)	In February, the Board confirmed the decision to withdraw from the competition to power Boeing's proposed middle of the market, or NMA, platform. We were unable to commit to the proposed timetable to ensure we had a sufficiently mature product which would support Boeing's ambition for the aircraft and which would satisfy our own internal requirements for technical maturity at entry into service. The Board agreed it was important to deliver on the current engine programmes and focus on the development of new technologies such as our next generation UltraFan.
Culture	Review of the culture change agenda	The transformation programme has a cultural change agenda at its core and the Board has sought ways to track progress and seek feedback on how the behaviours articulated in the people framework (see page 45) are embedding. This included: — presentations from the Group People Director on diversity & inclusion, talent and succession and the leadership learning, performance management and career frameworks; — feedback from the Employee Champions, much of which was focused on simplification and leadership of culture change; — progress report on the anti-bullying and harassment campaign and training (see page 49); — updates on engagement with the UK Trade Unions and European Works Council and their reactions to restructuring proposals; — delivery of the safety agenda; — noting of Lord Gold's final report on the Group's approach to ethics and anti-bribery and corruption (see page 109); — progress report on the simplification processes (for example, RRMS, finance transformation, Civil Aerospace transformation); — reviews from the Ethics Line; — outcome from the employee surveys; — feedback from the 'let's talk' engagement sessions led by the Executive Team (see page 46); and — interaction from the Meet the Board, site visits and other engagement sessions (see page 71).
	UK pensions	The Board considered the transfer of certain pension risk liabilities to Legal & General Assurance Society Ltd by the Group's UK pension trustees which would reduce the Group's post-retirement obligations by around £4.1bn (see page 47). In order to complete the transaction, which the Board agreed was in the best interests of former and current employees, as well as for the financial strength of the Group, the Board agreed to make an exceptional cash contribution of around £30m. The Board also noted the changes to the defined benefit pension scheme for UK managers. More details of this review can also be found on page 47. The Board also considered issues that were raised in respect of this review through the Ethics Line (see page 110).

Area of focus	Key matters considered	Outcome
Risk	Review of risk appetite and principal risks, with a focus on major product programme delivery. During the year the Board: — reviewed emerging and principal risks — added climate change as a stand-alone principal risk — set up a Board-level data security committee	The Board reviewed and approved the effectiveness of the Group's risk management system and carried out a robust assessment of the principal risks facing the Company, set out on pages 50 to 54, including those that would threaten its business model, future performance, solvency or liquidity. The Board received an update on the effectiveness of risk management from the Audit Committee in December and agreed with the inclusion of the risk of climate change to future revenue growth as an additional principal risk. The implications of Brexit were kept under review throughout the year. For more information on our approach to emerging risks, including Brexit, see page 50. The Trent 1000 programme was the subject of discussion at each Board meeting throughout the year and the risks to the programme and impact on customers were considered at each meeting. The Board completed a robust assessment of the Company's emerging and principal risks (see page 50). It was agreed that it was appropriate to elevate the executive committee looking at data security to a Board-level committee, and this committee, which is a sub-committee of the Audit Committee, held its first meeting in January 2020.
Operational performance/ challenges	Civil Aerospace operational delivery programme ramp-up	The Business President for Civil Aerospace attended each Board meeting to provide a business review including progress against key operational milestones. The operations director attended the September meeting to present an in-depth review of the operations improvement programmes.
	Civil Aerospace programme challenges	The Board maintained a strong focus on the operational and technical challenges within the Trent 1000 fleet and worked closely with the Civil Aerospace team to develop a dashboard of key metrics for review at each Board meeting. A detailed technical update was presented by the engineering & technology director in December.
Financial Performance	Balance sheet review	The Board has been focusing on strengthening the balance sheet, retaining the proceeds from the sale of Commercial Marine and Power Developments; and also from two further small disposals (see page 16) and on improving the quality and sustainability of our cash flow, keeping a close watch on our credit ratings.
	Payment to shareholders	The Board is not proposing an increase in the final dividend payment for 2019. This will be held flat at 7.1p per share and brings the full payment for the year to 11.7p per share.
	Capital allocation	The Board also reviewed and agreed its approach and overview of capital allocation which had been refined as part of the governance model.
	Introduction of new accounting standard IFRS 16	The Board was assured that the judgements and estimates made in preparation for the financial statements were consistent with the new requirements.
	Finance transformation	Updates were received on progress with: the drive to transform and simplify the reporting and forecasting processes; and the introduction of Group Business Services, the new shared services environment that went live from January 2019.
Governance	Stakeholder engagement and governance	The Board considered how it engaged with all its stakeholders and continued with its own programmes, such as the ESG shareholder event, Meet the Board, Employee Champion schedules and individual Non-Executive Director site visits and town hall meetings. Details can be found in our s172 statement on page 56 and our stakeholder engagement report on pages 70 to 72. The Board also reviewed investor feedback following our full and half-year financial results, feedback from the Ethics Line in August and December, payment practices for the Group's subsidiaries, gender pay gap reporting and the Group's modern slavery statement.
	Non-financial controls	The Board considered an updated framework, including core decision rights and the simplification of the RRMS – articulating our freedom within a framework culture (see page 61).

Area of focus	Key matters considered	Outcome
Succession and leadership	Succession planning	During the course of the year, the Board considered the principal risk relating to talent and capability and reviewed succession at the most senior levels of the business (see page 77).
	Effectiveness of the Board, Chairman and Chief Executive	A light touch external evaluation was undertaken, following on from the comprehensive evaluation in 2018, and it concluded that the Board continued to operate effectively in 2019 (see page 74). The Chairman and Chief Executive received constructive feedback on their respective performance.

The Board's area of focus in 2020 are expected to include:

- continued monitoring of financial and operational performance
- the safety agenda
- the Group's culture through continued transformation
- execution of strategic priorities
- principal risk reviews

Our Board apprentice programme defined

You can read more about our Board apprentice programme on pages 71 and 77.

Participant programme induction

Board member briefing

Assigned to core committee

- Audit Committee
- Safety, Ethics & Sustainability
- Science & Technology

Supplementary rotations

- Remuneration Committee
- Employee Stakeholder Committee
- Data Security Committee
- Environment & Sustainability Committee

Additional elements

- Two Board mentors and Executive Team sponsor
- AGM and Meet the Board event
- Masterclasses and networking opportunities

Stakeholder engagement

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

The table below identifies some of our stakeholders and how both the Company and the Board engage with them. More details can be found on www.rolls-royce.com. The Board considers the different stakeholder groups and our engagement programmes and identifies opportunities for strengthening both its relationships and understanding to facilitate the decisions and contributions made by the Board to the success of the business.

Customers	The Board recognises that the quality of the Group's customer relationships is based on mutual trust as well as its engineering expertise. In April, Sir Ian Davis and Lee Hsien Yang travelled to China for meetings with customers, both existing and prospective. In October, Sir Frank Chapman and Irene Dorner met with customers during their visit to Singapore. Sir Ian Davis also met with Airbus in both November and January 2020 to support the Executive Team in their dialogue with them. The sale of the Group's Commercial Marine business to KONGSBERG, completed on 1 April 2019, and the importance of maintaining strong relationships with them was noted and discussed by the Board as KONGSBERG became the largest customer of the Power Systems business. The Board regularly receives operational updates, including customer metrics and feedback, from each of the businesses at every meeting with the Business Presidents regularly presenting to the Board. During the operational challenges experienced by our affected airline customers as a result of the in-service issues with the Trent 1000, the Board has kept very close to our customer engagement throughout the year and received specific feedback from the Civil Aerospace Business President on the issues and mitigation plans and their impacts on our customers, which greatly influenced the Board's deliberations and support for the Executive Team when considering: - our strategy and the transition of technologies, capabilities, resources and value to meet our business horizons (see page 10) - increasing our stock of spare engines and accelerating growth in our MRO network (see page 8) - future technologies, specifically our withdrawal from the competition to power Boeing's NMA platform, enabling us to focus on the development of innovating new technologies, such as UltraFan (see page 26) and accelerating our electrical strategy (see page 11) - product safety and asset integrity throughout the transformation (see page 107) - the introduction of a new balanced scorecard of metrics for each business which would demonstrate whether we are meeting our commitments to our customers across our businesses (see page 15) - key auditing judgements and estimates in respect of customer loss-making contracts and restructuring costs as a result of the Trent 1000 in-service issues (see page 82)
Investors	The Investor Relations team is in constant dialogue with investors and reports regularly to the Board on shareholder feedback, especially post results. The Chief Executive and Chief Financial Officer, supported by members of the Executive Team, meet with investors, following both the preliminary and interim results, as well as at various times throughout the year. We held an event in April for our institutional investors focused on environmental, social and governance (ESG) matters which was very well received. The Chairman, together with the relevant committee chairmen, the Company Secretary and one of our Board apprentices, provided insights into our ESG initiatives which were followed by engaging and interactive sessions in smaller groups. In addition, Ruth Cairnie and Irene Dorner met with a number of shareholders as part of the consultation on our remuneration policy. The Chairman, Senior Independent Director and members of the Board make themselves available to meet with institutional investors when requested and the Board hold our AGM in different locations in order to reach a wider shareholder base. We recognise the importance of our investors as a key stakeholder in our discussions and ensure that we are able to create confidence in our Company through: - financial performance and the economic impact of our decisions - robust governance and transparency of reporting - delivering a sustainable, stable and predictable performance

OUR BOARD APPRENTICES

Our current Board apprentice cohort comprises six individuals from different parts of the Group including Civil Aerospace, Defence, corporate functions and one of our joint ventures.

They are based in France, Singapore, US and UK and have been selected through our talent and succession process. We intend to extend this successful programme to a third cohort which will start during the course of 2020. You can read more about how the programme operates on pages 69 and 77.

Employees

The Board recognises that it is through our people that we fulfil our potential, achieve our vision and execute our strategy. For this reason, we take the role of Employee Champion very seriously to ensure there is a voice of the employees in the boardroom. Irene Dorner has continued in her role as Employee Champion for a third year and meets with employee groups and attends employee stakeholder engagement meetings. Irene has a programme of events which, during the year, included attendance at: the launch of EAST, our Asian employee resource group; two UK Council meetings; a meeting of our local ethics advisers; a meeting with the ethics and compliance and case management teams; the diversity & inclusion and sustainability focus groups in Singapore; and an event hosted by PRISM, our LBGT+ employee resource group on how to make the workplace more inclusive. Irene also has regular dialogue with the Group People Director and together they review the outcomes from the employee surveys and Ethics Line reports. Irene can be contacted by any employee by email. Beverley Goulet also continued in her role as the Board’s Employee Champion for our North American employees, this year concentrating on our smaller sites, holding roundtables with groups of employees at each one. The Board Champions are supported by an employee stakeholder engagement group where we discuss what we have learnt and plan future schedules. Having now run this programme for a few years, we are considering ways to develop it further. This will include a three-year programme of meetings and events to reach across all our employee groups and to engage with more employees in planning how the programme is structured.

Irene and Beverly regularly provide feedback to the Board on employee topics of interest and/or concern. The direct link that they provide between the employees and the Directors is proving to be extremely valuable, particularly through this period of extensive change. The main themes that they reported this year were on transformation and culture; the importance of the relationship with the UK unions; progress with the anti-bullying and harassment campaign; leadership capability; communications; and stress and mental wellbeing. Irene and Sir Frank Chapman also requested a report from the head of ethics and compliance on the proposed changes to the UK defined benefit pension scheme (see page 110).

During the year, our now regular Meet the Board event was held in Bristol, UK and smaller town hall events were held in Singapore, Hong Kong, Beijing and Xi’an, China. We also held a ‘Yammer’ session with Lewis Booth and Stephen Daintith during which any employee could ask questions live, online. The Directors take every opportunity to meet with local employees when visiting different business locations. For example, when visiting Dahlewitz, Germany three of our Non-Executive Directors took the opportunity to have lunch with a group of our high-potentials and young engineers.

The Board discusses employee relations regularly and this year, particularly, in relation to transformation and the culture agenda. As can be read in the People and Culture report (pages 45 to 48) and the committee reports, the Board reviews both the behaviours and statistics on safety and diversity & inclusion as well as the talent management agenda at all levels across the Group. Finally, when considering M&A activity, the Board always remains mindful of any impacts on employees.

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. Suppliers' interests are considered as part of the Board's discussions on manufacturing strategy and when reviewing specific projects. Critical suppliers are, of course, considered as part of the assessment of the business continuity risks. The Board supports our Executive Team who work collaboratively with our suppliers to continue to improve operational performance through various means: ▸ Sir Kevin Smith's ongoing meetings with companies in our supply chain to hear their views first hand ▸ the Board's assessment of the business continuity risk including critical suppliers (see pages 51 and 80) ▸ a full review of the Group's supplier payment terms as part of the decision to withdraw from the UK Government's prompt payment code following a change in the assessment approach. This in no way changes the Group's demonstrable commitment to the fair and appropriate treatment of all our suppliers ▸ endorsement of our global supplier code of conduct which sets out the behaviours, practices and standards we expect to see demonstrated and complied with, together with our associated certification and risk monitoring processes (see page 49) ▸ availability of our value chain competitiveness improvement framework to our industry partners, providing a suite of lean, best practice principles and tools required to operate and improve manufacturing value chains (see www.rolls-royce.com)
Communities	On their site visits, Directors will meet with relevant community groups whenever possible and will engage with certain community programmes should they be requested to do so. Irene Dorner and Beverly Goulet will always take the opportunity to meet with relevant community groups as part of their roles as Employee Champions. Details of the Group's outreach in 2019 are set out on page 46 and include: ▸ STEM activities, including the Rolls-Royce Schools Prize for Science & Technology at the Science Museum in London, UK, attended by both Sir Ian Davis and Irene Dorner ▸ investments, both time and money, in communities local to our operations, with all employees encouraged to commit Company time to community and STEM projects
Governing bodies and regulators	The Board 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 focus on regulators benefits from the previous experience of Lee Hsien Yang, having been chairman of the Singapore CAA. The General Counsel provides regular updates to the Board on compliance with regulators and the Safety, Ethics & Sustainability Committee discusses how the business engages with airworthiness regulators as well as receiving updates on the continuing dialogue and co-operation with prosecutors, regulators and government agencies. The Board is updated on the Group's engagement with the tax authorities and the related regulatory landscape is discussed by both the Board and the Audit Committee. In addition, meetings with ministers and senior officials are held as relevant throughout the year, with the Chairman supporting the Chief Executive's engagement programme at various airshows. Of particular note during 2019: ▸ Lewis Booth and Pamela Coles met with Sir Donald Brydon to discuss his independent review on the quality and effectiveness of audit in the UK market ▸ Irene Dorner and Pamela Coles met with the Trades Union Congress, 'the voice of Britain at work', to share ideas on employee engagement initiatives in large corporates ▸ Sir Ian Davis and Lee Hsien Yang held meetings with HM Ambassador to the People's Republic of China (PRC) and the Ministry of Industry and Information Technology of PRC to gain a perspective on relations between the UK and China and to discuss the Group's strategic direction ▸ both Sir Frank Chapman and Irene Dorner travelled to Singapore in September and met, amongst others, with the Economic Development Board and the British Chamber of Commerce ▸ the creation of a government relations centre of excellence, as part of the transformation programme, to bring together the global government relations team into a community to shape how government relations are delivered and how it adds value for the Group

Board induction and development

The Chairman and Company Secretary arrange a comprehensive, tailored induction programme for newly-appointed Non-Executive Directors, which includes dedicated time with the Executive Team and senior management and scheduled trips to business operations. The programme is tailored based on experience and background and the requirements of the role.

All Directors visit the Group's main operating sites as part of their induction and are encouraged to make at least one visit to other sites each year throughout their tenure. In 2019, Board members visited locations including: Dahlewitz and Friedrichshafen, Germany; Derby and Bristol, UK; Pascagoula, Novi and Mankato, US; Beijing, Xi'an and Shanghai, China; Hong Kong and Singapore. We regard these site visits as an important part of continuing education as well as an essential part of the induction process. They help Directors understand the Group's activities through direct experience of seeing processes in operation and by having discussions with a range of employees.

George Culmer was appointed to the Board in January 2020 and at that time joined the Nominations & Governance, Audit, and Safety, Ethics & Sustainability Committees. Since his appointment, he has embarked on his induction programme and met with members of the Executive Team. George has visited Civil Aerospace in Derby, UK and will be visiting both Defence in Bristol, UK and Rolls-Royce Power Systems in Friedrichshafen, Germany in early April 2020.

It is important that the Directors continue to develop and refresh their understanding of the Group's activities. To facilitate this, the Board met local management at its meeting in May in Bristol, UK. More detail of the Board's engagement with its stakeholders is set out on pages 70 to 72.

It is also important that the Directors regularly refresh and update their skills and knowledge and receive relevant training when necessary. Members of the Board also attend relevant seminars, conferences and training events to keep up-to-date on developments in key areas.

Board induction programme for George Culmer

Timing	People to meet	Key topics covered
Within first three months	Chairman	Overview of the Board Nominations & Governance Committee
	Committee chairmen	Overview of committees Plan of work for the year Current issues
	Chief Executive	Business model Current strategic priorities Opportunities/risks Current issues
	Chief Financial Officer	Finance, treasury, M&A and tax overviews Budget Accounting issues
	Company Secretary	UK Corporate Governance Code and directors' duties UK listed company requirements Rolls-Royce framework Board arrangements and meeting dates
	Executive Team members and senior management	Overview of each area of responsibility, including: — markets and competition — operational and financial performance including KPIs — functional responsibility — current issues
	Internal and external auditors	Audit report and findings Financial and non-financial controls Accounting judgements

Board effectiveness

Board and committee review

In 2018, having undertaken both benchmarking and tender exercises, Belinda Hudson Limited (BHL), expert in enhancing board effectiveness, was appointed for a three-year term to undertake our externally-facilitated effectiveness reviews. BHL's appointment was based on cultural fit, the research that BHL had undertaken which highlighted the areas that needed addressing, and commercial competitiveness. BHL had no other connection with the Company nor its Directors.

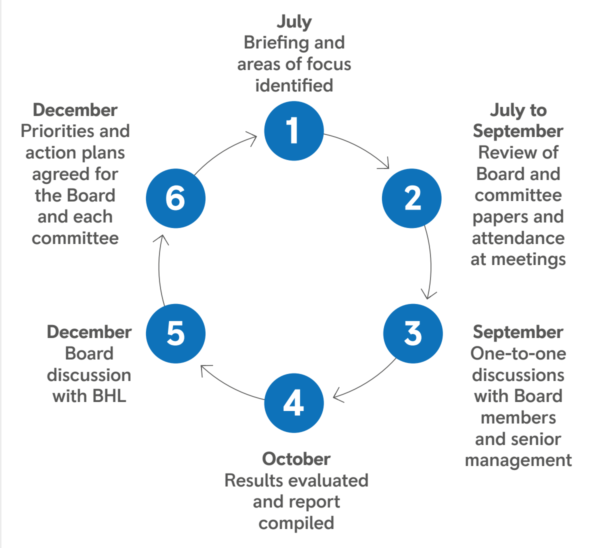
Following a comprehensive review in 2018, a slightly less in-depth review was conducted in 2019. As in 2018, it covered Board composition and dynamics, the Board's role and the Board at work but with particular focus on those areas identified as requiring further development during the previous year's review.

The effectiveness of each of the Board's committees was taken into account as part of the evaluation.

This review took the form of: confidential one-to-one discussions between BHL and members of the Board and several senior management executives; and BHL's attendance at the Board's two-day meeting in September to review the Group's operational and financial performance. The Board discussed the findings of the report at its meeting in December which BHL attended. BHL has reviewed and agreed this disclosure of Board effectiveness.

At a private meeting of the Non-Executive Directors, Sir Kevin Smith, Senior Independent Director, led a review of the Chairman's performance without the Chairman present. The Nominations & Governance Committee also met without any management present to discuss the performance of the Chief Executive. The meetings concluded that both the Chairman and the Chief Executive continued to be effective and constructive feedback was shared with each of them.

Stages of the Board and committee effectiveness review



Progress on key areas

Areas of focus	Focus for 2019	Progress in 2019	Focus for 2020
Board composition and dynamics	Continued focus on the Board succession programme and skills matrix together with a review of the composition of the Board's committees to maximise co-ordination across their respective duties and to prepare for future Board changes.	The 2019 evaluation concluded that one of the Chairman's strengths is his approach to Board composition and succession planning and that Rolls-Royce has the ability to attract very strong candidates as Non-Executive Directors.	The Board could be clearer in the communication of their priorities and expectations with the Executive Team.
The Board's role	With engagement from different parts of the business, a restructuring update to be provided at each Board meeting with a watchful eye on the cultural impact as the transformation programme continues to be embedded across the Group.	The evaluation showed that the agendas have been well structured throughout 2019 and the focus has shifted to the necessary issues.	Continued close scrutiny of the plans and risks relating to the transformation programme. There is scope for the Board to add more value as the focus is increased on strategic issues and opportunities.
The Board at work	Emphasis on the co-ordination of agendas and papers between the Board and its committees and the Executive Team to strengthen further the linkage and feedback mechanisms.	The quality of the information provided to the Board has improved during 2019, particularly for the operational and financial review day in September and on the competitive environment. The evaluation also identified that the work of each of the committees remained effective.	Continued support and linkage between the work of the Executive Team and the Board to ensure they are aligned for success.

NOMINATIONS & GOVERNANCE

SIR IAN DAVIS
Chairman of the Nominations & Governance Committee

Key highlights
- Re-appointment of Sir Ian Davis and Lee Hsien Yang, each for a further three-year term
- Appointments of George Culmer and Dame Angela Strank as Non-Executive Directors
- Updated framework
- Diversity & inclusion and career framework reviewed

Introduction

The Committee ensures that the composition of the Board is appropriate and relevant so that the Board is in the best position to oversee operational performance and to drive the Group's strategy. We have considerably improved Executive Team succession with a broader list of credible successors with improved diversity.

The Committee also keeps the Group's corporate governance arrangements under review. We strive to take an innovative approach in all that we do and that includes our approach to governance. During the year, we updated our framework expanding it to include our core decision rights and the restructuring of our RRMS, aligning and simplifying them as part of the Group's transformation programme and the articulation of our freedom within a framework culture. We have continued with our Meet the Board events, with a very well attended meeting in May following our AGM as well as smaller events scheduled for when the Non-Executive Directors are visiting our sites. Our Board apprentice programme has matured and we have just completed our third year since the introduction of our Board Employee Champion role. In April, we held a very well attended ESG event for our investors.

Membership and operation of the Committee

All members of the Committee are independent Non-Executive Directors. Our biographies are on pages 62 to 64 and meeting attendance is on page 66. No Director attends discussions relating to their own appointment.

The Committee's responsibilities are outlined in its terms of reference which can be found at www.rolls-royce.com. We review these annually and refer them to the Board for approval. No changes have been made in 2019. This follows a detailed review in 2018 to ensure alignment with the principles of the Code.

Other attendees

In addition to the members of the Committee, the Chief Executive attends when it is considered appropriate.

Committee evaluation review

Belinda Hudson Limited (BHL) was appointed for a second year to undertake a light touch review of the Board and committees, following a full review in 2018. The effectiveness review process of the Board and its committees is discussed in greater detail on page 74 together with overall findings.

Principal responsibilities

Board and committee composition

- Review the structure, size and composition of the Board and its committees regularly.
- Evaluate and consider the Directors' conflicts of interest.

Board nominations

- Recommend new appointments to the Board.
- Oversee the induction plans, training and site visits for the Directors.

Succession planning

- Consider succession plans for Directors and senior management.
- Oversee the development of a diverse pipeline for succession.
- Review implementation of diversity & inclusion policy.

Evaluation of Chairman, Chief Executive and Non-Executive Directors

- Evaluate annually the Chairman and Chief Executive.
- Review the independence of the Non-Executive Directors.

Corporate governance

- Review the Group's global governance framework.
- Keep up-to-date with the changing governance landscape and report on the Group's corporate governance practices.

Principal risk

- Talent and capability.

Areas of focus for 2020

- Culture and behaviour
- Internal governance – embedding the changes
- Board succession
- Diversity & inclusion

Nominations & Governance Committee focus during 2019

Area of focus	Matters considered	Outcome
Culture and behaviour and employee engagement	Employee champion update.	Irene Dorner, in her role as Employee Champion, reported on her meetings with the UK Council and on the relationships with the UK Unions as well as the views across the middle management population on simplification and restructuring. Beverly Goulet also reported on her increasing activities across North America.
	Career and governance framework reviews.	When reviewing the work in these areas the Committee particularly considered the impact of the changes on culture and behaviours.
Diversity & inclusion	Update on diversity & inclusion (D&I).	The Committee received a detailed update on the work on our D&I agenda across the Group. You can read more about our diversity & inclusion programmes on pages 47 and 48.
Oversight of principal risk – talent and capability	The principal risk is considered when discussing talent and capability.	The Board met in full to review talent and capability as development of our leaders is critical to ensuring the right culture and behaviours are embedded; and to ensure we maintain the right skills and capability for future growth.
Board and committee composition	Reviews of the composition of the Board and committee membership.	The Committee considers the current skills, experience and tenure of the Directors and assesses future needs against the longer-term strategy of the Group and recommended the re-appointment of Lewis Booth for a further year to provide continuity of support to the Audit Committee, as set out on page 77.
Board nominations	Re-appointment of the Chairman for a further three-year term. Re-appointment of Lee Hsien Yang as a Non-Executive Director.	Following individual reviews of the Chairman and Lee Hsien Yang the Committee satisfied itself that both continued to be committed and effective.
	The appointment of Irene Dorner as Chairman of the Remuneration Committee.	The Committee gave particular consideration to the appointment of Irene Dorner as Chairman of the Remuneration Committee (see pages 59 and 60).
	The appointments of George Culmer and Dame Angela Strank as Non-Executive Directors.	Members of the Committee were involved in the interview process for the two new Non-Executive Directors and the Committee recommended the appointments of both George Culmer and Dame Angela Strank to the Board. More detail can be found on page 77.
Succession planning	Progress on succession planning.	The Committee focused primarily on the approach to Executive Team succession and also received a detailed presentation on the people framework. (See page 45).
	Consideration of the Board composition.	The Committee gave particular consideration to the composition of the Board through to the AGM in 2021. (See page 77).
Evaluation of Chairman, Chief Executive and Non-Executive Directors	Annual review of the effectiveness of the Chairman and the Chief Executive, led by the Senior Independent Director and the Chairman respectively.	Feedback from the evaluations was shared directly with the Chairman and Chief Executive and the Chief Executive's objectives for 2019 were agreed.
	Annual review of whether the Non-Executive Directors remained independent, in accordance with the Code.	The review concluded that all Non-Executive Directors remained independent.
Corporate Governance	The Committee approved the updated governance framework and Group policies.	The Committee approved amendments to the Group's governance framework which had been enhanced considerably to articulate the freedom within a framework culture (see page 61). The Committee considered the key trends in UK governance and the appropriate responses to them for Rolls-Royce.

Board and committee composition

Both Brad Singer and Ruth Cairnie stepped down from the Board in December 2019. Since Ruth's departure, this temporarily reduced the number of women on the Board to three. However, we have recently announced that Dame Angela Strank will join the Board from 1 May 2020. We currently have one person of colour on our Board.

Irene Dorner was appointed as Chairman of the Remuneration Committee with effect from 1 January 2020, having joined that committee in August 2019. You can read more about our rationale for that appointment on page 59.

Lewis Booth will have completed nine years on the Board in May 2020 and will step down as Audit Committee Chairman at that time. However, the Committee recommended to the Board that he remain as an independent member of the Board and as an Audit Committee member. He will provide continuity of support to Nick Luff as he takes over as Chairman of the Audit Committee following the 2020 AGM, particularly at a time of continuing transformation in the finance function.

The Committee also agreed to recommend to the Board that Sir Frank Chapman remains as a Director and Chairman of our Safety, Ethics & Sustainability Committee, noting that his nine-year term is currently due to end in November 2020. We consider that he will remain independent and we value his significant support for our safety, ethics and sustainability agenda.

Subject to shareholder approval at the 2020 AGM, both Lewis and Sir Frank will step down from the Board no later than the 2021 AGM.

Board nominations

In February 2019, the Committee recommended to the Board the re-appointment of Sir Ian Davis as Chairman for a further three-year term. This followed the annual evaluation that was carried out by Sir Kevin Smith, Senior Independent Director, and was the subject of a thorough review as it is Sir Ian's third three-year term. In December 2019, following a detailed review, the Committee also recommended to the Board the re-appointment of Lee Hsien Yang for a third three-year term.

Prior to making any new appointments to the Board, the Committee considers the skills and attributes required and, together with the Chairman, agrees a Non-Executive Director profile. The Committee also provides input into a shortlist of candidates for the role.

As announced in November 2019, George Culmer was appointed as a Non-Executive Director with effect from January 2020. George is a member of the Nominations & Governance Committee, Audit Committee, its Data Security Committee and the Safety, Ethics & Sustainability Committee.

We have also recently announced the appointment of Dame Angela Strank who will join the Board on 1 May 2020 as a Non-Executive Director and a member of the Nominations & Governance Committee, the Safety, Ethics & Sustainability Committee and the Science & Technology Committee.

Both George and Dame Angela met with the Chairman and a number of other Non-Executive Directors as well as the Chief Executive and the Chief Financial Officer. You can read the full biographies for George and Dame Angela at www.rolls-royce.com.

For both appointments, the Committee appointed MWM Consulting. MWM Consulting has signed up to the voluntary code of conduct for executive search firms and had no other connection to the Company or its Directors during the year.

As required under the Code, any additional external appointments taken up by Directors during the year were considered by the Committee and approved by the Board in advance. For instance, during the year consideration was given to the appointment of Irene Dorner as chair-designate of Taylor Wimpey. As part of the Board's discussions, we considered all of Irene's appointments and ensured they were not outside the parameters set by ISS, which the Board has found to be a useful gauge when discussing whether there is potentially any impact on Directors' time commitment when taking on additional external appointments. It was noted that Irene had always maintained an excellent level of attendance at both Board and committee meetings during her tenure as well as embracing fully her role as Employee Champion. The Board concluded that Irene would be able to continue to allocate sufficient time to Rolls-Royce. They therefore approved the appointment.

The Company Secretary ensures that new Directors have a thorough and appropriate induction programme. More detail about inductions and continuing development can be found on page 73.

Succession planning

The Committee regularly reviews succession planning at Board, Executive Team and senior management levels. The Committee plays a vital role in promoting effective Board and leadership succession, making sure it is fully aligned to the Group's strategy.

This year, the Board considered the principal risk relating to talent and capability and reviewed succession at the most senior levels of the business including a number of business-critical roles. The talent process emphasises the need for individuals to have a balance of judgement, drive and influence and the importance of ensuring that the desired culture and behaviours continues to be embedded. We were pleased to note the considerable improvement in succession plans, following the increased focus on leadership talent and the succession pipeline in 2018. The Board also recognised the importance of maintaining the right skills and capability for future growth.

Board apprentice programme

Our Board apprentice programme is now in its third year. Six individuals from different areas of the Group were selected for the 18-month programme via the talent and succession process. The purpose of the programme is to provide these individuals with leadership development experience and demonstrate our commitment to their career progression and development as leaders in the organisation.

Each apprentice joins two Board committees, attending each one for nine months. In addition to this, they are able to participate in supplementary committees to broaden their experience, attend masterclasses on a variety of board-relevant topics and take advantage of frequent networking opportunities. Throughout the programme, each apprentice is mentored by two Board members and sponsored by an Executive Team member as well as attending one-to-one sessions with the Chief People Officer. At the end of the programme, they will have an opportunity to provide feedback in a reverse-mentoring session with the Board (see page 69).

Diversity & inclusion

D&I continues to be an area of focus for the Board and for the Group as a whole. We support and monitor Group activities to increase the percentage of senior management roles held by women and other under-represented groups across the organisation. In April, the Committee was updated on the Group's approach to D&I.

We fully recognise that diversity in our Executive Team needs to be improved. However, we are pleased to see that we have a broader list of credible successors with improved diversity for this team

Board diversity policy

Objective	Progress
All Board appointments will be made in the context of the skills and experience that are needed for the Board to be effective.	The Committee regularly reviews the composition of the Board.
Maintain a balance so that, as a minimum, one third of the Directors are women.	The chart on page 62 shows that the current percentage of women on the Board is 25%. Following the appointment of Dame Angela Strank, effective from 1 May 2020, the percentage of women on our Board will be 31%. Our long-term aspiration is to meet and exceed the recommended voluntary target of 33%.
Support and monitor Group activities to increase the percentage of senior manager population* roles held by women and other under-represented groups to 25% by 2020. (See our current statistics on page 48).	Improving D&I remains a priority. We tracked progress against four areas: leadership and governance; attraction and recruitment; retention; and development. We were particularly pleased to note the strong progress made in attracting and recruiting more diverse people and the increase in the number of females in the ELG year-on-year.
Monitor, challenge and support internally-set targets for D&I at all levels across the organisation.	The charts on page 62 provide a clear picture of our Board diversity. Progress against our 2020 diversity targets across the Group are set out on page 48. We will set new targets out to 2025 during the course of 2020.

* Senior manager population is calculated as Executive Team and ELG. This population comprises 94 individuals, 19 (20%) are female. Senior management is described in the Code as the Executive Team, the Company Secretary and their direct reports. This population comprises 82 individuals, 21 (26%) are female. We have excluded administrative personnel and technical assistants from these numbers.

You can find the full policy at www.rolls-royce.com

(see page 47). More on our D&I strategy can be found on page 47 and progress against our 2020 targets on page 48.

Our Board diversity policy remains unchanged and we continue to ensure it remains in line with best practice. We continue to promote an inclusive and diverse culture and the Committee reaffirmed our aspiration to meet and exceed the recommended voluntary target of 33% of Board positions being held by women, while recognising that we will fall short of this target for a temporary period. We have always recognised that there may be periods of change on the Board where we may fall short of our stated aim for periods of time while the Board is refreshed.

Governance

We have kept under review the enhancements put in place in 2018 to ensure we meet both the regulation and the spirit of the new Code.

In 2019, we held another successful Meet the Board event, this time in Bristol, UK and the Non-Executive Directors held town hall sessions while on site visits in China, Hong Kong, US and Singapore. Irene Dorner and Beverly Goulet continued in their roles as Employee Champions. More can be read about their activities on page 71.

We also held our first ESG-focused event with presentations to investors and their governance teams from the Chairman, chairmen of each of our Board committees, the Company Secretary, Chief Technology Officer, Chief People Officer and one of our Board apprentices. Subjects covered included: the environmental impact of our products; electrification; sustainability; D&I; the Board apprentice programme; culture; and employee engagement. This was followed by Q&A sessions in smaller groups on ESG issues. Feedback from those who attended was very positive.

The Committee spent some time during the year considering the improvements being made to the Group's internal governance arrangements. The framework has been expanded into a number of areas since first being introduced in 2016 and the RRMS has been the subject of significant review and simplification, while ensuring our critical processes are safeguarded. We have an internal concept of freedom within a framework, an articulation of the parameters within which our businesses are expected to operate. Our original governance framework has now been incorporated within the framework and is part of the way the whole Group operates. This includes the introduction of a decision rights model, moving decisions as close to activity as possible.

The framework is also the governance mechanism for our subsidiary companies and our response to the Wates principles. Extracts from the framework are available on the website at www.rolls-royce.com.

You can read more about our framework on pages 60 and 61.

Conflicts of interest and independence

We continue to monitor and note potential conflicts of interest that each Director may have and recommend to the Board whether these should be authorised and whether any conditions should be attached to such authorisations. The Directors are regularly reminded of their continuing obligations in relation to conflicts and are required to review and confirm their external interests at least annually. This helps us to determine whether each of them continues to be considered independent.

During the year, no additional conflicts of interest were identified and the Committee advised the Board that it considered each of the Non-Executive Directors to be independent.

Looking forward

The Committee has made strong progress in a number of areas, particularly improving our internal governance and in ensuring our activities align with our ambitions for our desired culture and behaviours. We have made good progress on our D&I agenda but still have further to go. We will continue to work to ensure our governance initiatives aspire to be best in class and use our innovation in this area to align our governance with the best interests of the Group as a whole, while remaining thoughtful and appropriate for all our stakeholders.

Sir Ian Davis
Chairman of the Nominations & Governance Committee

AUDIT

LEWIS BOOTH
Chairman of the
Audit Committee

Key highlights

- IFRS 16 embedded
- Trent 1000 exceptional charges
- Focus on assessment of onerous contracts
- Recognition and recoverability of deferred tax assets
- Focus on risk management and internal control systems, including cyber security

Introduction

I am pleased to present the 2019 report of the Audit Committee which describes how the Committee has carried out its responsibilities during the year. This will be my last report as the Chair of the Audit Committee and I know I will be leaving the Committee in Nick Luff's good hands. I would like to thank the members of the Committee, the executive management team and the external auditors for the open discussions that take place at our meetings and the importance they all attach to its work.

We have had a number of key issues to consider in 2019, most significantly:

— key judgements and estimates in accounting for the Trent 1000 in-service issues and provisions made in respect of customer loss making contracts and restructuring costs;

— assessment of the recognition of UK deferred tax assets;

— the balance sheet position of the Group and enhanced cash disclosures;

— presentation of the impact of the pension buy-out in the UK;

— judgements in respect of various M&A activity in the year;

— the carrying value of investments, tangible and intangible assets; and

— the adoption of the new leasing standard, IFRS 16.

The Audit Committee also participated in a number of deep dives focused on long-term contract accounting judgements and finance transformation.

Membership and operation of the Committee

In addition to myself, members of the Committee are George Culmer, Beverly Goulet, Lee Hsien Yang and Nick Luff. Irene Dorner served as a member of the Committee during the year, stepping down in December 2019. George Culmer joined the Committee on 1 January 2020. All members of the Committee are independent Non-Executive Directors. For the purposes of the Code and DTR 7.1, George Culmer, Beverly Goulet, Nick Luff and I have recent and relevant financial experience. The Board has confirmed that it believes the Committee as a whole has competence relevant to the Company's sector. Our biographies are on pages 62 to 64 and our meeting attendance is shown on page 66.

The Committee's responsibilities are outlined in its terms of reference which can be found at www.rolls-royce.com. We review these annually and refer them to the Board for approval. No changes have been made in 2019. This follows a detailed review in 2018 to ensure alignment with the principles of the Code.

Other attendees

In addition to the members of the Committee, the Chairman, Chief Executive, Chief Financial Officer and any of the Non-Executive Directors may attend one or more meetings at the Committee Chairman's invitation. The Committee is supported by the General Counsel, the corporate governance director, the group controller, the head of group reporting, the director of risk and internal audit and the external auditors.

Committee evaluation review

Belinda Hudson Limited (BHL) was appointed to undertake a light touch review of the Board and committees for a second year, following a full review in 2018. The effectiveness review process of the Board and its committees is discussed in greater detail on page 74 together with the overall findings.

Principal responsibilities

Financial reporting

- Financial announcements, focusing on: accounting policies, judgements and estimates; inclusion of appropriate disclosures; compliance with relevant regulations; and whether the Annual Report is fair, balanced and understandable.

Risk and control environment

- Monitor the effectiveness of the risk management and internal control systems.
- Review concerns of financial fraud.

Principal risks

- Business continuity, market and financial shock and IT vulnerability.

Internal audit

- Scope, resources, results and effectiveness.

External audit

- Relationship with, and effectiveness of, the external auditor.
- Approve the external auditor's terms of engagement and fees.

Areas for focus in 2020

- continuing oversight of the risk management and internal control environment
- through our Data Security Committee, reviewing our principal risk: cyber threat
- supporting risk owners to assess the effectiveness of mitigating controls
- assessing the impact of changing regulation on our risk management plans
- keeping appraised of any developments with the audit reforms in the UK

Audit Committee focus during 2019

Area of focus	Matters considered	Outcome
Financial reporting	The appropriateness and disclosure of accounting policies, key judgements and key estimates with a focus on: — the methodology for the identification of abnormal costs on the Trent 1000 programme; — assessment of the costs to be included in the assessment of customer contract losses, in particular the determination of which costs are incremental to the customer; — recognition and disclosure of restructuring costs; — judgements and estimates necessary to assess the recoverability of the UK deferred tax assets; — the accounting for M&A activity in the year including the disposal of Commercial Marine, North America Civil Nuclear business and the acquisition of Siemens' eAircraft business; — accounting for the pension buy-in/buy-out in the UK; — assessing the recoverability of tangible and intangible assets with a specific focus on programme intangible assets in Civil Aerospace and the carrying value of the investments the Company holds in the underlying Group; — assessing the balance sheet position of the Group and the transparency of our disclosures in respect of cash generation; and — adopting IFRS 16 *Leases*. The implementation project for IFRS 16. In particular, the preparation of the restated information on an IFRS 16 basis which is included in note 1 to the Consolidated Financial Statements. The form and content of the Annual Report with a specific focus on APMs and their reconciliation to statutory numbers.	The accounting policies, judgements and estimates are appropriate and balanced. Agreed the judgements and estimates to adopt IFRS 16 and the assessment of the impact included on page 82. Confirmed the accounting policies, judgements and estimates are appropriate and balanced. As part of enhancing our disclosures we have provided additional information with regard to the sensitivity of the estimates to changes in key assumptions. These are summarised in note 1 to the Consolidated Financial Statements. Reconciliations of APMs to their statutory equivalents are set out in notes 2 and 28 to the Consolidated Financial Statements. Reviewed the additional information that has been made in respect of our assessment of the carrying value of the Company's investment in its subsidiaries. Satisfied ourselves with the adequacy of disclosures in respect of cash generation. See notes 1, 14 and 18 to the Consolidated Financial Statements. Reported to the Board that the Annual Report, taken as a whole, is fair, balanced and understandable.
Risk and control environment	Improvements in the approach to risk management and internal control systems, including in relation to financial reporting controls. The processes for identifying and managing risks. The effectiveness of the Group's risk management and internal control systems. The progress against the commitments under the DPAs as they relate to financial reporting. The process and assumptions underlying the going concern and viability statements.	Recognised improvements in the analysis of risk appetite, risks at remote sites and increased focus on emerging risks, and identified areas for future improvements, including in relation to financial reporting controls. Satisfied ourselves that the processes for identifying and managing risks are appropriate and that all principal risks and mitigating actions had been subject to a detailed review by the Board or a Board committee during the year. Reported to the Board that an appropriate process is in place to make the going concern and viability statements. Particular attention was given to the going concern status of the Group's material subsidiaries.
2019 Principal risks	Management's assessment of the risk of, and activities to manage, a business continuity event. The activities in place or required to prevent, detect and recover from any breaches due to cyber threats. The Group's policies, procedures and controls for identifying, managing and mitigating a market or financial shock.	Processes and plans are in place to manage the risks associated with business continuity, cyber and market or financial shock.
Internal audit	The effectiveness of the internal audit function, matters and themes arising as a result of the audit work and resolution of any associated actions.	The scope, extent and effectiveness of internal audit are appropriate and there is a plan to sustain this.

Audit Committee focus during 2019 continued

Area of focus	Matters considered	Outcome
External audit	The approach, scope and risk assessments of external audit and the effectiveness and independence of the external auditor. The extent of non-audit services provided by the external auditors.	No concerns over the nature and amount of the non-audit services provided by PwC. Recommended that PwC be re-appointed as the Group's auditor at the 2020 AGM.

Business audit committees

Each of the Group's businesses has its own risk and audit committee. These committees continue to be chaired by the respective business president or functional leader and comprise business leadership and functional team members, senior finance personnel and PwC. They meet at least twice a year and:

— review the effectiveness of business and functional risk management activities including the identification, ownership and assessment of significant risks;
— consider the existence and appropriateness of associated mitigating controls;
— consider the effectiveness of mitigating controls including with reference to assurance findings or any relevant incidents arising;
— review the application of accounting policies, judgements and estimates; and
— inform areas for further consideration at our meetings.

Members of the Committee are invited to attend the business risk and audit committee meetings and routinely receive reports on themes and any significant matters arising. During 2019, the business risk and audit committees focused on clarification of risk and control ownership in the empowered business structure and assessing the appropriateness of assurance while also undertaking deep dives of specific risks in certain businesses.

Business and function presentations

In addition to reports from the business risk and audit committees, the businesses and functions attend the Audit Committee to provide a more in-depth view of relevant matters. During 2019, we considered:

— Defence – the current business environment, the status of the business internal financial control framework, the effectiveness of business risk management, the status of internal audit findings and other control-related incidents, accounting for long-term contracts;
— Power Systems – the status of internal audit findings, changes in the levels of the most significant business risks, the effectiveness of business risk management, key accounting estimates (including in respect of litigation and claims); and
— Group Tax – the main drivers of the Group's tax position, key judgements and estimates, the main areas of tax risk including consideration of tax audits and disputes and emerging risks including those associated with digitalised businesses, key sources of estimation uncertainty (in particular the recognition of deferred tax assets).

We also received regular updates on the finance transformation programme and the current status of certain Civil Aerospace risk mitigation plans, accounting judgements and financial reporting matters including in respect of Trent 1000.

Financial reporting

As I have previously noted, the Group has complex long-term accounting and every year we spend much of our time reviewing the accounting policies and accounting judgements implicit in our financial results. For 2019, we have focused on the key judgements and estimates underpinning the financial performance of the business and the adequacy of disclosures in respect of the balance sheet and cash generation (see page 82).

The Group has an established process for preparing the Consolidated Financial Statements, including:

— maintenance of internal financial controls – see page 83;
— monitoring of developments in financial reporting;
— review of financial statements by local management prior to submission to group finance for further review and explanations;
— certification by management of each business unit;
— preparation and review of consolidation adjustments;
— review of the draft Consolidated Financial Statements prior to submission to the Committee and the Board; and
— review of the Consolidated Financial Statements by the Committee and the Board together with reports from management and the auditors on significant judgements, estimates, changes in accounting policies and any other relevant matters.

The scope of the external audit is set out in PwC's report on page 194.

A summary of the principal matters we considered in respect of the 2019 Consolidated Financial Statements is set out in the table on page 82.

Fair, balanced and understandable

Since the year end, we have reviewed the form and content of the Company's 2019 Annual Report, together with the processes used to prepare and verify it. We have reported to the Board that, taken as a whole, we consider the Annual Report to be fair, balanced and understandable. We further believe the Annual Report provides the necessary information for shareholders to adequately assess the Company's position and performance, business model and strategy.

In making this assessment, we considered:

— the process for preparing the Annual Report, including a steering committee, the core team, and instructions to contributors;
— written representations from management in respect of the business reviews, sustainability, principal risks and Financial Statements;
— the completion of a regulatory compliance checklist;
— all reviews performed (including the Board, the Executive Team and PwC) and ensured that all feedback was appropriately reflected; and
— the presentation and discussion in the Strategic Report of: the underlying as well as reported results; the in-service issues on the Trent 1000 programme; and trends, in particular, the impact of individually significant items.

Areas of focus for the 2019 Financial Statements

Key issue	Matters considered	Outcome
Adoption of IFRS 16	Final judgements on the implementation of IFRS 16 and the appropriateness of the disclosures made in respect of key accounting policies and judgements.	We were satisfied that the judgements and estimates made are appropriate and consistent with the new requirements; that the disclosures of the impact in the Consolidated Financial Statements are appropriate; and that the Group has systems and processes in place to report on the new basis in 2019 (see note 1 to the Consolidated Financial Statements).
Alternative Performance Measures (APMs)	The clarity of the definitions and the reconciliations of the APM to its statutory equivalent.	Definitions refined and full reconciliations provided (see notes 1, 2 and 28 to the Consolidated Financial Statements).
Accounting for Trent 1000 in-service issues	Refined the methodology for identifying abnormal costs of wasted material, labour and other resources and the application of this to the Trent 1000 in-service issues (see note 1 to the Consolidated Financial Statements).	We were satisfied with the judgements taken in respect of which costs were included in the exceptional wastage charge and that these were abnormal costs that should be excluded from underlying performance (see notes 2 and 20 to the Consolidated Financial Statements).
Consideration of onerous contracts	Review of the nature of costs included in the assessment of onerous contracts, the discount rates applied in calculating the charge and the sensitivity analysis performed and appropriateness of disclosures.	We paid particular attention to those contract losses that were included in the Trent 1000 exceptional charge and the adequacy of the disclosures which are included in notes 2 and 20 to the Consolidated Financial Statements.
Disclosure of invoice discounting and supply chain financing arrangements	The nature of the arrangements and the disclosures included in the Consolidated Financial Statements.	In line with the Group's commitment to transparency, additional disclosures have been included in note 14 and note 18 to the Consolidated Financial Statements.
Deferred tax assets	Basis for the recognition of further UK deferred tax assets and the assessment of the recoverability of the asset and associated disclosures.	We confirmed the approach adopted and the additional disclosures included in note 5 to the Consolidated Financial Statements.
R&D capitalisation policy and application	In 2017, the Group refreshed the application of its R&D capitalisation policy. This year, we focused on the application of the policy and the consistency of approach across the businesses.	We concluded that there were no matters that required additional disclosure in the Consolidated Financial Statements.
Carrying value of intangible and tangible assets	The basis on which management assesses the risk of impairment, the methodology for calculating the recoverable amount, including the basis for the key assumptions, the discount rates and long-term growth rates. We also reviewed the sensitivity disclosures made in respect of goodwill and programme intangible assets.	Confirmed the appropriateness of the conclusions including the sensitivity analysis confirmed.
Going concern and viability statement disclosures	The basis for assessing the going concern assumption for the business and the principal risks for the Group and how these were modelled as viability scenarios.	We agreed with the basis of the assessments and the disclosures included on page 55.

Risk and control environment

Assessment of principal risks

All risks are managed through the risk management and internal control framework (the RMS described on page 50) in accordance with policies and guidance approved by the Board. On behalf of the Board, the Committee monitors the RMS, including continued developments and improvements. We continue to pay particular attention to the assessment and management of risks at remote sites and increased our focus on the identification and monitoring of emerging risks. The processes are designed to identify and manage, rather than eliminate, the risk of failure to achieve our business objectives.

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.

We satisfied ourselves that the processes for identifying and managing the principal risks are appropriate and that all risks and mitigating actions had been subject, during the year, to a detailed review by the Board or an appropriate Board committee. Based on this and on our other activities, including consideration of the work of internal and external audit and attendance at the Committee by business and functional risk owners, we reported to the Board that a robust assessment of the principal risks facing the Group had been undertaken.

The principal risks arising are described on pages 51 to 54. These formed a key element of our assessment of the going concern and viability statements, described further below.

Internal control

The Board has overall responsibility to shareholders for the Group's system of internal control over its business and risk management processes and the risks identified through the risk management process. The Committee has responsibility for reviewing the system's operation and effectiveness. The system is based on business best practice and comprises:

- entity-level controls covering leadership and direction from the top; and
- specific control activities, covering detailed process controls, and internal and external assurance activities.

We have reviewed controls over the Group's principal risks and the key risks and critical processes in each of the Group's businesses. In addition, both the business audit committees and this Committee consider the external auditor's observations on the control environment.

During 2019, we reviewed the results of attestation and testing performed by the internal control and internal audit teams to confirm the effective operation of key financial controls across the Group. We also reviewed the progress of the programme to strengthen financial reporting and compliance controls to meet our DPA commitments, including the work to document and assess the process risks and design of controls in our key finance processes. We have made further progress in embedding a financial controls awareness and culture with additional training and guidance provided to our finance teams. We have strengthened our supervisory review and oversight controls with a specific focus on balance sheet integrity, including the development of IT systems to improve the consistency and rigour of manual processes and controls. This will continue to be an area of focus throughout 2020 alongside our broader finance transformation initiatives.

We have conducted a review of the effectiveness of the Group's risk management and internal control systems, including those relating to the financial reporting process, in accordance with the Code. Where opportunities for improvement were identified, action plans have been put in place and progress is monitored by the Committee. We consider that our review of the risk management and internal control systems, in place throughout 2019 and up to the date of this report, meets the requirements of the Code, the DTR and the FRC's guidance on risk management.

Going concern and viability statements

Having regard to the net liabilities of £3,354m on the Group's 2019 balance sheet, we paid particular attention to these assessments. We reviewed the processes and assumptions underlying the statements set out on page 55, considering in particular:

- the Group's forecast funding position over the next five years;
- the forecasts for material subsidiaries making up this position;
- an analysis of impacts of severe but plausible risk scenarios, ensuring that these were consistent with the risks reviewed by the Board as part of its strategy review;
- the impact of multiple risks occurring simultaneously;
- additional mitigating actions that could be taken in extreme circumstances; and
- the current borrowing facilities in place and the availability of future facilities.

As a result, we were satisfied that the going concern and viability statements have been prepared on an appropriate basis.

2019 Principal risks

As set out on page 65, the Board allocated certain principal risks to the Committee and we considered these in detail throughout the year. From our discussions, we are satisfied that all of the principal risks that we oversee have received significant management attention during the year. We reviewed:

Business continuity

In February, the head of risk shared lessons learned from a recent continuity related crisis management exercise. Following regular updates on the status of the mitigation plans in respect of the business continuity risk in Civil Aerospace, the director of risk and internal audit updated the Committee on business continuity risks related to external suppliers and internal facilities across all of the businesses in December.

Cyber

In May, the chief information officer and the cyber security director updated the Committee on cyber risks including the level of threat and nature of incidents arising, key risk mitigation and related assurance findings, and the status of IT infrastructure. The cyber security strategy was also reviewed. Cyber risk was considered by the Data Security Committee in January 2020.

Market and financial shock

In July, we considered risks associated with liquidity and our credit ratings focusing on our risk appetite, the nature of the current risks and their associated mitigating activities. Other risks reviewed at the Group's financial risk committee were also reported. Separately, we have incorporated any market or financial shock that could result from Brexit in the scenario analysis on which the viability statement is based.

Our risk management system

We satisfied ourselves that improvements have been made in the approach to risk management including further refining of our risk appetite metrics and strengthening of our controls over risks at remote sites as described on page 50. Future improvements should focus on simplification of our risk policies and guidance and additional support for risk owners in assessing the effectiveness of mitigating control activities.

Internal audit

The director of risk and internal audit regularly attends and reports to the Committee on risk and internal audit matters including:

- quarterly – a dashboard identifying key trends and headline findings from internal audit reports issued in the period and the status of related agreed actions; any key themes from internal audit's work and details of any specific significant findings raised that warrant the Committee's attention, including in respect of audits conducted as part of the Group's response to the DPAs; and
- annually – compliance with expenses policies for the Directors and the Executive Team; and an internal audit work plan for the following year.

I meet the director of risk and internal audit before each meeting and on an adhoc basis throughout the year, as do other members of the Committee, to discuss risk matters and the nature of internal audit findings in more depth. We continue to focus on the nature and number of issues raised by internal audit and the time to complete the related actions which continues to improve. However, the underlying root causes remain largely unchanged and form a critical part of our restructuring plans. The future work plan is risk-based, balancing focus on principal risk areas and on business as usual transactional activity where controls are understood to be mature and established. Internal audit also provides assurance to our transformation programmes and restructuring activities and incorporate the activities of our second line assurance functions in their approach. We monitor changes to their plan during the course of the year.

We considered and reviewed the effectiveness of the Group's internal audit function, including resources, plans and performance as well as the function's interaction with management. Based on the reports and discussion, we are satisfied that the scope, extent and effectiveness of internal audit work are appropriate for the Group and that there is an appropriate plan in place to sustain this.

External audit

PwC were appointed as the Group's external auditor for the financial year commencing on 1 January 2018 following a formal tender process in 2016. The external audit contract will be put out to tender at least every ten years. The lead audit partner, Ian Chambers, has been in post since PwC were appointed and he will be required to rotate after five years. Other key audit partners will also be required to rotate every five years. Any future audit tenders will be carried out in line with the FRC's practice aid for audit committees.

Other than the services detailed below, PwC have no other connection with the Company nor its Directors.

2019 audit

The Committee reviewed the quality of the external audit throughout the year and considered the performance of PwC, taking into account the Committee's own assessment and feedback, the results of a survey of senior finance personnel across the Group focusing on a range of factors we considered relevant to audit quality, feedback from the auditors on their performance against their own performance objectives and the firm-wide audit quality inspection report issued by the FRC in June 2018.

Based on these reviews, the Committee concluded that there had been appropriate focus and challenge by PwC on the primary areas of the audit and that they had applied robust challenge and scepticism throughout the audit. Consequently, as noted on page 81, the Committee has recommended to the Board that they be reappointed at the 2020 AGM.

In May 2019, PwC presented its audit plan, which identified its assessment of the key audit risks and the proposed scope of audit work. We agreed the approach and scope to be undertaken. Subsequently, an updated plan was agreed in November 2019, building on the work undertaken at the half-year.

Key risks and the audit approach to these risks are discussed in the Independent Auditor's Report (pages 194 to 202), which also highlights the other risks that PwC drew to our attention.

As part of the reporting of the half-year and full-year results, in July and February 2020, PwC reported to the Committee on its assessment of the Group's judgements and estimates in respect of these risks and the adequacy of the reporting. Where effective to do so, PwC also reported on its assessment of the Group's controls.

I meet with the lead partner prior to each Committee meeting and the whole Committee has a private meeting with PwC at least once a year.

During 2019, the Audit Quality Review Team (AQRT) of the FRC conducted a review of PwC's audit of the Group's Financial Statements for the year ended 31 December 2018. In January 2020, the AQRT provided their final report and I, as Chairman, have discussed the findings with both the FRC and the audit partner. Whilst there were no significant findings, some matters were identified as requiring improvement. PwC have reported to the Audit Committee their response to the findings and how the suggested improvements have been incorporated into the current audit along with continuation of the areas identified as being of a high standard.

Non-audit services

In order to safeguard the auditor's independence and objectivity, and in accordance with the FRC's ethical standard, we do not engage PwC for any non-audit services except where it is work that they must, or are clearly best-suited to, perform. Accordingly, our policies for the engagement of the auditor to undertake non-audit services broadly limit these to audit-related services such as reporting to lenders and grant providers.

Fees paid to PwC are set out in note 7 to the Consolidated Financial Statements. All proposed services must be pre-approved in accordance with the policy which is reviewed and approved annually. Above defined levels, my approval is also required before PwC is engaged. Quarterly, we also review the non-audit fees charged by PwC.

Non-audit related fees paid to the auditor during the year were £1.1m (including £0.4m relating to the review of the half-year results) representing 13% (2018: 10%) of the audit fee. Our annual review of the external auditor takes into account the nature and level of all services provided.

Non-audit services are provided by PwC where the auditor is required by law or regulation to perform the work. All other non-audit services are considered on a case-by-case basis in light of the requirements of the ethical standards and our own policy.

Based on our review of the services provided by PwC and discussion with the lead audit partner, we concluded that neither the nature nor the scale of these services gave any concerns regarding the objectivity or independence of PwC.

Compliance

During 2019, the Company complied with the relevant provisions of The Statutory Audit Services for Large Companies Market Investigation (Mandatory Use of Competitive Tender Processes and Audit Committee Responsibilities) Order 2014, as disclosed within the external audit section.

Looking forward

We will continue to monitor our accounting policies whilst also focusing on:

- the risk management and internal control environment in relation to the transformation programme;
- the continuing finance transformation programme; and
- developments with the audit reforms in the UK following the publication of Sir Donald Brydon's review into the quality and effectiveness of audit in the UK.

As I previously mentioned, this is my last report as Chairman of the Audit Committee. I am pleased to be staying on as a member of the Committee and supporting Nick Luff as he takes over the reins during this ongoing period of transformation, particularly in the finance function.

Lewis Booth
Chairman of the Audit Committee

REMUNERATION

IRENE DORNER
Chairman of the
Remuneration Committee

Key highlights

- New remuneration policy
- Outturns for 2019
- Wider workforce remuneration

Introduction

I am pleased to present my first report as Chairman of the Remuneration Committee, outlining what we have achieved in the year. I would like to take the opportunity to thank Ruth Cairnie for her commitment during her time as Chairman of the Committee. Having joined the Committee last August, I was able to accompany Ruth during our consultation meetings with shareholders on the remuneration policy.

Our remuneration policy

We undertook a review of our current policy this year, focusing on three key themes: alignment to vision and strategy; supporting the talent agenda; and alignment with the Code.

This review built upon the significant changes implemented in 2017, which were strongly supported by shareholders (96% vote in favour). We concluded that limited changes are required to our existing policy; the substantive changes we made three years ago continue to support the delivery of our vision and business strategy. We remain in a period of unprecedented business transformation with a clear focus on increased cash flow generation, so the drivers behind the design of the current policy remain very relevant. We believe that there is strong alignment in our incentive plans between executives and the interests of our shareholders, with the primary focus on improving free cash flow. This is a key performance metric in our incentives and so we have no current plans to change their design. However, as we continue to be at the forefront of developing cleaner power solutions, we expect that future incentive metrics will include environmental aspects and potentially other sustainability measures, subject to such metrics being robustly quantifiable and fully aligned with our business strategy.

In terms of our talent agenda, we have always taken a modest approach to executive reward and for the third year running are not proposing any changes in quantum for existing Executive Directors. However, we are mindful of the challenge of recruiting senior individuals from an increasingly global and diverse talent pool and are proposing a small amount of increased flexibility within the bonus quantum in case this is required for any future hire.

As part of our review, we have also taken on board the revised requirements of the Code. We have focused in particular on executive pensions and post-employment shareholding requirements. We have reduced the pension contribution rate for newly appointed executives and are introducing a requirement to maintain a significant shareholding for two years post-employment. In addition, coincident with changes being implemented for managers who are participants in our UK defined benefit pension plan, Warren East and Stephen Daintith have agreed to reduce their pension allowances over the next three years to align with the wider UK workforce.

These policy changes have been supported by the shareholders with whom we have consulted.

2019 outturns

2019 has been a challenging year, particularly in respect of the continuing Trent 1000 issues. However, while supporting our customers and responding to the Trent 1000 issues, Civil Aerospace improved its underlying profit significantly, with above target levels of free cash flow and profit. We have delivered a record number of widebody engines, introduced new engines into the business jet market and progressed a wide-ranging restructuring programme. Defence delivered strong financial performance and has positioned itself well for future opportunities. Power Systems revenue and profit continued to grow.

In determining the outcomes for bonus purposes, the Committee continues to take a rigorous approach to ensuring that executives are being rewarded for sustainable operational improvements in transforming the business and delivering a step change in operational cash flow. Whilst the Committee reviews in detail the underlying performance which underpins the bonus metric outturns, we also consider the outturn in the round. Turning to the metrics first, our key financial metrics are profit and cash, both achieved above target levels due to the hard work and commitment of our people. We delivered a strong free cash flow performance and a significant improvement in profitability, in challenging circumstances.

Our non-financial metrics are customer satisfaction and employee engagement. For bonus purposes, whilst our financial metrics delivered good progress, the non-financial elements were not where we would have liked them to be. We adopted a broader scorecard of customer metrics for the first time in 2019 and the below-target outturn reflected the challenges we experienced in Civil Aerospace, particularly on the Trent 1000, and the impact of supply chain challenges in Defence. In terms of our people measure, we continue to recognise the importance of transforming our business and culture. In 2019, we introduced a new survey provided by Gallup and were very pleased to see a record level of participation (72%). However, against a backdrop of transformation and operational headwinds, employee engagement fell short of our targets.

In assessing the final bonus awards, the Committee has also considered a number of factors including in particular Trent 1000, as well as HSE performance, quality of financial performance and the experience of our customers and shareholders. Whilst the Trent 1000 disruption already impacts the calculated bonus within the customer metric, the Committee felt that the calculated outturn did not sufficiently reflect the continuing disruption for our customers and financial impact on our shareholders. As a result, we exercised our discretion to reduce the overall bonus outturn for the Group metrics from 61% to 52.5% of maximum. The Committee felt that this was an appropriate adjustment to balance the experience of our customers and shareholders with a year of strong cash generation and effective management action to progress business transformation and address the in-service issues.

Our targets for the 2017 long-term incentive plan achieved 53% of maximum. This outcome reflects strong cash performance versus targets for the period, but less progress in terms of profit delivery and a disappointing overall total shareholder return.

Our reflection is that this is an appropriate outturn in the context of positive actions taken by Warren and his team to tackle our business challenges, whilst recognising the further progress needed to enhance the quality of our underlying financial results.

2020 salary review and incentives

The Committee has reviewed the salary levels of the Executive Directors and has concluded that there will be no increases in 2020 in line with most of the Group's management. This will be the third year of zero increases for Executive Directors.

Wider workforce

The Committee has always had a good appreciation of the Group's reward practices, including bonus plan design, gender pay and pay practices. During 2019, the Committee held an additional session to focus on reward approaches across the wider workforce, to gain a deeper understanding of the broader context against which we make decisions on total reward for senior management. The Committee will continue to review key metrics on the wider workforce to provide insight and context for our activity. This is the third year that we have reported on our CEO pay ratio. Our reward strategy for the Group's management population is currently focused on driving performance and behaviours consistent with our values. Incentives and performance enablement activities are structured to reward business and personal objectives, as well as behaviours.

We hope shareholders will continue to support our policy and implementation.

Membership and operation of the Committee

In 2019, members of the Committee were Ruth Cairnie, Lewis Booth, Beverly Goulet, Sir Kevin Smith and myself. I joined the Committee in August and Ruth Cairnie stepped down as Chairman at the end of 2019. All members of the Committee are independent Non-Executive Directors. Our biographies are on pages 62 and 64 and our meeting attendance is shown on page 66.

The Committee's responsibilities are outlined in its terms of reference which can be found at www.rolls-royce.com. We review these annually and refer them to the Board for approval. No changes have been made in 2019. This follows a detailed review in 2018 to ensure alignment with the principles of the Code.

Other attendees

In addition to the members of the Committee, the Chairman, Chief Executive, Chief Financial Officer and any of the Non-Executive Directors may attend one or more meetings at the Committee Chairman's invitation, although none were present during discussion of his or her own remuneration package. The Committee is supported by the Company Secretary, the Chief People Officer and the people director, performance and reward.

Advisers

During the year, the Committee had access to advice from Deloitte LLP's executive compensation advisory practice. Total fees for advice provided to the Committee during the year by Deloitte were £96,025 (2018: £73,415). Fees are based on a time and materials basis. Deloitte also advised the Company on tax, corporate compliance, employee global mobility, assurance and corporate finance and Deloitte MCS Limited provided consulting services. They also provided personal tax advice to both Sir Ian Davis and Lewis Booth. In addition, Stephen Daintith's son is employed by Deloitte. The Committee is exclusively responsible for reviewing, selecting and appointing its advisers.

Deloitte is a founding member of the Remuneration Consultants Group and adheres to its code in relation to executive remuneration consulting. The Committee requests Deloitte attend meetings periodically during the year and is satisfied that the advice it has received has been objective and independent.

Shareholder voting

The remuneration policy was last approved by shareholders at our 2017 AGM. The remuneration report was last approved by shareholders at our 2019 AGM. Details of voting are shown in the table below.

Principal responsibilities

- Determine the remuneration policy for the Executive Directors and set the remuneration for the Chairman, the Executive Directors and senior management.
- Review workforce remuneration and related policies and the alignment of incentives and rewards with our culture.
- Determine the design, conditions and coverage of annual incentives and LTIPs for senior executives and approve total and individual payments under the plans.
- Determine targets for any performance-related pay plans.
- Determine the issue and terms of all-employee share plans.
- Oversee any major changes in remuneration.

Areas of focus for 2020

- Continue to review incentive measures and targets to ensure that they remain aligned with performance and strategy, including ongoing consideration of sustainability measures
- Implement the new remuneration policy, subject to shareholder approval
- Gain further insights into the remuneration of the workforce to further inform decisions on senior management reward

Irene Dorner
Chairman of the Remuneration Committee

	For		Against		Withheld [1]
	Number of votes	%	Number of votes	%	Number of votes
Approval of the Directors' remuneration policy (4 May 2017)	1,357,109,903	95.79	59,613,198	4.21	2,505,008
Approval of the Directors' remuneration report (2 May 2019)	1,347,237,842	96.80	44,467,914	3.20	5,452,732

[1] Withheld votes are not counted towards the total percentage of votes cast.

Remuneration Committee focus during 2019

Area of focus	Matters considered	Outcome
Policy review and shareholder consultation	Review of remuneration policy to ensure alignment with business strategy and corporate governance requirements. Consultation with shareholders on proposed policy changes.	The Committee reviewed the current remuneration policy and concluded that it remained aligned to the business strategy and continued to support the transformation programme and focus on increasing free cash flow generation. A number of incremental changes were proposed and discussed with shareholders and their feedback was incorporated into the final policy design. The proposed changes are as follows: — Pensions – the pension contributions for existing Executive Directors will be reduced over the next three years to align with the average wider workforce rate for existing UK employees at 17% of salary. For any newly appointed Executive Directors, the pensions contribution will be 12%, in line with the new hire rate for the wider UK workforce. — Shareholding requirements – a post-employment shareholding requirement will be introduced to retain the lower of the shareholding requirement and actual shareholding at leaving date (based on shares vesting following the introduction of the new policy) at 100% in year one and 50% in year two. — Malus and clawback – additional triggers added. — Recruitment – flexibility to increase the maximum bonus to 200% (from 180%) for newly appointed Executive Directors where required to secure the right talent. Whilst no changes are proposed to the current incentive metrics, the Committee consulted with shareholders on the possibility of introducing a metric based on environmental performance and other sustainability measures in the future, as this continues to be an important focus of future Group performance. In developing the policy, the Committee also reviewed remuneration across the wider workforce as context for any proposed changes.
Base salaries	Review of base salaries in accordance with the remuneration policy and the broader employee context.	The Committee reviewed the salary levels of the Executive Directors and concluded that no increases would be made in 2020.
Annual bonus	2019 bonus – review of performance against the 2019 bonus targets. 2020 bonus – review of measures and targets to ensure continued alignment to strategy.	Warren East and Stephen Daintith received a bonus of 52.5% of maximum. 40% of the awards were deferred into shares. The Committee agreed that for the 2020 bonus plan the same measures would apply as in 2019: — Profit – 25% — Cash – 50% — Customer satisfaction – 12.5% — Employee engagement – 12.5% Awards will be based 80% on Group performance and 20% on individual performance. The maximum opportunities remain at 180% of salary for the Chief Executive and 150% for other Executive Directors.
Long-term incentive plan	2017 LTIP – review of achievement of performance measures. 2020 LTIP – setting targets that ensure significant stretch.	The 2017 LTIP will mature in March 2020 at 53% of maximum. For 2020 grants, targets will continue to be based on CPS (60%), EPS (20%) and TSR (20%). The maximum opportunities remain at 250% of salary for the Chief Executive and 225% of salary for other Executive Directors.

REMUNERATION POLICY FROM 2020

Introduction

The policy will take effect from 7 May 2020, subject to shareholder approval at the AGM.

Key policy themes

In 2016, the Committee undertook a wide-ranging review of the remuneration policy, resulting in a number of changes under the themes of supporting transformation, talent, simplicity and stewardship. The Committee believes that these changes have been working well for the Company and remain relevant given that we are still in a period of transformation. As a result, the Committee has focused on three key themes for this review, evolving the existing policy with limited changes.

Alignment to vision and strategy

There is a continued focus on delivering an unprecedented level of transformation: reducing costs, delivering operational excellence, innovating new products and meeting customer expectations, including dealing with legacy engine issues. The Committee considered a number of alternative incentive measures such as CROIC and new technology milestones. However our main priority continues to be to significantly increase our cash flow generation to ensure that we can deliver sustainable value to our shareholders and invest in new technologies to drive our long-term success. It is therefore important that our incentive measures continue to reflect the significance of cash flow generation. Looking further ahead, the Committee recognises the importance of environmental performance and other sustainability measures and may consider this as a metric at some point in the future, as a key driver to business success.

Supporting the talent agenda

We must continue to be able to attract and retain the individuals who can drive our long-term business success across an increasingly global and diverse talent pool. The changes we made in the 2017 policy, which were cascaded further down the organisation, have helped with the recruitment of executive talent. However, we are increasingly experiencing a challenge in recruiting key talent from outside the UK at senior levels and need to ensure that we have as much flexibility as possible to make sure we can secure a talented and diverse workforce for the future.

Alignment with the Code

We recognise the importance of strong corporate governance around executive compensation and are proposing further changes to align with the Code around executive pensions, post-employment shareholding requirements and malus and clawback provisions.

Changes to policy design

Whilst the existing policy is working well for us, a small number of changes are proposed to our policy for 2020:

Recruitment

We are not proposing any changes to quantum for existing Executive Directors. Our current policy contains flexibility for a higher LTIP maximum of 300% of salary for new hires and we plan to retain this. In addition, for new hires, given the increasingly global, diverse executive talent pool we propose to increase the maximum bonus to 200% of salary (currently 180% for the Chief Executive and 150% for other Executive Directors) to give us additional flexibility to secure executive talent in the future. This will not be applied for current incumbents and will only be used for recruitment if needed.

Pensions

We will reduce the pension contribution for newly appointed Executive Directors from a maximum of 25% to 12% of salary to align with the new hire rate for the wider UK workforce.

The pension contributions for existing Executive Directors will be reduced over the period to 2022 to align with the average wider workforce rate for existing UK employees of 17% of salary.

Shareholding requirements

We will introduce a requirement for Executive Directors to retain the lower of their shareholding requirement or their actual holding at leaving date in full for 12 months from that date, based on shares vesting following the introduction of the new policy. The requirement will be 50% of this level in the second year.

Malus and clawback

We are adding further malus and clawback triggers to our requirements, to ensure that we have a robust set of triggers that are relevant and appropriate to our business.

Consideration of shareholder feedback

During the policy review we have engaged in constructive consultation with our largest shareholders which has reinforced our view that the current policy is working and is well supported. The overall feedback from this consultation was:

- recognition that business transformation continues to be the critical focus for the Group;
- agreement that cash generation remains the key financial driver;
- acknowledgement that environmental measures are becoming a key metric both internally and externally and that quantitative measures that are important to the business strategy might be an appropriate non-financial incentive measure in the future;
- understanding of the rationale for increasing the maximum bonus for new hires to support future talent needs if required; and
- support for changes to pensions, post-employment shareholding requirements and malus and clawback triggers.

These views have been reflected in the final policy design for 2020.

Summary of our revised remuneration policy

Fixed pay

- Base salary
- Benefits
- Pension

Variable pay

Annual bonus

80% Group performance + 20% individual performance

Financial
- Profit
- Cash

Non-financial
- Customer
- Employee engagement

40% deferral for 2 years

Long-term incentive plan

60% CPS | 20% EPS | 20% TSR

3-year performance period plus 2-year holding period

Malus and clawback – LTIP awards are subject to malus and clawback provisions where there has been a material misstatement of audited results; serious financial irregularity; material financial downturn or an event causing a material negative impact on the value of the Group; material failure of risk management; a serious breach of Our Code; individual misconduct or actions that materially damage the Group; a breach of or inadequate response to a significant HSE or other environmental issue; and/or materially incorrect calculation of an award. These provisions apply from the date of grant for six years. The same provisions apply to awards of deferred shares for three years from the date of grant.

Shareholding requirement – Executive Directors are required to work towards holding beneficially-owned shares equivalent in value to a percentage of their salary by retaining at least one half of after-tax shares released from the LTIP until this requirement is met. For the Chief Executive this requirement is 250% of salary and for other Executive Directors this requirement is 200% of salary. In addition, the lower of their shareholding requirement or their actual shareholding at leaving date must normally be retained by Executive Directors for 12 months following leaving date and then 50% of that amount for the following 12 months.

Element	Commentary
Fixed pay	No changes are proposed to the salary or benefits elements of the remuneration policy approved by shareholders at the 2017 AGM. Pension contributions will be reduced to align with the average of the wider UK workforce.
Annual bonus	Performance measures remain appropriate following the introduction of customer and employee metrics in 2016. Bonuses are determined primarily by Group financial performance but the Committee may apply non-financial metrics that support the underlying strategic priorities for the forthcoming year.
	Executive Director bonuses will continue to be awarded using a simple additive approach: — 80% of the award will be based on Group performance — 20% of the award will be based on individual performance The maximum for existing Executive Directors will be maintained at 180% of salary. The new remuneration policy includes the flexibility for a potential maximum of up to 200% of salary for newly hired Executive Directors. The intention is that this flexibility will only be used for recruitment to secure talent across a global and diverse pool.
	40% of any bonus will be deferred into shares for two years.
Long-term incentive plan	CPS, EPS and TSR remain our long-term measures of success and reflect the strategic focus on profitable growth, the quality of profit, and returns to shareholders. During shareholder consultations, we received strong support for the continued use of cash flow as the central measure of long-term performance.
	The two-year holding period following the three-year performance period continues. This includes a requirement to continue to hold shares after participants have left the Group. 20% of the maximum award will vest for threshold performance.
	The remuneration policy continues to include an overall maximum of up to 300% of salary for the Chief Executive and 250% for other Executive Directors. This flexibility will only be used for recruitment to secure talent across a global and diverse talent pool. The intended operational maximum for the three-year period of this policy will continue to be 250% of salary for the Chief Executive and 225% of salary for other Executive Directors.

Remuneration policy table

The table below sets out each element of Executive Directors' remuneration.

Pay element – fixed pay	
Base salary	
Purpose and link to strategy	The Company provides competitive salaries suitable to attract and retain individuals of the right calibre to develop and execute the business strategy.
Operation	Salaries are reviewed, but not necessarily increased, annually. Decisions on salary are informed but not led by reference to companies of a similar size, complexity and international reach.
Maximum opportunity	Any salary increases will be assessed annually and will not normally exceed average increases for employees in other appropriate parts of the Group. The Committee may exercise discretion to make larger increases in circumstances where it is necessary to address particular issues or risks, including growth in the role for new appointments.
Benefits	
Purpose and link to strategy	The Company provides competitive benefits suitable to attract and retain individuals of the right calibre to develop and execute the business strategy.
Operation	Benefits may include car or car allowance and related costs, financial planning assistance, private medical insurance, life assurance and other appropriate benefits at the discretion of the Committee. Relocation support or support for accommodation and travel may be offered to executives where necessary. Executive Directors may participate in all-employee share plans including ShareSave and the Share Incentive Plan.
Maximum opportunity	Benefits excluding all employee share plans, and any accommodation, relocation and associated tax costs will not exceed £100,000 per annum.
Pension	
Purpose and link to strategy	The Company provides competitive pension schemes suitable to attract and retain individuals of the right calibre to develop and execute the business strategy.
Operation	Executive Directors are offered membership of a defined contribution pension plan. A cash allowance may be payable in lieu of pension contributions.
Maximum opportunity	For incumbent Executive Directors, the maximum employer contribution to a defined contribution plan (or to be taken as a cash allowance) is currently 25% of salary. This will reduce to 17% of salary, the current average of the wider UK workforce, by March 2022. For newly appointed Executive Directors, the rate will be 12% of salary. Pensions contributions are based on base salary only.

Pay element – variable pay	
Annual bonus	
Purpose and link to strategy	To incentivise the execution of the business strategy, delivery of financial targets, and the achievement of personal objectives.
Operation	Bonuses are determined primarily by Group financial performance, but the Committee may apply non-financial metrics that support the underlying strategic priorities for the forthcoming year and/or adjust the payout level to ensure the outturns reflect performance. The bonuses payable are also linked to personal performance of the Executive Directors. 25% of the maximum opportunity is payable if base performance is achieved and 50% of maximum for target performance. The financial and non-financial metrics are set with reference to the prior year and to the budgets and business plans for the coming year, ensuring the levels to achieve base, on-target and maximum payout are appropriately stretching. At least 40% of the bonus is compulsorily deferred into shares for a further two years, and released subject to continued employment. Deferred shares may attract an issue of C Shares or equivalent during the deferral period. Awards are subject to malus and clawback provisions where there has been a material misstatement of audited results; serious financial irregularity; material financial downturn or an event causing a material negative impact on the value of the Group; material failure of risk management; a serious breach of Our Code; individual misconduct or actions that materially damage the Group; a breach of or inadequate response to a significant HSE or other environmental issue; and/or a materially incorrect calculation of an award. These provisions apply from the date of grant for three years. For awards granted prior to the adoption of this policy, legacy malus and clawback provisions may apply. The Committee has discretion to adjust the formulaic outcome (including down to zero) to ensure alignment of pay with performance and fairness for shareholders and participants.
Maximum opportunity	The normal annual maximum for the Chief Executive is 180% of salary and 150% for other Executive Directors. A maximum of 200% may be applied for recruitment where it is required to secure individuals with the right skills and experience. This flexibility would not be used for existing Executive Directors.
Performance measures	The bonus is weighted 80% on Group metrics, and 20% on individual performance. Within the Group metrics: — at least 60% is based on Group financial targets (for example profit and free cash flow) — up to 40% of the bonus is based on non-financial metrics such as employee engagement and customer — individual objectives are set and agreed with the Remuneration Committee at the start of each year, to reflect the prevailing business context — the Committee may, in the context of the underlying business strategy, use different performance measures
Long-term incentive plan (LTIP)	
Purpose and link to strategy	To reward the development and execution of the business strategy over a multi-year period.
Operation	Executive Directors are granted awards over shares annually with a three-year performance period. The number of shares relative to the proportion of the award that vests is determined at the end of the performance period according to the achievement against the performance measures. The resultant shares are then held for a further two-year period. 20% of the maximum award will vest for threshold performance. The Committee has discretion to adjust the formulaic outcome (including down to zero) to ensure alignment of pay with performance and fairness for shareholders and participants. Executive Directors are expected to work towards holding beneficially-owned shares equivalent in value to a percentage of their salary by retaining at least one half of after-tax shares released from the LTIP until this requirement is met (see page 100). Awards are subject to malus and clawback provisions where there has been a material misstatement of audited results; serious financial irregularity; material financial downturn or an event causing a material negative impact on the value of the Group; material failure of risk management; a serious breach of our Code; individual misconduct or actions that materially damage the Group; a breach of or inadequate response to a significant HSE or other environmental issue; and/or a materially incorrect calculation of an award. These provisions apply from the date of the award for six years. For awards granted prior to the adoption of this policy, legacy malus and clawback provisions may apply.

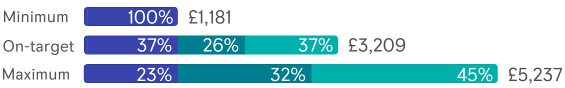
Pay element – variable pay	
Long-term incentive plan (LTIP) continued	
Maximum opportunity	Normal annual awards: — Chief Executive – 250% of salary — other Executive Directors – 225% of salary The maximum face value of annual awards is 300% of salary for the Chief Executive and 250% for other Executive Directors. This flexibility would only be used for recruitment to secure individuals with the required skills and experience. This flexibility would not be used in the normal course of business.
Performance measures	Performance measures may include CPS, EPS, TSR and/or sustainability measures, for example environmental performance measures and other similar measures that are important to the success of the business strategy. For 2020 awards, the measures will be weighted 60% CPS, 20% EPS and 20% TSR. No more than 20% of awards will vest for threshold performance. The Committee may, in the context of the underlying business strategy, use different performance measures and/or vary the weightings of the measures.

The table below sets out the main elements of Non-Executive Directors' remuneration.

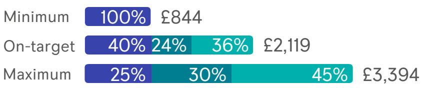
Pay element	
Fees	
Purpose and link to strategy	To reward individuals for fulfilling their role and attract individuals of the skills and calibre required.
Operation	The Committee makes recommendations to the Board on the Chairman's remuneration. The Chairman and the Executive Directors determine the remuneration of the Non-Executive Directors. Levels take into account fees paid by other companies of a similar size and complexity. The Chairman is paid a single fee. Other Non-Executive Directors are paid a base fee covering Board and Board committee membership, with committee chairmen, the Senior Independent Director and the Employee Champion receiving an additional fee.
Maximum opportunity	The maximum total remuneration payable to Non-Executive Directors, including the Chairman, is £1,600,000 per annum.
Benefits	
Purpose and link to strategy	To devote maximum time and attention to the requirements of the role.
Operation	The Chairman has occasional use of chauffeur services. Travel, hotel and subsistence incurred in attending meetings are reimbursed by the Company. The Group may pay tax on such benefits. It may provide support with tax matters for Non-Executive Directors based outside the UK.
Maximum opportunity	Maximum value for chauffeur services will not exceed £15,000 per annum. £5,000 maximum towards tax advice and filing per annum.

Remuneration policy – worked examples for 2020

Chief Executive £000



Chief Financial Officer £000



■ Fixed remuneration (including salary, benefits and pension)
■ Annual bonus
■ LTIP (this does not include share price growth)

Minimum – fixed remuneration (salary, pension, benefits), no bonus award or LTIP vesting.
On-target – fixed remuneration, 50% of maximum bonus award, 50% of LTIP vesting.
Maximum – fixed remuneration, 100% of maximum bonus award, 100% of LTIP vesting.
Maximum assuming 50% growth in share price would be £6,417k for the Chief Executive and £4,159k for the Chief Financial Officer.

Performance measures and targets

The Committee will set Group financial targets for annual bonus and LTIP awards with reference to the prior year and to forward-looking business forecasts, ensuring the levels of performance required to achieve base, on-target and maximum bonus awards are appropriately challenging.

The Committee may, in the context of the underlying business strategy, use different performance measures for incentives and/or vary the weightings of the measures. For example, looking ahead the Committee recognises the importance of environmental performance and other sustainability measures to the success of the business strategy and may wish to include such quantitative measures in the incentive plans. Feedback would be sought from shareholders if the Committee wished to apply this to the LTIP within the three-year period of this policy.

The measurement of performance against performance targets is at the Committee's discretion, which may include appropriate adjustments to financial or non-financial elements and/or consideration of overall performance in the round. Adjustments may be either upwards or downwards.

Performance conditions may also be replaced or varied if an event occurs or circumstances arise which cause the Committee to determine that the performance conditions have ceased to be appropriate. If the performance conditions are varied or replaced, the amended conditions must, in the opinion of the Committee, be fair, reasonable and materially no less difficult than the original conditions when set.

Policy on new appointments

The Committee will appoint new Executive Directors with a package that is in line with the remuneration policy. Base salary may be set at a higher or lower level than the previous incumbent. The Committee may use its discretion to make individual incentive awards up to the maximum policy headroom limits outlined in the policy table.

Remuneration forfeited on resignation from a previous employer may be compensated. This will be considered on a case-by-case basis and may comprise cash or shares. In general:

- if such remuneration was in the form of shares, compensation will be in the Company's shares.
- if remuneration was subject to achievement of performance conditions, compensation will be normally be subject to performance (either Rolls-Royce performance conditions or actual/forecast performance outturns from the previous company); and
- the timing of any compensation will, where practicable, match the vesting schedule of the remuneration forfeited.

Legacy terms for internal appointments may be honoured, including any outstanding incentive awards. If an Executive Director is appointed following a merger or an acquisition of a company by Rolls-Royce, legacy terms and conditions may be honoured.

Wider workforce considerations

When setting remuneration for Executive Directors and the senior management team, the Committee carefully considers wider remuneration across the Group, including salary increases, bonus awards, share plan participation and pay ratios between Executive Directors and other employees.

During 2019, the Committee held an additional in-depth review session to develop a deeper understanding of demographics across the organisation, the differences in total reward across various employee groups and geographies and key areas of focus on culture and reward. As a result, the Committee will continue to review this information on a more regular basis to help inform its decisions on executive pay.

At more senior levels, remuneration is increasingly long-term and larger proportions are dependent on Group and business performance, as well as individual performance and a larger proportion is delivered in the form of shares. In terms of the management population generally, the direction of travel is to re-balance the total reward package from fixed elements to variable performance-related elements.

We are committed to sharing business success across the organisation, with all employees participating in a short-term incentive plan. There is strong alignment of business metrics between the Executive Directors bonus plan and those in which the majority of the workforce participate. In addition, the Group offers an all-employee sharesave plan to eligible employees globally every two years which aligns employee interests with those of our shareholders. This continues to be a popular benefit with over 40% of employees joining the most recent plan.

The broader workforce has not had direct input into the proposed policy but its application is strongly influenced by remuneration arrangements for all employees. Irene Dorner, who has designated responsibility for engaging with employees and bringing their voice into the boardroom, is now the Chairman of the Remuneration Committee, which further strengthens the link between employees and executive remuneration.

Share plans

The Committee retains a number of discretions consistent with the relevant share plan rules. In the event of any variation in the share capital of the Company, a demerger, special dividend, distribution or any other transaction which will materially affect the value of shares, the Committee may make an adjustment to the number or class of shares subject to award.

The treatment of leavers in our ShareSave and the Share Incentive Plan is covered by the respective plan rules. Change of control provisions in respect of employee share plans are set out on page 207.

Termination

The Company is required to give Executive Directors 12 months' notice under their service contracts. Payment in lieu of notice will not exceed the value of 12 months' salary, benefits and pension contributions. Both mitigation and the timing of payments through the notice period will be considered by the Committee where appropriate, as will the funding of reasonable outplacement and other professional fees. There is no automatic entitlement to an annual bonus. Taking into account the circumstances, the Committee has discretion to award a bonus in respect of performance in the financial year with appropriate consideration of time pro-rating.

Deferred shares will generally be released in cases such as retirement, death, injury, ill-health, redundancy or any other reason at the discretion of the Committee. In these cases any annual bonus awarded immediately prior to leaving may be delivered in cash rather than deferred shares.

For the LTIP, the rules state that unvested awards may be preserved at the Committee's discretion according to the circumstances. In such cases vesting will be at the normal date, subject to the established performance conditions, and pro-rated to employment in the performance period. In cases such as death and terminal illness, the Committee also has the discretion to vest the awards immediately using an estimate of future outturn. If an individual leaves after the LTIP shares have vested but during the holding period, shares will not be forfeited but the holding period will remain in force. The Committee also has the discretion to mitigate or clawback awards where an Executive Director retires and then becomes employed or engaged by another business in a non-voluntary capacity within 12 months.

Post-employment

Post-employment, an Executive Director will normally be required to retain the lower of their shareholding requirement or their actual shareholding at leaving date (based on shares vesting following the introduction of the new policy) for one year after leaving, and 50% of this level for a second year. The Committee can waive or modify this requirement (for example in compassionate circumstances).

Service contracts

The service contract for Warren East, includes 12 months' notice of termination from the Company and six months' notice from the Executive Director. The service contracts of Stephen Daintith, and any new appointee, will include 12 months' notice from the Company and 12 months' notice from the Executive Director. All contracts include the entitlement to paid holidays, sick pay, and other standard employment terms including reimbursement of reasonable business expenses.

The Chairman and Non-Executive Directors have letters of appointment. No compensation is payable to the Chairman or to any Non-Executive Director if the appointment is terminated early or if they fail to be re-elected at an AGM.

Legacy commitments

Any remuneration payments and/or payments for loss of office made under legacy arrangements prior to the approval of the Company's remuneration policy may be paid out subject to the terms of the remuneration policy in place at the time they were agreed. For these purposes, 'payments' include the Company satisfying awards of variable remuneration and, in relation to an award over shares, the terms of the payment are agreed at the time the award is granted.

Minor amendments

The Committee may make minor amendments to the policy (for regulatory, exchange control, tax or administrative purposes or to take account of a change in legislation) without obtaining shareholder approval.

Section 40 disclosures

When developing the proposed remuneration policy and considering its implementation for 2020, the Committee was mindful of the Code and considers that the executive remuneration framework appropriately addresses the following factors:

Clarity	We provide open and transparent disclosures regarding our executive remuneration arrangements. We have explained the changes to our proposed remuneration policy in a way that highlights their alignment to both our vision and strategy as well as the provisions of the Code.
Simplicity	Remuneration arrangements for our Executives and our wider workforce are simple in nature and well understood by both participants and shareholders.
Predictability	Our remuneration policy contains details of maximum opportunity levels for each component of pay, with actual incentive outcomes varying depending on the level of performance achieved against specific measures.
Proportionality, risk, and alignment to culture	The metrics used to measure performance for annual bonus and LTIP awards drive behaviours that are closely aligned to our vision and strategy. In particular our variable pay arrangements continue to focus on delivering an unprecedented level of transformation. The Committee considers that our variable pay structures do not encourage inappropriate risk-taking. The annual bonus and the LTIP are subject to the achievement of stretching performance targets, and the Committee's holistic assessment of performance that can result in the application of discretion. The use of annual bonus deferral, LTIP holding periods and our shareholding requirements (including after leaving employment with Rolls-Royce) provide a clear link to the ongoing performance of the business and therefore alignment with shareholders. Malus and clawback provisions also apply for both the annual bonus and LTIP.

Executive Directors' remuneration

The following pages show how we have applied our remuneration policy during 2019 and disclose all elements of remuneration received by our Executive Directors. Details of remuneration received by our Non-Executive Directors during 2019 can be found on pages 103 and 104.

Executive Directors' single figure of remuneration (audited)

	Salary (a) [1] £000		Benefits (b) £000		Bonus (c) £000		Long-term incentives (d) [2,3] £000		Pension (e) £000		Total remuneration £000	
	2019	2018	2019	2018	2019	2018	2019	2018 restated	2019	2018	2019	2018
Executive Directors												
Warren East	944	944	17	17	883	1,012	1,079	1,866	236	236	3,159	4,075
Stephen Daintith	680	680	20	19	530	608	714	1,770	150	150	2,094	3,227

1 Neither Warren East nor Stephen Daintith received a salary increase in 2019. The last increase made to Warren East was in September 2017.
2 The average share price for the three months to 31 December 2019 of 722p has been used to calculate the LTIP value (as the actual value is not known at the date of signing this report). The 2018 long-term incentive value has been updated from the 2018 Annual Report. This value is now based on the share price on vesting on 1 March 2019 of 909p.
3 There is no share appreciation reflected in the 2018 LTIP values as the share price has reduced since the grant date.

a) Salary

The Company provides suitable competitive salaries to attract and retain individuals of the right calibre to develop and execute the business strategy. The Committee reviewed the salaries of Warren East and Stephen Daintith in early 2020 and agreed there would be no increases for 2020.

Executive Director	Base salary as at 1 March 2020	Base salary as at 1 March 2019
Warren East	£943,500	£943,500
Stephen Daintith	£680,000	£680,000

b) Executive Directors' benefits (audited)

Benefits are provided to ensure that remuneration packages remain sufficiently competitive to attract and retain individuals of the right calibre to develop and execute the business strategy and to enable them to devote themselves fully to their roles. The taxable value of all benefits paid to Executive Directors during 2019 is shown below.

	Car or car allowance inc. fuel allowance £000		Medical insurance £000		Travel and subsistence £000		Total £000	
Executive Directors	2019	2018	2019	2018	2019	2018	2019	2018
Warren East	15	15	1	2	1	–	17	17
Stephen Daintith	17	17	2	2	1	–	20	19

c) Annual bonus outturn (audited)

The Company's annual bonus scheme is designed to incentivise the execution of the business strategy, delivery of financial targets and the achievement of personal objectives. Executive Directors receive any annual bonus awarded in March following the performance period. 60% of the bonus is paid in cash with the remaining 40% awarded in deferred shares. Deferred shares are held in trust for two years before being released, subject to the recipient still being employed by the Group and include the right to receive an amount equal in value to the C Shares issued during the deferral period. The annual maximum for the Chief Executive is 180% of salary and 150% for the other Executive Director(s):

— 80% of the award is based on Group performance

— 20% of the award is based on individual performance

c) Annual bonus outturn (audited) continued

The Committee reviewed the 2019 outturn against the performance measures; 80% of annual bonus is based on Group performance and 20% is based on individual performance. The Group performance measures are shown below:

	Profit	Cash	Customer metric [1]	Employee engagement [2]	Total
Weighting	25%	50%	12.5%	12.5%	100%
Base (25%)	£334m	£610m	measured as the average of the business scorecards (see below)	3.59/3.58	
Target (50%)	£434m	£760m		3.68/3.61	
Maximum (100%)	£634m	£1,060m		3.91/3.65	
2019 performance 3	£628m	£866m	38%	3.56/3.52	
% of maximum	98%	68%	19%	0%	61%
Adjusted % of maximum					**52.5%**

[1] Customer metric is measured on the average of the business scorecards (see below).
[2] In 2019, a new survey, Gallup Q12, was introduced to measure employee engagement. There were two surveys in 2019, the first weighted at 25% and the second at 75% of the overall metric. Power Systems employees only participated in the second survey.
[3] Adjusted to exclude ITP Aero, non-core businesses, FX, exceptional items, the impact of accounting effects and unbudgeted items.

The Committee retains overriding discretion on the outturns of the annual bonus and chose to apply that discretion to reduce the 2019 outturns. In assessing the final bonus awards, the Committee considered a number of factors, particularly Trent 1000, as well as HSE performance, quality of financial performance and the experience of customers and shareholders. The Committee exercised discretion to reduce the overall bonus outturn from 61% to 52.5%.

Definitions used for performance measures:

Profit – adjusted underlying profit before tax for 2019.

Cash – free cash flow which is cash flow before acquisitions and disposals, shareholder payments and foreign exchange.

Customer metric – Group performance is assessed using an index score based on the average outcome of bespoke customer metrics for each of Civil, Power Systems and Defence. This approach means that each business focuses on the most meaningful customer metrics. See page 15 for more information. The customer metrics for each business are below:

Civil Aerospace – OE delivery to purchase order, TotalCare engine availability, CorporateCare engine availability, Trent 1000 aircraft on ground (AOG).

Power Systems – OE delivery to purchase order, spares delivery to purchase order, claims per unit, time to solve.

Defence – OE delivery to purchase order, spares delivery to purchase order, engine availability, submarines composite delivery.

The specific business targets are commercially sensitive.

Employee engagement – Is measured through our annual engagement survey. In 2019, we introduced a new employee opinion survey, in partnership with Gallup. We ran two surveys this year to embed the new approach and weighted the first survey at 25% of the bonus metric and the second at 75%. 58% of employees completed the first survey and 72% completed the second survey. We achieved a Group score of 3.56 for the first survey and 3.52 for the second resulting in a weighted average of 3.53.

Individual performance

Executive Directors have 20% of their bonus based on achievement of their personal objectives. Personal performance objectives are set at the beginning of the year and are aligned with the Group's internal strategic priorities.

For Executive Directors, these have included:

- deliver Group revenue, profit and cash, in line with the budget, with specific focus on cash costs and free cash flow;
- accelerate progress on diversity and HSE against agreed objectives and metrics;
- drive M&A disposals, in particular ensuring a successful completion of the Commercial Marine disposal;
- continue to drive the Group restructuring programme, delivering a further 1,500 in headcount reductions and a run rate of £300m by the end of 2019;
- drive performance through our values and behaviours, leading by example with a strong focus on safety, diversity & inclusion and the highest ethical and professional standards; and
- fix the fleet – manage the legacy engine issues effectively to rebuild trust and confidence with our customers.

The Committee assesses performance against the objectives. The overall assessed percentage is based on the Committee's judgement and may include other factors and achievements in the year.

The following provides an overview of key achievements during the year for each Executive Director:

Warren East	Stephen Daintith
Delivered business performance ahead of budget on profit and cash with enhanced quality of cash driven by cost control and operational improvements. Healthy growth in Power Systems revenue against a weak market and Defence record backlog. 64% new widebody orders achieved in Civil Aerospace. Increased profitability in all businesses.	Delivered on all areas of financial guidance for 2020; revenues, margins, profit and cash flow.
Majority of Trent 1000 issues addressed and roll out into the fleet in progress. Doubled MRO output in 2019, with further capacity increase in progress.	Fundamental improvement in cash flow with strong free cash flows delivered in 2019 and a clear roadmap to at least £1bn in 2020.
Further management change across all businesses and functions. Group Business Services function established delivering 9% cost reduction in year one. On track to meet targets announced in June 2018.	Successful disposals of non-core assets (Commercial Marine, North America Civil Nuclear business) with proceeds retained to strengthen the balance sheet. Average net debt has reduced from £1.3bn in 2018 to circa £0.7bn in 2019.
TRI improvement in Civil Aerospace, Power Systems and Defence. Gender diversity strongly improving amongst senior management and in succession plans at most levels. ELG moving from 15% female in 2018 to 20% in 2019.	Finance systems and management information transformation continued with the introduction of an integrated driver-based budgeting and forecasting tool to improve planning.
Further balance sheet improvements through completion of non-core asset sales. Improved free cash flow, continuing to drive down net debt.	Restructuring programme progressed in line with expectations with circa 2,900 cumulative headcount reduction and run-rate savings so far of £269m, C&A costs reduced 5% year-on-year, capital expenditure reduced year-on-year by more than £200m.
Within flat overall R&D cost, shifting the balance towards future-looking, zero carbon technologies, alongside progress on next generation gas turbines. Acquisition of Siemens' eAircraft business and investment in microgrids to accelerate electrical capability. Establishing industry leadership position in lower carbon technologies.	

2019 annual bonus outturn (to be paid in March 2020)

	Group performance (% of maximum)	Individual performance (% of maximum)	Total bonus (% of maximum)	Total bonus (% of salary)
Warren East	53%	50%	52%	94%
Stephen Daintith	53%	50%	52%	78%

d) Long-term incentives (audited)

Conditional share awards are made to Executive Directors under the LTIP to reward the execution and development of the business strategy over a multi-year period. The conditional shares are then subject to a further two-year holding period.

LTIP awards made in March 2019

The performance targets for awards made in March 2019 are shown below. Performance will be measured over three years to 31 December 2021.

	CPS (60%)	EPS (20%)	Relative TSR (20%)
Threshold (20% vesting)	112p	81p	Median
Mid (50% vesting)	150p	95p	Between median and upper quartile
Maximum (100% vesting)	187p	109p	Upper quartile

	Number of shares	% of salary	Face value of award [1] £000	Performance period end date
Warren East	264,532	250	2,359	31 December 2021
Stephen Daintith	171,589	225	1,530	31 December 2021

[1] Calculated as 250% of salary for Warren East and 225% of salary for Stephen Daintith, divided by share price at date of grant of 891.57p per share.

2017 LTIP awards

The following sets out details in respect of the May 2017 LTIP award for which the final year of performance was the 2019 financial year. The performance conditions were assessed to the end of 2019 and the shares are then subject to a two-year holding period.

	Weighting	Threshold (20% vesting)	Mid (50% vesting)	Maximum (100% vesting)	Performance achieved	Vesting as a % of maximum
CPS [1]	60%	57p	76p	104p	87p	69.6%
EPS [2]	20%	3p	23p	48p	26p	56.0%
Relative TSR v FTSE 100 constituents	10%	Median		Upper quartile	Below median	0%
Relative TSR v constituents of the S&P Global Industrials index	10%	Median		Upper quartile	Below median	0%
						Total vesting of 53%

1 CPS ranges were adjusted to reflect M&A activity in line with the plan definition. The original targets were minimum 60p; mid 80p; maximum 110p.
2 Over the performance period of the LTIP award the Company was required to change from accounting under IAS 18 to IFRS 15. This had a significant effect on reported profit and EPS. The targets were set on the basis of IAS 18 and, as communicated at the time of the grant, these targets have been restated so that they can be measured on an IFRS 15 basis. The translation has been on a like-for-like basis, applying the absolute cumulative profit growth in the original IAS 18 targets to the restated 2017 IFRS 15 target.

e) Pension entitlements (audited)

Executive Directors are offered membership of a defined contribution plan. A cash allowance may be payable in lieu of pension contributions.

From 2020, any newly appointed Executive Directors will be offered an employer contribution of 12% of salary into the defined contribution pension plan (or cash allowance of equivalent value). This aligns to the new hire rate for the UK workforce.

In terms of existing Executive Directors, Warren East receives a cash allowance of 25% of salary and Stephen Daintith 22% of salary. During 2019 the Company embarked on a consultation exercise with UK managers in its legacy defined benefit plan (which has been closed to new members since 2007), to reduce future benefits from that plan. In the context of the reductions in pension benefits for that population, both Stephen and Warren have agreed that their cash allowances should also reduce. The following reductions have therefore been agreed with the Committee to a rate of 17% in 2022:

	Warren East	Stephen Daintith
Current pension allowance	25%	22%
Proposed change from 1 March 2020	23%	21%
Proposed change from 1 March 2021	20%	19%
Target level by 1 March 2022	17%	17%

In arriving at the 17% contribution rate for existing Executive Directors we have considered our UK population, which represents the largest employee group. Currently almost half of our UK workforce (45%) are active members of our defined benefit plan with a funding cost in excess of 30% of salary (based on the most recent funding valuation in March 2017). Given current financial market conditions, we would expect that cost to increase by the time of the next valuation in March 2020. Our defined contribution employer contribution rate is 12%, which we now offer to all new hires in the UK.

As we have such a significant proportion of our UK workforce in a defined benefit plan, we have reviewed the average blended contribution rate across all UK employees, which currently gives an average of 17% of salary. We believe that this is currently a fair reflection of the pension arrangements of the wider workforce. However, to reflect funding costs of defined benefit pensions and the proportion of employees in the defined benefit and defined contribution plans, we plan to keep this rate under review.

Other (audited)

Payments to past directors

An agreement was put in place between the Company and Colin Smith in 2017, for Colin to represent the Company in an ambassadorial capacity. The agreement was for up to 21.5 days for the latter part of 2017, 35 days for 2018 and 2019. This agreement has been extended for 2020 for up to 20 days. Total payments of £159,360 have been made under this agreement, of which £45,360 was paid in 2019.

Implementation of remuneration policy in 2020 *

Base salary	There will be no change to base salary for 2020; base salaries remain as: Warren East – £943,500 Stephen Daintith – £680,000
Benefits	There will be no change to our approach to benefits in 2020, which includes car or car allowance, financial planning assistance, insurances and other benefits.
Pensions	Pension cash allowances for existing Executive Directors will be reduced as follows from 1 March 2020: — Warren East – 23% (reduced from 25%) of salary — Stephen Daintith – 21% (reduced from 22%) of salary Further reductions will be made in 2021 and 2022 to bring both allowances to 17%.
Annual bonus	For 2020, bonuses will continue to be awarded using a simple additive approach: — 80% of the award will be based on Group performance — 20% of the award will be based on individual performance For 2020, the Group measures and weightings will be unchanged: profit (25%); free cash flow (50%); customer (12.5%); and employee engagement (12.5%). Operating profit will however be used as the profit measure rather than profit before tax, to better align our incentive targets with underlying business performance and to maintain consistency with external guidance. Targets are commercially sensitive and will be disclosed following assessment of performance. Maximum opportunities will remain unchanged: — Chief Executive – 180% of salary — Other Executive Directors – 150% of salary
LTIP awards	For awards to be granted in 2020 performance measures will be weighted: — 60% on CPS — 20% on EPS — 20% on relative TSR (versus FTSE 100 and Global S&P Index, to recognise that Rolls-Royce is a global company) Performance will be measured over three years to 31 December 2022. Performance targets will be:

	CPS	EPS IFRS 15 basis	Relative TSR
Threshold (20% vesting)	162p	85p	Median
Mid (50% vesting)	203p	106p	Between median and upper quartile
Maximum (100% vesting)	244p	127p	Upper quartile

Performance below threshold will result in that element lapsing in full.
The above targets are not an indication of forecast numbers for the three-year period.

Methodologies

CPS – Calculated as reported cash flow before the cost of business acquisitions or proceeds of disposals, foreign exchange translation effects, special payments into pension schemes and payments to shareholders, divided by the weighted average number of shares in issue. CPS is cumulative over a three-year period. The Committee will review CPS performance to ensure that it is a fair reflection of achievements over the period.

EPS – Calculated as cumulative absolute underlying EPS over the three-year performance period on an IFRS 15 basis.

Relative TSR – Measured 50% against the constituents of the FTSE 100 and 50% against the constituents of the S&P Global Industrials index.

Award sizes for maximum performance

— Chief Executive: 250% of salary
— Other Executive Directors: 225% of salary

Threshold vesting at 20% equates to 50% of salary for the Chief Executive and 45% of salary for other Executive Directors. LTIP awards will be subject to an additional holding period of two years following the three-year performance period.

* Subject to approval by shareholders at the 2020 AGM.

Other information

Executive Directors' share interests (audited)

The Directors and their connected persons hold the following interests in the ordinary shares of the Company:

	Ordinary shares		Conditional shares not subject to performance conditions (deferred share bonus)	Conditional shares subject to performance conditions (PSP)	Conditional shares subject to performance conditions (LTIP)	Options over shares subject to savings contract (ShareSave)
	31 December 2019	27 February 2020	31 December 2019	31 December 2019	31 December 2019	31 December 2019
Warren East	185,208	185,208	99,697	–	821,569	1,264
Stephen Daintith	189,068	189,068	53,961	–	536,568	925

Executive Directors' interests in vested and unvested share awards (audited)

Warren East	31 December 2018	Granted during the year	Vested awards	Lapsed awards	31 December 2019	Market price at date of award (p)	Date of grant	Vesting date/ lapse date	Market price at vesting (p)
PSP 2016 [1]	164,202	–	205,253	–	–	676.00	01/03/16	01/03/19	909.00
Total	**164,202**	**–**	**205,253**	**–**	**–**				
LTIP 2017	281,954	–	–	–	281,954	820.17	05/05/17	05/05/20	–
LTIP 2018	275,083	–	–	–	275,083	857.47	08/03/18	08/03/21	
LTIP 2019	–	264,532	–	–	264,532	891.67	15/03/19	15/03/22	–
Total	**557,037**	**264,532**		**–**	**821,569**				
Deferred share bonus (2016)	47,398	–	47,398	–	–	772.83	01/03/17	01/03/19	–
Deferred share bonus (2017)	53,641	–	–	–	53,641	857.47	08/03/18	01/03/20	–
Deferred share bonus (2018)	–	45,376	–	–	45,376	891.67	15/03/19	01/03/21	–
Total	**101,039**	**45,376**	**47,398**	**–**	**99,017**				
ShareSave (options) [2]	1,264	–	–	–	1,264	616.80	12/10/15	01/02/21	–

Stephen Daintith	31 December 2018	Granted during the year	Vested awards	Lapsed awards	31 December 2019	Market price at date of award (p)	Date of grant	Vesting date/ lapse date	Market price at vesting (p)
PSP 2017 (buy-out award) [1,3]	70,027	–	91,036	–	–	754.70	05/05/17	01/03/19	909.00
PSP 2017 (buy-out award) [1,3]	79,726	–	103,644	–	–	754.70	05/05/17	31/10/19	711.00
Total	**149,753**	–	**194,680**	–	**–**				
LTIP 2017	186,547	–	–	–	186,547	820.17	05/05/17	05/05/20	–
LTIP 2018	178,432	–	–	–	178,432	857.47	08/03/18	08/03/21	–
LTIP 2019	**–**	171,589	–	–	171,589	891.67	15/03/19	15/03/22	–
Total	**364,979**	**171,589**	–	–	**536,568**				
Deferred share bonus (2017)	26,374	–	–	–	26,374	857.47	08/03/18	01/03/20	–
Deferred share bonus (2018)	–	27,253	–	–	27,253	891.67	15/03/19	01/03/21	–
Total	**26,374**	**27,253**	–	–	**53,627**				
ShareSave (options) [2]	925	–	–	–	925	758.40	13/10/17	01/02/21	–
ShareSave (options) [2]	–	292	–	–	292	676.50	16/10/19	01/02/23	–

1 The 2016 PSP (which vested in March 2019) included a kicker for above median TSR performance, which generated a multiplier of 1.4 x the original grant value. As disclosed at the time, this multiplier was capped for the 2016 grants, the awards vested at 150% of salary for Warren East and 130% of salary for Stephen Daintith's buy-out awards that were tied to this plan.
2 For ShareSave, the price shown is the exercise price which was 85% of the market price at the date of the award.
3 The grant price for PSP awards made to Stephen Daintith was the average closing mid-market price calculated over one month, up to 22 September 2016 (the date that his appointment to Rolls-Royce was announced).

Shareholding requirement (audited)

Executive Directors are required to work towards holding beneficially-owned shares equivalent in value to a percentage of their salary by retaining at least one half of after-tax shares released from the LTIP until this requirement is met. For the Chief Executive this requirement is 250% of salary and for other Executive Directors this requirement is 200% of salary. The current shareholdings, as a percentage of salary, for Warren East and Stephen Daintith are 183% and 232% respectively *.

As a result of the policy review, an additional requirement has been added to the shareholding policy which requires Executive Directors to retain the lower of their shareholding requirement (based on shares vesting following the introduction of the new policy) at the date of leaving for one year after leaving and 50% of this level for a second year *.

* The percentage of the requirement was calculated by reference to the average share price, over the three months to 31 December 2019, and salary as at the date of the last grant on 15 March 2019. Unvested LTIP awards and ShareSave options are not included in this calculation.

Pay across the organisation

This section of the report enables our remuneration arrangements to be seen in context by providing:

— a comparison of the year-on-year percentage change in our Chief Executive's remuneration with the change in average remuneration across the UK;

— a year-on-year comparison of the total amount spent on employment costs across the Group and shareholder payments;

— a ten-year history of our Chief Executive's remuneration;

— our TSR performance over the same period; and

— an indication of the ratio between our Chief Executive's remuneration and the remuneration of employees.

Percentage change in Chief Executive remuneration

The following table compares the percentage change in the Chief Executive's salary, bonus and benefits (excluding LTIP) to the average percentage change in salary, bonus and benefits for all UK employees from 2018 to 2019.

Change in remuneration

	Salary	Benefits	Annual bonus
Chief Executive	0%	0%	(13)%
UK employees average [1]	3.38%	18.74%	14.83%

[1] UK employees were chosen as a comparator group in order to avoid the impact of exchange rate movements over the year. UK employees including apprentices, graduates and interns, make up 45% of the total employee population. The increase in benefits in the year is due to implementation of a standardised career framework across our management population. The increase in bonus is due to a higher bonus level particularly in Civil Aerospace which accounts for a large proportion of the UK workforce.

Chief Executive pay ratio

The Committee is mindful of the relationship between the remuneration of the Chief Executive and the wider employee population. This is the third year that we have published our CEO pay ratio and we have continued to use method A, as we believe that this is the most accurate and robust methodology. We have used the full time equivalent total remuneration of all UK employees at 31 December 2019.

Year	Method	25th percentile	Median	75th percentile
Total Remuneration [1]				
2019	**Option A**	**66:1**	**56:1**	**48:1**
2018	Option A	92:1	77.1	72:1
2017 [2]	n/a	n/a	41:1	n/a

[1] In 2018, we also calculated the ratio based on average salary at 21:1. Using the same basis in 2019, this increased to 22:1.
[2] The 2017 ratio was calculated prior to the regulations being issued and so was not fully aligned to the current approach.

The elements used to calculate the ratio comprise pay, benefits, pensions, bonuses and long term incentives. The numbers used in the calculations are as follows:

Year	25th percentile	Median	75th percentile
Salary	**£36k**	**£44k**	**£53k**
Total Remuneration	£48k	£56k	£65k

The pay ratio has reduced this year due to incentive outcomes for Warren East being lower in 2019 than in 2018. 2019 is also the first year that the new LTIP plan introduced in 2017 vested. The majority of other participants in this plan had a mixture of conditional shares with no performance conditions and performance shares. The vesting level for that population is therefore higher.

As outlined on page 93, the Committee has considered the wider workforce context in terms of alignment of total reward or the Executive Directors, with the pension changes being one such example from 2019.

All employees participate in a bonus plan, with a good degree of alignment of financial measures with the executives' bonus plan. We also encourage all eligible employees to join our ShareSave plan. For our most recent launch in 2019 approximately 40% of our global population joined the plan, sharing in approximately 14 million shares and stock appreciation rights.

Relative importance of spend on pay

The following chart sets out the percentage change in payments to shareholders and overall expenditure on pay across the Group.

Payment to shareholders (£m) *

(Consolidated Cash Flow statement)

* Value of C Shares redeemed during the year

Group employment costs (£m)

(Note 8 – employee information)

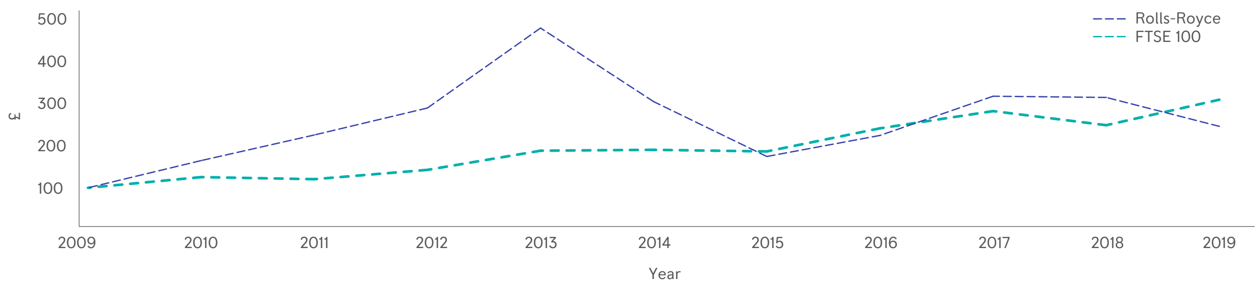
Chief Executive pay

Year	Chief Executive [1]	Single figure of total remuneration £000	Annual bonus as a % of maximum	LTIP as a % of maximum
2019	Warren East	3,159	52	53
2018	Warren East	4,075	60	100
2017	Warren East	2,331	68	–
2016	Warren East	2,089	55	–
2015	Warren East	543	–	–
2015	John Rishton	754	–	–
2014	John Rishton	2,596	–	45
2013	John Rishton [2]	6,228	55	100
2012	John Rishton [2]	4,577	85	–
2011	John Rishton	3,677	63	–
2011	Sir John Rose [3]	3,832	–	75
2010	Sir John Rose [3]	3,914	100	100

[1] On 31 March 2011, Sir John Rose retired and John Rishton was appointed. John Rishton retired on 2 July 2015 and Warren East was appointed as Chief Executive on 3 July 2015.
[2] John Rishton received a special grant of shares on joining the Company on 1 March 2011 to mirror the shares he forfeited on resigning from his previous employer. The share price had increased from 483.50p at the time this grant was made to 870p at the end of 2014. These are the main reasons why John Rishton's remuneration in 2012 and 2013 exceeded that of his predecessor.
[3] The remuneration for Sir John Rose does not include any pension accrual or contribution as he received his pension from 1 February 2008.

TSR performance

The Company's TSR performance over the previous ten years compared to a broad equity market index is shown in the graph below. The FTSE 100 has been chosen as the comparator because it contains a broad range of other UK-listed companies. The graph shows the growth in value of a hypothetical £100 holding in the Company's ordinary shares over ten years, relative to the FTSE 100 index.



Gender pay reporting

The Company is committed to creating a diverse and inclusive place to work where our people can be themselves and be at their best. More information about this can be found on pages 45 to 48. We published our UK gender pay gap in December 2019, which showed:

Median gender pay gap across all Rolls-Royce employees in the UK

Mean gender pay gap across all Rolls-Royce employees in the UK

Overall women currently represent 16% of our workforce. However, we continue to make progress in recruiting more women into senior positions, where 20% is now female. See pages 47 and 48 for further information on what we are doing to address diversity across the organisation.

Contractual arrangements

Each Executive Director has a service agreement that sets out the contract between that Executive Director and the Company.

Executive Directors' service contracts

	Date of contract	Notice period from Company	Notice period from individual
Warren East	21 April 2015	12 months	6 months
Stephen Daintith	21 September 2016	12 months	12 months

Payments received for serving on external boards

Executive Directors retain payments received from serving on the boards of external companies, the details of which are given below:

	Directorships held	Payments received and retained £000
Warren East	–	–
Stephen Daintith	3i Group plc	81

Non-Executive Directors' remuneration

Single figure of remuneration (audited)

	Fees (£000)		Benefits (£000)		Total remuneration (£000)	
Chairman and Non-Executive Directors	**2019**	2018	**2019**	2018	**2019**	2018
Sir Ian Davis	**425**	425	**3**	2	**428**	427
Lewis Booth	**95**	95	**40**	29	**135**	124
Ruth Cairnie (stepped down 31 December 2019)	**90**	90	**3**	3	**93**	93
Sir Frank Chapman	**90**	90	**3**	5	**93**	95
Irene Dorner	**85**	76	**1**	1	**86**	77
Beverly Goulet	**70**	70	**11**	7	**81**	77
Lee Hsien Yang	**70**	70	**40**	4	**110**	74
Nick Luff	**70**	46	**–**	–	**70**	46
Brad Singer (stepped down 9 December 2019)	**66**	70	**21**	6	**87**	76
Sir Kevin Smith	**105**	105	**2**	2	**107**	107
Jasmin Staiblin	**70**	70	**14**	10	**84**	80
Total	**1,236**	1,207	**138**	69	**1,374**	1,276

Non-Executive Directors' fees

The Chairman's fee is reviewed by the Board as a whole on the recommendation of the Committee. The review of the other Non-Executive Directors' base fees is reserved to the Executive Directors, who consider recommendations from the Chairman. No individual may be involved in setting his or her own fee. The Chairman and the Non-Executive Directors are not eligible to participate in any of the Group's share schemes, incentive arrangements or pension schemes. A facility is in place which enables Non-Executive Directors (who reside in a permitted dealing territory) to use some or all of their fees, after the appropriate statutory deductions, to make market purchases of shares in the Company on a monthly basis. Sir Ian Davis and Lee Hsien Yang use this facility.

Non-Executive Directors' fees

	2019 £000	2018 £000
Chairman	425	425
Other Non-Executive Directors base fee	70	70
Chairman of the Audit Committee	25	25
Chairman of the Remuneration Committee	20	20
Chairman of the Safety, Ethics & Sustainability Committee	20	20
Chairman of the Science & Technology Committee	20	20
Senior Independent Director	15	15
Employee Champion	15	15

Non-Executive Directors' benefits (audited)

The benefits for Non-Executive Directors relate predominantly to travel, hotel and subsistence incurred in attending meetings. For Non-Executive Directors based outside the UK, the Company may also pay towards tax advice and the cost of making tax filings.

Non-Executive Directors' share interests (audited)

The Non-Executive Directors and their connected persons hold the following interests in the ordinary shares of the Company:

Chairman and Non-Executive Directors	31 December 2019	27 February 2020
Sir Ian Davis	79,453	79,453
Lewis Booth	70,000	70,000
Ruth Cairnie (stepped down 31 December 2019)	19,927	n/a
Sir Frank Chapman	33,269	33,269
George Culmer (appointed 2 January 2020)	n/a	–
Irene Dorner	12,510	12,510
Beverly Goulet	9,360	9,360
Lee Hsien Yang	8,397	8,397
Nick Luff	10,000	10,000
Sir Kevin Smith	26,894	26,894
Jasmin Staiblin	–	–

Non-Executive Directors' letters of appointment

Our Non-Executive Directors serve a maximum of three, three-year terms (nine years in total).

Chairman and Non-Executive Directors	Original appointment date	Current letter of appointment end date
Sir Ian Davis	1 March 2013	28 February 2022
Lewis Booth [1]	25 May 2011	24 May 2020
Sir Frank Chapman [1]	10 November 2011	9 November 2020
George Culmer	2 January 2020	1 January 2023
Irene Dorner	27 July 2015	26 July 2021
Beverly Goulet	3 July 2017	2 July 2020
Lee Hsien Yang	1 January 2014	31 December 2022
Nick Luff	3 May 2018	2 May 2021
Sir Kevin Smith	1 November 2015	31 October 2021
Jasmin Staiblin	21 May 2012	20 May 2021

[1] Subject to shareholder approval, the Board have recommended that both Lewis Booth and Sir Frank Chapman serve as independent Non-Executive Directors and they will step down from the Board no later than the 2021 AGM (see page 77 for further details).

Statutory requirements

The Committee's composition, responsibilities and operation comply with the principles of good governance, as set out in the Code, the Listing Rules (of the Financial Conduct Authority) and the Companies Act 2006. The Directors' remuneration report has been prepared on the basis prescribed in the Large and Medium-sized Companies and Groups (Accounts and Reports) (Amendment) Regulations 2013.

SAFETY, ETHICS & SUSTAINABILITY

SIR FRANK CHAPMAN
Chairman of the Safety, Ethics & Sustainability Committee

Key highlights

- Supporting management with embedding a safety culture
- Review of product safety management with a particular focus on Civil Aerospace and Power Systems
- Maintaining focus on product safety and HSE during the period of organisational change
- Monitoring of compliance with obligations under the SFO and DoJ DPAs and maintaining oversight of the implementation of Lord Gold's recommendations
- Overseeing deployment of revised mandatory training with a focus on anti-bullying and harrassment

Introduction

The Committee has continued to support management's efforts to embed core values and progress further towards a self-sustaining safety culture. We have sought to assure the safeguarding of these goals against a backdrop of ongoing Group transformation and the operational and financial challenges presented by the in-service issues with the Trent 1000.

At the beginning of the year, we re-named the Committee the Safety, Ethics & Sustainability Committee (previously the Safety & Ethics Committee). Although our remit has always been to cover sustainability issues, we wished to highlight our Board oversight role in this area. Key sustainability workstreams such as scientific, technological and engineering innovation fall within the remit of the Science & Technology Committee. However, the impact of this work on the Group's aggregate sustainability strategy is drawn together by this Committee.

We seek to balance scrutiny with support to the management team. I am encouraged by the progress we are making with the simplification and strengthening of our product safety processes; initiatives within HSE to protect the integrity of our assets through a safety case programme; and progress with our anti-bullying and harassment campaign.

Site visits were made during the year to Friedrichshafen, Germany; Bristol and Derby, UK; and Singapore to observe first-hand how our safety and ethics ethos is being translated into front-line operations. It was positive to see the impact the safety case programme is having on employee engagement and HSE practices.

Membership and operation of the Committee

In addition to myself, members of the Committee during 2019 were Irene Dorner, Nick Luff and Lee Hsien Yang. George Culmer joined the Committee in January 2020. All members of the Committee are independent Non-Executive Directors. Our biographies are on pages 62 to 64 and our meeting attendance is on page 66.

The Committee's responsibilities are outlined in its terms of reference which can be found at www.rolls-royce.com. We review these annually and refer them to the Board for approval. No changes have been made in 2019. This follows a detailed review in 2018 to ensure alignment with the principles of the Code.

Committee evaluation review

Belinda Hudson Limited (BHL) was appointed for a second year, this time to undertake a light touch review of the Board and committees, following a full review in 2018. The effectiveness review process of the Board and its committees is discussed in greater detail on page 74 together with overall findings.

Principal responsibilities

Product safety

- Maintain an understanding of and keep under review the Group's framework for effective governance of product safety.
- Monitor product safety performance, the response to product in-service issues and lessons learned.

HSE

- Oversee HSE governance, review performance, incidents and monitor improvement projects.
- Guide and support management in the promotion of committed HSE leadership as part of our culture.

Sustainability

- Oversee the Group's approach to sustainability, and related reporting, including monitoring of progress towards sustainability targets.
- Understanding the environmental impacts of products and operations.

Ethics & compliance

- Review the Group's compliance with relevant legislation.
- Keep Our Code and anti-bribery and corruption policies under review.
- Support the Board with its review of issues raised through the Ethics Line and other channels including reviewing the results of any investigations into ethical or compliance breaches or allegations of misconduct.

Principal risks

- Safety, compliance and climate change.

Areas of focus for 2020

- Continued product safety overview including progress to closure of issues in the large engine portfolio
- Oversight of management's leadership of HSE performance
- Continued focus on product safety governance as our transformation and simplification programmes progress
- In-depth review of climate change principal risk
- Oversight of the sustainability strategic review and launch of the new sustainability targets

Safety, Ethics & Sustainability Committee focus during 2019

Area of focus	Matters considered	Outcome
Product safety	Maintaining safety during organisational change. Product safety policy and processes, training, safety assurance framework and competence in manufacturing. Product safety performance and in-service issues. Product safety management systems. Product safety in Civil Aerospace with periodic review and scrutiny of potential Trent 1000 safety matters and their management.	The Committee was satisfied that product safety governance remained robust during transformation. The safety assurance framework is a sound incremental development. Safety performance remained at expected levels, with safety aspects of in-service issues handled competently and appropriately. The product safety management system in Civil Aerospace is effective and well-operated.
HSE	Detailed reviews of serious injury and high potential incidents. Events, key findings, shared learning and actions. HSE ambition, strategy and plans for continuous improvement. HSE performance including incidents, injuries, waste, energy use and GHG emissions metrics. HSE programmes: LiveWell, asset care, waste action.	Despite some improvement across particular areas of our business, overall Group TRI performance has remained flat. A series of directed campaigns and specialist support for identified areas will be introduced in 2020. HSE continues to be a key leadership priority for Rolls-Royce and our efforts are focused on driving self-sustaining improvement through embedding a safety culture, where everyone understands their role in our Zero Harm programme. Strengthening of HSE leadership, strategies, plans and communications as part of a structured approach to achieve continuous improvement. HSE programmes are at varying maturity levels and improvement trends reflect this. Efforts continue to strengthen programmes with focus on key themes.
Sustainability	Review of the Group's approach to sustainability and governance and endorsement of ongoing strategic review to strengthen consideration of social and environmental factors in Company policy and decision-making, including development of longer-term targets. Company positioning on sustainability, including external reporting and communications.	The purpose and approach to reviewing and revising our sustainability strategy was endorsed by the Committee. Considered and endorsed the introduction of a new sustainability framework. The Committee supported the ESG event in response to increasing investor interest in sustainability approach.
Ethics & compliance	Compliance with continuing obligations under the DPAs and implementation of Lord Gold's recommendations. Deployment of Our Code and Group policies. Resourcing of the ethics and compliance team and effectiveness of compliance officers. Embedding of ethics and compliance culture and behaviours. Review of number and nature of concerns raised through the Ethics Line. Management of intermediaries including screening, appointments, payments, termination and settlements. Review of pension consultation. Progress with data privacy binding corporate rules application.	Reviewed detailed plans for, and progress on, compliance. Reviewed the draft final report to DoJ. Group policies reviewed and new mandatory training introduced in 2019. The ethics and compliance team is effective. Bullying and harassment were prevalent themes and we will be monitoring the effectiveness of management's campaigns to address this. The intermediary processes are effective to manage the risks. Review of the speak up cases relating to the proposed changes to the UK defined benefit pension scheme.
Oversight of 2018 principal risks	Principal risks of compliance and safety reviewed.	These principal risks are reviewed and discussed at every meeting of the Committee and both continue to be managed effectively.

Product safety

We aim to go beyond compliance with regulatory product safety standards, setting a goal of continuous product safety improvement, in common with industry best practice in the markets in which we operate. This is regarded as fundamental to the Group's licence to operate and to the sustainability of our business. Product safety encompasses the design, manufacture, assembly, installation, in-service operation, maintenance and repair of products, across all of our businesses and regions where we operate. It is critical that product safety processes develop continuously to underpin the science and technological innovation that enables product designs to evolve and extend operational boundaries.

We continued to maintain a focus throughout the year on how safety risk was being managed through the Group's transformation programme. It was also noted that the electrical business was an area of high activity and innovation in the Company, which was progressing at pace with the acquisition of Siemens' eAircraft business. A particular degree of focus on product safety was warranted to ensure consistency with the standards across other parts of the organisation. This will be a priority for the Committee in 2020.

We were briefed in February on the progress of the implementation of the product safety training programme. The Committee noted the continuing commitment to ensuring that all employees are regularly reminded about the importance of product safety and their responsibility to influence it. The new course for senior managers, which the Committee completed in 2018, has continued into 2019 and the target audience was extended. A new classroom-based awareness training was launched in February 2019 with the aim of helping our engineers to understand how their contribution can prevent unsafe products through a series of case studies and discussion. Over 5,000 engineers completed this training in 2019 and feedback from delegates has been very positive. In addition, the approach to our all-employee online training has been completely refreshed and now provides a shorter, more impactful reminder of the importance of product safety and that it is everyone's responsibility. In all aspects of the training, which forms part of the 2019 mandatory requirement, there has been a focus on giving our people the confidence to speak up if they have any concerns regarding safety in any area of the business. The Committee believes that this is a positive step in driving a culture where safety is considered to be of utmost importance and concerns can be openly raised and addressed appropriately.

In February 2019, we also reviewed the overall product safety performance metrics which are used as an indicator of the performance of our product safety management system (PSMS). The metrics gave no indication of any trends of decline in the performance of our products and therefore demonstrate that the businesses continue to manage identified safety issues, with notable improvements in the age of open issues in various parts of the business. The Committee did, however, note a deterioration over the preceding 12 months in the age profile of open safety issues in the large engine portfolio within Civil Aerospace. Whilst it was noted that containment actions against each issue were in place, the Committee sought, and received further insight, into the reasons behind this trend. We reviewed the actions being taken by Civil Aerospace to reverse the trend. This was the subject of review by the Board in December. Further follow-up is planned in 2020.

POWER SYSTEMS PRODUCT SAFETY WORKSHOP

In order to provide effective oversight of product safety risk, the Committee remains conversant with the Group's PSMS. In March 2019, we focused our attention on product safety in Power Systems with a visit to the Group's facilities in Friedrichshafen, Germany.

We were briefed by the product safety leadership team on the wide variety of markets and applications which their product range addresses. This, together with a description of the regulatory landscape, set the scene for our review of the approach to product safety.

We learned how accountability for product safety is assigned and were briefed on the governance of product safety within Power Systems. Key product safety roles were described, together with how these roles interacted with project teams to ensure the safety of the products as they are developed.

We gained an understanding of the PSMS used within the business and were satisfied that this was appropriate for the range of products and applications and we saw how the PSMS was applied throughout the lifecycle of products.

We were briefed on how the business approaches the evaluation of a product safety risk and saw their approach to the reporting of safety concerns and to identifying and resolving unsafe conditions.

We reviewed high-level product safety performance measures and lastly, we examined in detail a recent product safety event to see how in practice this issue had been evaluated and contained until the point when corrective action could be applied in the field.

Overall, the workshop provided a good level of confidence that the PSMS, as operated in Power Systems, was effective, robust and competently operated.

Each year, the Committee reviews particular aspects of the Group's PSMS to ensure we maintain a good working knowledge of it and understand the continuous improvements that are being introduced. At our meeting in February, we discussed a report on product safety assurance which outlined the key initiatives that had been delivered in 2018 and the current drive to embed the use of the safety assurance framework and further improve safety awareness. A significant element of the Group transformation is the simplification of the RRMS. This represents an opportunity to emphasise the key principles which keep our products safe, at the same time assuring that valuable lessons embedded in existing processes are retained. The Committee will keep this under review during 2020 as it is imperative that our approach to product safety is appropriately defined within the system and our ability to manage it efficiently and effectively is maintained throughout.

In July, the Committee undertook its annual review of the product safety policy, which sets out the guiding principles by which we assure product safety and with which all employees must comply. In advance of the Committee meeting, the policy was reviewed at the Company product safety assurance board (CPSAB) and it was deemed to be an accurate and concise summary of our commitment to, and management of, product safety. Following the recommendation from the CPSAB, the Committee concluded that the policy was still fit for purpose and should therefore remain unchanged.

We also reviewed the product safety principal risk and were satisfied this was being managed effectively and within the boundaries of the agreed risk appetite. At each meeting, the Committee received an update on in-service incidents and, as part of these reviews, discussed any emerging product safety risks and how these were being identified and managed as part of the PSMS. Following on from the Committee's deep-dive reviews in 2018, these updates had a particular focus on Trent 1000 issues, and an additional review was held in August to review the response to a Trent 1000 in-flight shutdown on a Norwegian Airlines Boeing 787 on departure from Rome Airport. We were particularly pleased to hear that safety processes are being updated, where appropriate, to reflect any lessons learnt from each root cause analysis.

HSE

The Committee and management's objective remains to drive continuous improvement in HSE performance. HSE matters have been discussed at all our meetings during the year and we have paid particular attention to the levels of maturity in HSE leadership across the businesses of the Group.

At the end of 2018, and following a review of the HSE improvement programme, the Committee recommended that governance and reporting on this activity should be strengthened in order to give business leaders and governance committees greater visibility of the Group's improvement trajectory. At our meeting in February, the Committee heard that significant progress had been made in this area, including: the introduction of an HSE balanced scorecard reported quarterly; mandatory training on our Life Saving Rules including observation-intervention; and a monthly HSE update for the ELG to keep leaders informed and engaged.

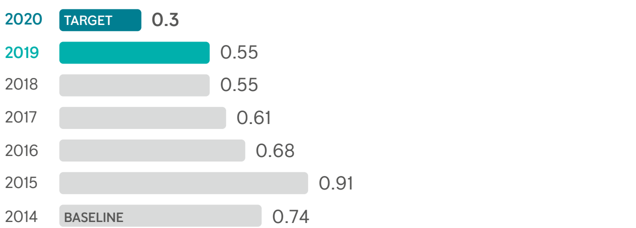
A head of HSE compliance role has been created to provide support in four key areas: how we define our Zero Harm improvement journey and critical milestones; how we plan more effectively and measure improvement; how we communicate to our stakeholders; and how we help others to understand and embrace their role in the improvement programme. Furthermore, several other new appointments have been made, strengthening both regional and specialist HSE capability.

The scope and format of the balanced scorecard was also presented to the Committee in February. It includes five leading indicators, which cover critical activities such as accountability, training and visibility of management and is balanced by two lagging indicators. The emphasis was on ensuring that data could be easily collected, inform performance, drive improvement and align to the Zero Harm strategy. The Committee was pleased to hear that as it matures, the data can be automated and shared with the businesses as a way of driving awareness, improvement and efficiency across the Group.

The Group HSE risk profile was discussed at our meeting in July and it was encouraging to hear that all risks are showing an improving or stable control trend. One additional risk, off-site working, has been added to the Group risk profile on the basis that all three businesses have identified it on their individual risk registers. Ensuring that these risks are monitored and managed appropriately continues to be a priority for the Committee.

At each of our meetings, we review the Group's key HSE activities, performance metrics, insights and learning, including the TRI rate. Our TRI rate in 2018 was 0.55 per 100 employees[1] and we remain committed to achieving the 2020 group target of 0.30. There were a total of 298 TRIs in 2019 which equates to an injury rate of 0.55. Of these, 15 resulted in major injuries. We did, however, see an 18% decrease in the overall number of major and high-potential incidents and a 1% increase in the overall severity index. Analysis of these events has identified that two keys areas will require the businesses' focus in 2020: slips, trips and falls and hand injuries, as these two classes of injury account for more than half of our reportable injuries. Although there has been a decrease in the number of electrical incidents following a focused campaign on this particular issue in 2018, we were concerned to hear that near misses and high-potential incidents continue to occur. ITP Aero has had a particularly challenging year with injuries and they have initiated a five-part improvement plan to address their HSE performance, which will continue into 2020 and beyond.

Total reportable injury (TRI) rate (per 100 employees) [1,2]



[1] Our TRI rate for prior years has been restated to reflect the disposal of Commercial Marine business on 1 April 2019. ITP Aero data is included for years 2017, 2018 and 2019 only.
[2] External assurance over STEM, energy, GHG and TRI rate data provided by Bureau Veritas. See page 203 for the sustainability assurance statement.

We were updated on the Zero Harm safety case programme which was launched in 2018, with the aim of gaining a better understanding of the latent HSE risks within our operations. In total, 42 safety cases have been completed and a range of improvement activities have been initiated at site level to close identified gaps. Of our high consequence hazards, it is clear that the level of control is improving in areas that have been the focus of recent improvement programmes. However over 74% of our sites are still classed as reactive on the five-step maturity model. The programme and associated improvement activity will remain an area of focus for the Committee in 2020.

Communication was a priority for the HSE function in 2019 and some significant progress has been made in developing our employees' awareness of HSE. Interaction with our leadership population has become more regular, through bulletins and online webinars, and this is imperative given the importance of the leadership shadow when it comes to embedding a safety culture. Furthermore, in June the Group introduced the Zero Harm award at the annual excellence awards as a way of highlighting some of the excellent HSE improvement activity being undertaken across the businesses.

Sustainability

With its broader remit of sustainability the Committee received a detailed overview of the Group's approach to sustainability and its ambition to be a leading responsible business. We considered and endorsed the role of the Committee in providing Board-level oversight of the sustainability approach and priorities, considering the interface between the Science & Technology Committee and the executive-level environment & sustainability committee.

In July, we were briefed on work underway to review and revise the Group's sustainability strategy, including the development of new longer-term targets. The purpose of this comprehensive review is to identify key decision points across the business where the consideration of social, ethical and environmental factors can be improved, with the aim of embedding sustainability into local decision-making and policies. The Committee endorsed this approach.

We recognise that the most significant contribution that Rolls-Royce can make to a more sustainable society is to accelerate the decarbonisation of its business activities and the sectors in which it operates. The Group has a long-standing three-pronged approach to minimising its environmental impacts: continually improving the efficiency of its products and services; developing novel lower carbon technologies such as electrification and the application of alternative fuel sources; and reducing the impacts of our operations and facilities. As a Committee, we appreciate success is only achievable in the context of the wider impacts of the Group, including issues such as human rights; ethics and compliance; and safety and wellbeing. The premise of our sustainability approach is to understand the impacts of the Group's activities on society, and to use that understanding to inform business decision-making to create shared value for us and our stakeholders.

At our December meeting, we considered and endorsed a proposal to put in place a sustainability framework, focused on areas of impact and influence, to help articulate this approach. The framework will act as a means of guiding decision-making. It builds on our purpose, vision and strategy to bring all elements of our broad sustainability approach together into a single framework for the first time. In implementing this framework, we will review sustainability-related policies and identify opportunities to improve further business practices through focused improvement programmes.

As an example, the Committee received an update on the Company-wide waste action programme and the significant achievements that have been made in 2019. This programme is designed to help deliver our global waste reduction targets (see page 44). A waste reduction of 29% was achieved across our top ten UK sites, a campaign to remove single-use plastics from our office and catering facilities was introduced and alternative technologies have helped to extend liquid coolant life that would otherwise have to be treated as waste (see page 44).

As a Committee, we were delighted to support the ESG event in April. This was the first time we had organised a specific ESG event, in response to increased investor interest in our sustainability approach. Members of the Executive Team joined us in a series of presentations and roundtable discussions and gained valuable insights from the questions and opinions voiced by those in attendance.

We are pleased that the Company has maintained its listing in the Dow Jones Sustainability Index (DJSI) for the sixteenth consecutive year. We continue to be one of only five aerospace and defence companies listed in the world index out of 38 invitees. Overall, our score improved slightly from 2018 and we achieved industry-leading scores in the risk and crisis management and environmental reporting sections.

MEMBER OF
Dow Jones
Sustainability Indices
In Collaboration with RobecoSAM

You can read more about the Group's sustainability activities on pages 40 to 44 and at www.rolls-royce.com.

Ethics and compliance

The Committee's focus in the year has been on overseeing the Group's ethics and compliance work plans. More details can be found in the Ethics and Compliance report on page 49. This included obligations to the prosecutors with whom the Company agreed DPAs in January 2017 and ensuring that recommendations put forward by Lord Gold (the Company's independent compliance adviser) had been implemented. Lord Gold attended the meeting in February to feed back on how he had been overseeing and supporting this work, as well as to report on key activities and areas of focus. He reported that, on recent site visits, he had been able to see how the ethics and compliance programme was working in practice, the right behaviours and attitudes were becoming embedded in the organisation and considerable improvement was evident amongst the teams. Focus remained on ensuring the right level of resource was in place to continue to drive the programme moving forward. In July, Lord Gold presented his draft report to the Committee which was later submitted to the SFO in line with the August deadline. The report noted the exemplary progress made in improving the Company's approach to ethics and anti-bribery and corruption compliance.

At an ethics deep dive session in April, the three-year ethics and compliance workplan from 2019 to 2021 was presented to the Committee. We noted the progress made in enhancing the ethics and compliance teams in each of the businesses and their improved accountability for ethics and compliance as a result.

At each of our meetings during the year, we received an update from the General Counsel on the Group's continuing dialogue and co-operation with prosecutors, regulators and government agencies. We also received regular reports and briefings from the head of ethics and compliance.

The Committee reviews the operation of the speak up procedures at each meeting; this includes statistics, types of cases raised, and the average completion time. In 2018, we observed that bullying and harassment were prevalent themes and in March this year, the Group-wide anti-bullying and harassment campaign was launched as part of the wider care initiative in respect of our people, with the aim of creating an environment where everyone can be at their best. This included mandatory scenario-based training for all employees and leaders, as well as specific training for our people team and trade union employee representatives, as well as regular updates to the Executive Team and ELG. In July, the Committee also undertook a light version of this training so that we could get a better understanding of the impact and benefit it would have on employees. Focus has also been given to the speed at which a resolution is reached once a bullying and harassment case has been raised and, on average, the time taken to close an investigation is 25 days.

Following on from the roll-out in 2018 of Our Code and simplified Group policies, revised mandatory training requirements were launched in 2019 with a completion deadline of the end of October. New modules covering conflicts of interest and binding corporate rules were added to the anti-bullying and harassment and simplified product safety training.

A refresher on Zero Harm life-saving rules was also included as was an annual requirement for all managers globally to certify to Our Code.

Our Code, which sets out the principles that underpin our values and the way we do business, was developed as a mobile-enabled app and launched at the beginning of the year. It allows our employees and suppliers to access it from wherever they are in the world and it has received positive feedback both internally and externally.

We received a report from the head of ethics and compliance who carried out an independent review of the speak up cases which had been received on the proposed changes to the UK defined benefit pension scheme. The Committee received the report and noted the conclusions, which would be shared with elected representatives of the affected employees and all decision makers. While the report found that there had clearly been some room for improvement, particularly in the way the changes had been communicated, the majority of the concerns raised via the speak up channels were not founded.

We also monitored our ongoing compliance with the General Data Privacy Regulations and the application for the EU regime of Data Privacy Binding Corporate Rules.

Looking forward

In the year ahead, we will continue to monitor developments with the Civil Aerospace large engine in-service issues with a particular focus on the age profile of open safety issues. We will provide appropriate oversight to ensure the integrity of product safety governance is maintained as the transformation programme continues and the RRMS is reviewed.

We will continue to monitor and support progress and performance as the Zero Harm and LiveWell programmes are further embedded, with a particular interest in seeing injury rates and high-potential incidents reduce so that we can achieve our stated 2020 targets.

The Board has included the risk of climate change to future revenue growth as an additional principal risk and we will undertake an in-depth review of this risk during the course of 2020 on behalf of the Board. We will also provide oversight as the Group carries out a sustainability strategic review and agree a new set of sustainability targets, including environmental targets, over the next decade.

We will continue to monitor progress of our ethics and compliance programmes as well as the outcomes from our bullying and harassment campaign and reports to our Ethics Line. We will continue to oversee the Company's compliance with the DPA in the UK and will commission an external assessment of our compliance programme during 2020 to ensure that we have maintained compliance with all of Lord Gold's recommendations.

We look forward to seeing continued tangible progress from the efforts by management to drive the desired behaviours and mindset, reinforcing an ethical, safety-focused and sustainability culture across the organisation.

Sir Frank Chapman
Chairman of the Safety, Ethics & Sustainability Committee

SCIENCE & TECHNOLOGY

SIR KEVIN SMITH
Chairman of the Science & Technology Committee

Key highlights

- Technology strategy, investment and programmes review
- Review electrical systems strategy
- Review of UltraFan demonstrator, Advance3 and power gearbox
- Services strategy review
- Review of digital strategy and capability

Introduction

In 2019, the Committee continued to provide dedicated focus to the research and technology part of the Group's R&D investment that enables the Group to conceive, design and deliver world-class technology that meets our customers' current and future needs. We provide directional input and oversight of the Group's scientific and technological strategy, processes and related investments.

In addition to our scheduled meetings, we visited the power gearbox (PGB) facility and Civil Aerospace engine assembly and test facility in Germany and the Defence operations and engine test beds in the UK.

Membership and operation of the Committee

In addition to myself, members of the Committee during 2019 were Ruth Cairnie, Sir Frank Chapman, Brad Singer and Jasmin Staiblin, all Non-Executive Directors. Our biographies are on pages 62 to 64 and meeting attendance is on page 66. Brad Singer stepped down as a member of the Committee in December. Ruth also stepped down at the end of the year. I would like to take this opportunity to thank the Committee for their unstinting enthusiasm and engagement during the year.

The Committee's responsibilities are outlined in its terms of reference, available at www.rolls-royce.com. We review these annually and refer them to the Board for approval. No changes have been made in 2019. This follows a detailed review in 2018 to ensure alignment with the principles of the Code.

Other attendees

In addition to the members of the Committee, the Chairman, Chief Executive, Chief Financial Officer and any of the Non-Executive Directors may attend one or more meetings at the Committee chairman's invitation. The Committee is supported by the corporate governance director and the Chief Technology Officer.

Committee evaluation review

Belinda Hudson Limited (BHL) was appointed for a second year, this time to undertake a light touch review of the Board and committees, following a full review in 2018. The effectiveness review process of the Board and its committees is discussed in greater detail on page 74 together with overall findings.

Principal responsibilities

Technology strategy

- Review the strategic direction of the Group's research, technology and development activities, with consideration to their environmental impact amongst other matters, and ensure investment is allocated appropriately.
- Keep under review the key technology programmes.
- Assist the Board in its oversight of major R&D investment and provide assurance on its competitiveness and the adequacy of technology investment, with thorough consideration to the environmental impact of new products and technology.

Cross-sector technology

- Oversee the effectiveness of key engineering and technology processes and operations, including delivery of major product development and technology programmes.

Technology capabilities and skills

- Oversee processes for ensuring effective resourcing and development of required technological capability and skills.
- Conduct visits to R&D facilities.

Technology trends and risks

- Provide assurance on the identification and management of key technological risks.
- Review and consider any other topics or risks appropriate to the overall remit of the Committee as delegated by the Board.

Principal risk

- Disruptive technologies and business model, a subset of competitive environment.

Areas of focus for 2020

- Oversight of the Group's technology programme with focus on technologies supporting the Group's approach to low carbon power
- Reviews of key programmes and business cases including SMRs, UltraFan and hybrid-electric regional aviation
- Review of digital, electrical and hybrid-electrical and hydrogen fuel based technologies
- Continued review of efficiency and effectiveness of technology development, assessment of skills and capability development and alignment with the technology strategy

Science & Technology Committee focus during 2019

Area of focus	Matters considered	Outcome
Technology strategy	The Group's technology strategy. Investment allocation. Review of key technology programmes. Efficiency and effectiveness review.	The strategic objectives and associated investment funding allocations were confirmed to be appropriate. The review of key technology programmes helped shape the Board's discussions during the year. An in-depth review of the Defence aerospace technology programmes was presented and endorsed by the Committee. The Committee made a number of recommendations to management to improve the efficiency and effectiveness of the Group's future research and technology programmes.
Cross-sector technology	UltraFan demonstrator. The Group's electrical systems strategy.	Oversight of the UltraFan demonstrator programme maintained throughout the year and advised the Board on progress. Direction of the Group electrical systems technology development supported.
Technology capabilities and skills	Engineering capabilities of the future. Visits to large engine assembly and test bed sites.	Reviewed the engineering resource prioritisation across the Group. Visits provided a good opportunity to evidence physical progress on key technology programmes, together with an invaluable opportunity to meet the local teams.
Technology trends and risks	Artificial intelligence and internet of things.	Endorsement of both the artificial intelligence and internet of things programmes and their part in the Group's future technology strategy.
Oversight of principal risk	Disruptive technologies and business model.	A subset of the principal risk, competitive environment, the review confirmed that the identification of disruptive technology threats and ongoing mitigation activities continued to support the direction for future key activities.

2019 overview

In 2019, the Committee continued with our work from the previous year in overseeing the technology strategy, the prioritisation of resources towards technology development and acquisition, and assessing competitiveness in key technology and product areas. In doing this, we place importance on ensuring active dialogue with engineering and technology leaders and experts, inviting relevant employees to Committee meetings, meeting with employees during site visits and developing future leaders through the Board apprentice programme.

At the first meeting of the year in February, we reviewed the 2019 technology programme and the investment funding allocation. We also received an update on the progress made on technology plans for each business and also in the Innovation Hub.

As reported in previous years, significant investment is directed towards aerospace technology demonstrators to validate new architectures and gas turbine technologies vital to supporting future competitiveness and delivering a step change improvement in environmental impact. We conducted several reviews of the UltraFan demonstrator programme over the year, noting progress in its design and testing, and understanding the plans and choices on competitive differentiating technologies which would enable a step change in efficiency. We discussed the UltraFan business case and options for meeting potential customer requirements, the phased investments proposed to deliver the programme and the approach to managing risks and programme dependencies. During the year, we received regular progress updates on key technologies, particularly the PGB, which is a critical component connecting the Advance3 core to the composite front fan system, and is undergoing design maturity testing ahead of the first UltraFan demonstrator engine run in 2021. In April, the Committee visited the PGB test facility and dedicated team area in Dahlewitz, Germany and met with key staff. We also undertook a tour of the Civil Aerospace engine assembly and test facility located on the same site. The Committee advised the Board on progress and funding continuation of the programme.

The Committee also reviewed progress on development and maturing key high-temperature gas turbine technology which has applicability across all aero-engine programmes. We received a presentation on the Group's strategy and competitive position on propulsion for business aviation to understand how the technology was being developed.

In September, the Committee was updated on the development of the Group's technology strategy which includes a growing level of investment in new capability in electrical and digital technologies, and the launch of the study phase of the small modular reactor (SMR) programme, all of which will play a part in the Group's approach to lower carbon power and the shift to low carbon technologies for the future.

We were encouraged to hear that electrical systems technology development is increasingly becoming central to delivering the businesses' future product plans. In aerospace applications, a number of demonstrator programmes are taking shape, including the E-Fan X megawatt hybrid-electric propulsion programme with Airbus for which a new megawatt generator is being developed, and kilowatt hybrid-electric aero propulsion research and application demonstrators that were announced in the UK and Germany. We were briefed on the acquisition of the aerospace electrical components business from Siemens and its fit to the Group's electrical technology roadmap. Further electrical technology development will be a focus area for the Committee in the coming year.

The Committee received a presentation on the digital strategy and five-year roadmap for digital capability and the digital thread across engineering design, manufacturing and services, and reviewed the current status of transitioning away from legacy systems. We were updated regarding the progress with how the IT and engineering systems were supporting the transformation programme for engineering. We received specific presentations on the Company's strategy on artificial intelligence (AI) and the internet of things (IoT). We were taken through how specialists from the R² Data Labs team facilitate the application of AI and IoT and were briefed on the broad training provided to enhance the workforce's skills through the Digital Academy. We also discussed the Group's approach to an ecosystem to access these rapidly advancing technologies and how the strategy of in-house skills and capabilities would affect competitiveness.

The Committee reviewed the proposal to develop a new generation of SMRs that would leverage the Company's advanced manufacturing capabilities as well as its nuclear power design expertise to develop a near-zero carbon source of power generation by the early 2030s at a competitive levelised cost of electricity. We were given an overview of potential for a very large market demand including the potential for future net-zero carbon fuel production at scale. We received a briefing on consortium partnerships, potential business models and the business case, to understand the opportunity which has now been launched in a first phase with UK Government funding support.

We reviewed the technology across the Defence business and received a presentation on opportunities and programmes in the US and the UK. We also visited the Company's operations and engine test beds in Bristol, UK where, among other things, integrated electrical systems are validated. We discussed near-term defence market opportunities and how our core gas turbine technologies and digital engineering design systems and approach could enhance our position to win competitive contracts. The requirements for future defence systems and solutions are driving development of a combination of technologies, such as electrical, power and thermal management and advanced specialised combat propulsion technologies which are being developed under the UK Tempest advanced combat fighter programme. We were also briefed on the progress on the integrated power systems for directed energy systems, which have growth potential for land, sea and airborne applications. Finally, we reviewed the planned investment and resourcing roadmap that will enable the business to continue to pursue, develop and grow its defence markets.

Further, the Committee received an update on the Group's services strategy and associated technology development plans. We were pleased to see real progress and significant value delivered by application of digital, inspection and repair technologies. We encouraged management to continue to pursue new technology and ways of working in these areas, noting that this is critical in addition to the product investments to improve engine durability in service.

To get an understanding of the investment choices across all engineering activities and related skill sets, the Committee undertook a detailed review of the full engineering investment and resource prioritisation across the Group. We were briefed on spend and resourcing relating to new product development, technology development and in-service product support needs. The Committee supports the changes that have been introduced to improve the visibility of investment choices and how they relate to the application of key skilled resources. This provided a better understanding of the overall technology investments and technology choices.

We also gave our support to further development of the approach to strategic management of technology acquisition and the Company's approach to technology partnering as a means of obtaining access to co-investment, skilled resources and accelerating technology development. We discussed the risks and opportunities arising from protection/exploitation of intellectual property and have further encouraged increased attention in this area.

We further received an update on the Group's risk appetite and assessment of technologies that enable disruption with regard to the Group's 2019 principal risk related to the competitive environment. This will remain a live process to ensure awareness of potential shifts.

Looking forward

The focus for the Committee in 2020 will be on low carbon technologies that are vital to innovation and future products and services and underpin the Group's sustainability strategy. We will continue to monitor the UltraFan demonstrator and associated technology programmes and progress on the first phase of SMRs for low carbon power generation and review the business case for making use of SMRs to produce sustainable fuels.

The continuing development of the Group's capabilities and technologies in electrical and digital will also feature strongly in our agenda, including the case for hybrid-electrical propulsion for regional aviation as well as the future of reciprocating engines and alternative sustainable fuels.

These are exciting times for technologists and engineers in Rolls-Royce as the Company accelerates its drive for sustainable propulsion providing opportunity to acquire new skills, work on new products and to play a full part in securing a low carbon world. I admire their dedication to achieving that goal and cannot help but be a little envious of the opportunities it provides.

In closing this year's report, I would like to pay tribute to the work of our global network of 29 University Technology Centres and seven Advanced Manufacturing Research Centres who play a vital role in the development of our core technology and science base. The 1,300 people, including 500 PHDs, in those institutions who work in partnership with our employees are a crucial part of the extended Rolls-Royce family and I thank them on behalf of the Board for the major contribution they make to building the future of Rolls-Royce.

Sir Kevin Smith
Chairman of the Science & Technology Committee

RESPONSIBILITY STATEMENTS

Statement of Directors' responsibilities in respect of the Financial Statements

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

Company law requires the Directors to prepare financial statements for each financial year. Under that law the Directors have prepared the Group Financial Statements in accordance with International Financial Reporting Standards (IFRSs) as adopted by the European Union and the parent company Financial Statements in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 *Reduced Disclosure Framework*, and applicable law).

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

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

— select suitable accounting policies and then apply them consistently;

— state whether applicable IFRSs, as adopted by the European Union, have been followed for the Group Financial Statements and United Kingdom Accounting Standards comprising FRS 101, have been followed for the Company Financial Statements, subject to any material departures disclosed and explained in the Financial Statements;

— make judgements and accounting estimates that are reasonable and prudent; and

— prepare the Financial Statements on the going concern basis unless it is inappropriate to presume that the Group and parent company will continue in business.

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

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

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

Directors' confirmations

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

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

— the Group Financial Statements, which have been prepared in accordance with IFRSs as adopted by the European Union, give a true and fair view of the assets, liabilities, financial position and loss of the Group;

— the parent company Financial Statements, which have been prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 *Reduced Disclosure Framework*, and applicable law), give a true and fair view of the assets, liabilities, financial position and result of the Company; and

— the Strategic Report includes a fair review of the development and performance of the business and the position of the Group and parent company, together with a description of the principal risks and uncertainties that it faces.

By order of the Board

Pamela Coles
Company Secretary
28 February 2020

FINANCIAL STATEMENTS

Consolidated Financial Statements

Company Financial Statements

CONSOLIDATED INCOME STATEMENT

For the year ended 31 December 2019

	Notes	2019 £m	2018 £m
Revenue [1]	2	16,587	15,729
Cost of sales [1]		(15,645)	(14,531)
Gross profit		942	1,198
Commercial and administrative costs [1]		(1,128)	(1,595)
Research and development costs	3	(770)	(768)
Share of results of joint ventures and associates	12	104	4
Operating loss		(852)	(1,161)
Gain arising on disposal of businesses [2]	27	139	358
Loss before financing and taxation	2	(713)	(803)
Financing income	4	252	271
Financing costs	4	(430)	(2,415)
Net financing costs		(178)	(2,144)
Loss before taxation [3]		(891)	(2,947)
Taxation	5	(420)	554
Loss for the year		(1,311)	(2,393)
Attributable to:			
Ordinary shareholders		(1,315)	(2,401)
Non-controlling interests		4	8
Loss for the year		(1,311)	(2,393)
Other comprehensive (expense)/income		(1,013)	182
Total comprehensive expense for the year		(2,324)	(2,211)
Loss per ordinary share attributable to ordinary shareholders:	6		
Basic		(69.07)p	(129.15)p
Diluted		(69.07)p	(129.15)p
Payments to ordinary shareholders in respect of the year:	19		
Pence per share		11.7p	11.7p
Total		224	220
Underlying profit before taxation [3]	2	583	466

[1] Included within revenue, cost of sales and commercial and administrative costs are exceptional charges relating to Civil Aerospace programmes, impairment charges and restructuring costs. Further details can be found in note 2.
[2] Commercial Marine was disposed of on 1 April 2019 and Rolls-Royce Power Development Limited was disposed of on 15 April 2019. L'Orange was disposed of on 1 June 2018.
[3] (Loss)/profit before taxation disclosed on a statutory and underlying basis.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

For the year ended 31 December 2019

	Notes	2019 £m	2018 £m
Loss for the year		**(1,311)**	(2,393)
Other comprehensive (expense)/income (OCI)			
Actuarial movements on post-retirement schemes [1]	21	**(934)**	27
Share of OCI of joint ventures and associates	12	**(1)**	(1)
Related tax movements	5	**324**	(2)
Items that will not be reclassified to profit or loss		**(611)**	24
Foreign exchange translation differences on foreign operations		**(313)**	171
Reclassified to income statement on disposal of businesses	27	**(98)**	(19)
Cash flow hedge reserve movements		**22**	(17)
Share of OCI of joint ventures and associates	12	**(7)**	18
Related tax movements	5	**(6)**	5
Items that may be reclassified to profit or loss		**(402)**	158
Total other comprehensive (expense)/income		**(1,013)**	182
Total comprehensive expense for the year		**(2,324)**	(2,211)
Attributable to:			
Ordinary shareholders		**(2,328)**	(2,219)
Non-controlling interests		**4**	8
Total comprehensive expense for the year		**(2,324)**	(2,211)

[1] Includes an asset re-measurement net loss estimated at £600m following the agreement to transfer the future pension obligations of circa 33,000 pensions in the UK scheme to Legal & General Assurance Society Limited. See note 21 for further information.

CONSOLIDATED BALANCE SHEET

At 31 December 2019

	Notes	2019 £m	2018 £m
ASSETS			
Intangible assets	9	5,442	5,295
Property, plant and equipment	10	4,803	4,929
Right-of-use assets [1]	11	2,009	–
Investments – joint ventures and associates	12	402	412
Investments – other	12	14	22
Other financial assets	19	467	343
Deferred tax assets	5	1,887	2,092
Post-retirement scheme surpluses	21	1,170	1,944
Non-current assets		16,194	15,037
Inventories	13	4,320	4,287
Trade receivables and other assets	14	5,065	4,690
Contract assets	15	2,095	2,057
Taxation recoverable		39	34
Other financial assets	19	86	22
Short-term investments	19	6	6
Cash and cash equivalents	16	4,443	4,974
Current assets		16,054	16,070
Assets held for sale	27	18	750
TOTAL ASSETS		32,266	31,857
LIABILITIES			
Borrowings and lease liabilities	17	(775)	(858)
Other financial liabilities	19	(493)	(647)
Trade payables and other liabilities	18	(8,450)	(8,292)
Contract liabilities	15	(4,228)	(3,794)
Current tax liabilities		(172)	(138)
Provisions for liabilities and charges	20	(858)	(1,122)
Current liabilities		(14,976)	(14,851)
Borrowings and lease liabilities	17	(4,910)	(3,804)
Other financial liabilities	19	(3,094)	(3,542)
Trade payables and other liabilities	18	(2,071)	(1,940)
Contract liabilities	15	(6,612)	(5,336)
Deferred tax liabilities	5	(618)	(962)
Provisions for liabilities and charges	20	(1,946)	(795)
Post-retirement scheme deficits	21	(1,378)	(1,303)
Non-current liabilities		(20,629)	(17,682)
Liabilities associated with assets held for sale	27	(15)	(376)
TOTAL LIABILITIES		(35,620)	(32,909)
NET LIABILITIES		(3,354)	(1,052)
EQUITY			
Called-up share capital	22	386	379
Share premium account		319	268
Capital redemption reserve		159	161
Cash flow hedging reserve		(96)	(106)
Merger reserve		650	406
Translation reserve		397	809
Accumulated losses		(5,191)	(2,991)
Equity attributable to ordinary shareholders		(3,376)	(1,074)
Non-controlling interests		22	22
TOTAL EQUITY		(3,354)	(1,052)

[1] IFRS 16 *Leases* has been adopted from 1 January 2019 and under the transitional arrangements the Group has adopted IFRS 16 on a modified retrospective basis. There has been no restatement of 2018 comparatives. See notes 1 and 29 for more details.

The financial statements on pages 116 to 182 were approved by the Board on 28 February 2020 and signed on its behalf by:

Warren East
Chief Executive

Stephen Daintith
Chief Financial Officer

CONSOLIDATED CASH FLOW STATEMENT

For the year ended 31 December 2019

	Notes	2019 £m	2018 £m
Reconciliation of cash flows from operating activities			
Operating loss		(852)	(1,161)
(Profit)/loss on disposal of property, plant and equipment		(13)	11
Share of results of joint ventures and associates	12	(104)	(4)
Dividends received from joint ventures and associates	12	92	105
Amortisation and impairment of intangible assets [1]	9	372	565
Depreciation and impairment of property, plant and equipment [1]	10	532	521
Depreciation and impairment of right-of-use assets	11	411	–
Impairment of and other movements on investments	12	1	6
Increase in provisions		1,108	1,003
Increase in inventories		(43)	(616)
Increase in trade receivables and other assets		(610)	(469)
Increase in contract assets		(41)	(112)
Penalties paid on agreements with investigating bodies		(102)	–
Increase in trade payables and other liabilities		683	1,732
Increase in contract liabilities		1,778	1,419
Cash flows on other financial assets and liabilities held for operating purposes		(757)	(732)
Interest received		31	–
Net defined benefit post-retirement cost recognised in loss before financing	21	222	352
Cash funding of defined benefit post-retirement schemes	21	(266)	(181)
Share-based payments	23	30	35
Net cash inflow from operating activities before taxation		2,472	2,474
Taxation paid		(175)	(248)
Net cash inflow from operating activities [2]		2,297	2,226
Cash flows from investing activities			
Net movement in unlisted investments	12	3	(6)
Additions of intangible assets	9	(640)	(680)
Disposals of intangible assets	9	13	13
Purchases of property, plant and equipment		(747)	(905)
Disposals of property, plant and equipment		50	43
Acquisitions of businesses	27	(43)	–
Disposal of businesses	27	453	573
Movement in investments in joint ventures and associates and other movements on investments	12	(8)	(13)
Disposals of joint ventures		1	–
Net cash outflow from investing activities		(918)	(975)
Cash flows from financing activities			
Repayment of loans		(1,136)	(37)
Proceeds from increase in loans		22	1,054
Capital element of lease payments (2018: Capital element of finance lease payments)		(271)	(23)
Net cash flow from (decrease)/increase in borrowings and leases		(1,385)	994
Interest received		–	27
Interest paid		(104)	(92)
Interest element of lease payments (2018: Interest element of finance lease payments)		(88)	(5)
Increase in short-term investments		–	(3)
Issue of ordinary shares (net of expenses)		24	1
Purchase of ordinary shares		(15)	(1)
Dividends to NCI		(4)	(3)
Redemption of C Shares		(220)	(216)
Net cash (outflow)/inflow from financing activities		(1,792)	702
Change in cash and cash equivalents		(413)	1,953
Cash and cash equivalents at 1 January		4,952	2,933
Exchange (losses)/gains on cash and cash equivalents		(104)	66
Cash and cash equivalents at 31 December [3]		4,435	4,952

[1] In 2019, an impairment of **£58m** in respect of Bergen Engines AS was included in these lines (2018: £160m in respect of Commercial Marine).
[2] Operating cash flow includes Trent 1000 insurance receipts of £173m.
[3] 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.

In deriving the consolidated cash flow statement, movements in balance sheet line 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 26.

CONSOLIDATED CASH FLOW STATEMENT CONTINUED

For the year ended 31 December 2019

	2019 £m	2018 £m
Reconciliation of movements in cash and cash equivalents to movements in net funds/(debt)		
Change in cash and cash equivalents	(413)	1,953
Cash flow from decrease/(increase) in borrowings and leases	1,385	(994)
Cash flow from increase in short-term investments	–	3
Change in net funds resulting from cash flows	972	962
New leases in the year (2018: new finance leases in the year)	(217)	(97)
Net debt (excluding cash and cash equivalents) of previously unconsolidated subsidiary	(1)	–
Exchange (losses)/gains on net funds	(32)	54
Fair value adjustments	48	(69)
Transferred to liabilities associated with assets held for sale	3	–
Movement in net funds	773	850
Net funds/(debt) at 1 January excluding the fair value of swaps	318	(532)
Reclassifications [1]	(79)	–
Adoption of IFRS 16 (see note 29)	(2,248)	–
Net debt at 1 January restated	(2,009)	(532)
Net (debt)/funds at 31 December excluding the fair value of swaps	(1,236)	318
Fair value of swaps hedging fixed rate borrowings	243	293
Net (debt)/funds at 31 December	(993)	611

[1] In 2019, the Group has reclassified £79m as borrowings previously included in other financial liabilities. These borrowings mature between 2019 and 2029 – see note 17.

CONSOLIDATED CASH FLOW STATEMENT CONTINUED

For the year ended 31 December 2019

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

	At 31 December 2018 £m	Transition to IFRS 16 and reclassifications [1] £m	At 1 January £m	Funds flow £m	Net funds on acquisition/ disposal £m	Exchange differences £m	Fair value adjustments £m	Reclassifications £m	Other movements on leases £m	At 31 December £m
2019										
Cash at bank and in hand	1,023	–	**1,023**	**(179)**	**–**	**(19)**	**–**	**–**	**–**	**825**
Money market funds	1,222	–	**1,222**	**(124)**	**–**	**(3)**	**–**	**–**	**–**	**1,095**
Short-term deposits	2,729	–	**2,729**	**(124)**	**–**	**(82)**	**–**	**–**	**–**	**2,523**
Cash and cash equivalents [2] (per balance sheet)	4,974	–	**4,974**	**(427)**	**–**	**(104)**	**–**	**–**	**–**	**4,443**
Overdrafts	(22)	–	**(22)**	**14**	**–**	**–**	**–**	**–**	**–**	**(8)**
Cash and cash equivalents (per cash flow statement)	4,952	–	**4,952**	**(413)**	**–**	**(104)**	**–**	**–**	**–**	**4,435**
Short-term investments	6	–	**6**	**–**	**–**	**–**	**–**	**–**	**–**	**6**
Other current borrowings	(802)	(14)	**(816)**	**799**	**–**	**2**	**5**	**(417)**	**–**	**(427)**
Non-current borrowings	(3,609)	(65)	**(3,674)**	**315**	**(1)**	**4**	**43**	**417**	**–**	**(2,896)**
Finance leases	(229)	229	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Lease liabilities	–	(2,477)	**(2,477)**	**271**	**–**	**66**	**–**	**3**	**(217)**	**(2,354)**
Financial liabilities	(4,640)	(2,327)	**(6,967)**	**1,385**	**(1)**	**72**	**48**	**3**	**(217)**	**(5,677)**
Net funds/(debt) excluding fair value swaps	318	(2,327)	**(2,009)**	**972**	**(1)**	**(32)**	**48**	**3**	**(217)**	**(1,236)**
Fair value of swaps hedging fixed rate borrowings [3]	293	–	**293**	**–**	**–**	**–**	**(50)**	**–**	**–**	**243**
Net funds/(debt)	611	(2,327)	**(1,716)**	**972**	**(1)**	**(32)**	**(2)**	**3**	**(217)**	**(993)**
Net funds (excluding lease liabilities)	*840*	*(79)*	***761***							***1,361***
2018										
Cash at bank and in hand			838	170	–	15	–	–	–	1,023
Money market funds			589	630	–	3	–	–	–	1,222
Short-term deposits			1,526	1,155	–	48	–	–	–	2,729
Cash and cash equivalents (per balance sheet)			2,953	1,955	–	66	–	–	–	4,974
Overdrafts			(20)	(2)	–	–	–	–	–	(22)
Cash and cash equivalents (per cash flow statement)			2,933	1,953	–	66	–	–	–	4,952
Short-term investments			3	3	–	–	–	–	–	6
Other current borrowings			(39)	(38)	–	(1)	15	(739)	–	(802)
Non-current borrowings			(3,292)	(972)	–	–	(84)	739	–	(3,609)
Finance leases			(137)	(81)	–	(11)	–	–	–	(229)
Financial liabilities			(3,468)	(1,091)	–	(12)	(69)	–	–	(4,640)
Net (debt)/funds excluding fair value swaps			(532)	865	–	54	(69)	–	–	318
Fair value of swaps hedging fixed rate borrowings [3]			227	–	–	–	66	–	–	293
Net (debt)/funds			(305)	865	–	54	(3)	–	–	611

[1] In 2019, the Group has reclassified £79m as borrowings previously included in other financial liabilities. These borrowings mature between 2019 and 2029 – see note 17.
[2] Includes Trent 1000 insurance receipts of £173m.
[3] All interest rate swaps are entered into for risk management purposes, although these may not be designated into hedging relationships for accounting purposes – see note 19.

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2019

		Attributable to ordinary shareholders									
	Notes	Share capital £m	Share premium £m	Capital redemption reserve £m	Cash flow hedging reserve [1] £m	Merger reserve £m	Translation reserve £m	Accumulated losses [2] £m	Total £m	Non-controlling interests (NCI) £m	Total equity £m
At 31 December 2017		368	195	162	(112)	3	657	(343)	930	3	933
Impact of adopting IFRS 9		–	–	–	–	–	–	(15)	(15)	–	(15)
At 1 January 2018		368	195	162	(112)	3	657	(358)	915	3	918
(Loss)/profit for the year		–	–	–	–	–	–	(2,401)	(2,401)	8	(2,393)
Foreign exchange translation differences on foreign operations		–	–	–	–	–	171	–	171	–	171
Reclassified to income statement on disposal of L'Orange		–	–	–	–	–	(19)	–	(19)	–	(19)
Movements on post-retirement schemes	21	–	–	–	–	–	–	27	27	–	27
Debited to cash flow hedge reserve		–	–	–	(17)	–	–	–	(17)	–	(17)
OCI of joint ventures and associates	12	–	–	–	18	–	–	(1)	17	–	17
Related tax movements	5	–	–	–	5	–	–	(2)	3	–	3
Total comprehensive income/(expense) for the year		–	–	–	6	–	152	(2,377)	(2,219)	8	(2,211)
Shares issued in respect of acquisition of ITP Aero		10	–	–	–	403	–	–	413	–	413
Other issues of ordinary shares	22	1	73	–	–	–	–	–	74	–	74
Issue of C Shares [3]		–	–	(217)	–	–	–	1	(216)	–	(216)
Redemption of C Shares		–	–	216	–	–	–	(216)	–	–	–
Shares issued to employee share trust		–	–	–	–	–	–	(75)	(75)	–	(75)
Share-based payments – direct to equity [4]		–	–	–	–	–	–	32	32	–	32
Transfer of joint operations to subsidiaries		–	–	–	–	–	–	–	–	15	15
Transactions with NCI		–	–	–	–	–	–	–	–	(4)	(4)
Related tax movements	5	–	–	–	–	–	–	2	2	–	2
Other changes in equity in the year		11	73	(1)	–	403	–	(256)	230	11	241
At 31 December 2018		379	268	161	(106)	406	809	(2,991)	(1,074)	22	(1,052)
Impact of adopting IFRS 16		–	–	–	–	–	–	(40)	(40)	–	(40)
At 1 January 2019		**379**	**268**	**161**	**(106)**	**406**	**809**	**(3,031)**	**(1,114)**	**22**	**(1,092)**
(Loss)/profit for the year		–	–	–	–	–	–	(1,315)	(1,315)	4	(1,311)
Foreign exchange translation differences on foreign operations		–	–	–	–	–	(313)	–	(313)	–	(313)
Reclassified to income statement on disposal of Commercial Marine		–	–	–	–	–	(98)	–	(98)	–	(98)
Movements on post-retirement schemes	21	–	–	–	–	–	–	(934)	(934)	–	(934)
Credited to cash flow hedge reserve			–	–	22	–	–	–	22	–	22
OCI of joint ventures and associates	12	–	–	–	(7)	–	–	(1)	(8)	–	(8)
Related tax movements	5	–	–	–	(5)	–	(1)	324	318	–	318
Total comprehensive income/(expense) for the year		–	–	–	10	–	(412)	(1,926)	(2,328)	4	(2,324)
Arising on issues of ordinary shares	22	1	51	–	–	–	–	–	52	–	52
Shares issued in respect of acquisition of ITP Aero		6	–	–	–	244	–	–	250	–	250
Issue of C Shares [3]		–	–	(222)	–	–	–	1	(221)	–	(221)
Redemption of C Shares		–	–	220	–	–	–	(220)	–	–	–
Ordinary shares purchased		–	–	–	–	–	–	(15)	(15)	–	(15)
Shares issued to employee share trust		–	–	–	–	–	–	(51)	(51)	–	(51)
Share-based payments – direct to equity [4]		–	–	–	–	–	–	50	50	–	50
Transactions with NCI		–	–	–	–	–	–	–	–	(4)	(4)
Related tax movements	5	–	–	–	–	–	–	1	1	–	1
Other changes in equity in the year		7	51	(2)	–	244	–	(234)	66	(4)	62
At 31 December 2019		386	319	159	(96)	650	397	(5,191)	(3,376)	22	(3,354)

[1] See accounting policies note 1.

[2] At 31 December 2019, **12,476,576** ordinary shares with a net book value of **£108m** (2018: 13,538,921, 2017: 6,466,153 ordinary shares with net book values of £123m and £52m respectively) were held for the purpose of share-based payment plans and included in accumulated losses. During the year, **8,984,219** ordinary shares with a net book value of **£82m** (2018: 468,165 shares with a net book value of £4m) vested in share-based payment plans. During the year, the Company acquired **118,831** (2018: 80,810) of its ordinary shares via reinvestment of dividends received on its own shares and purchased **1,673,143** (2018: nil) of its ordinary shares through purchases on the London Stock Exchange. During the year, the Company issued **28,973,262** new ordinary shares relating to the remaining three instalments for the acquisition of ITP Aero (2018: 47,556,914 new ordinary shares relating to the first five installments) and **7,803,043** new ordinary shares (2018: 7,460,173) to the Group's share trust for its employee share-based payment plans with a net book value of **£66m** (2018: £74m).

[3] In Rolls-Royce Holdings plc's Company Financial Statements, C Shares are issued from the merger reserve, this reserve was created by a scheme of arrangement in 2011. As this reserve is eliminated on consolidation, in the Consolidated Financial Statements, the C Shares are shown as being issued from the capital redemption reserve.

[4] Share-based payments – direct to equity is the share-based payment charge for the year less the actual cost of vesting excluding those vesting from own shares and cash received on share-based schemes vesting.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

1 Accounting policies

The Company

Rolls-Royce Holdings plc (the 'Company') is a public company incorporated under the Companies Act 2006 and domiciled in the United Kingdom. The Consolidated Financial Statements of the Company for the year ended 31 December 2019 consist of the consolidation of the Financial Statements of the Company and its subsidiaries (together referred to as the Group) and include the Group's interest in jointly controlled and associated entities.

Basis of preparation and statement of compliance

In accordance with the Companies Act 2006 and European Union (EU) regulations, these Consolidated Financial Statements have been prepared in accordance with International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB) and interpretations issued by the IFRS Interpretations Committee (IFRIC), as adopted for use in the EU effective at 31 December 2019 (Adopted IFRS).

The Company has elected to prepare its individual Company Financial Statements under FRS 101 *Reduced Disclosure Framework*. They are set out on pages 183 to 186 and the accounting policies in respect of its individual Company Financial Statements are set out on page 184.

The Consolidated Financial Statements have been prepared on the historical cost basis except where Adopted IFRS requires 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* – and on a going concern basis as described on page 55.

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

The preparation of Consolidated Financial Statements in conformity with Adopted IFRS 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 results could differ from those estimates.

Revisions to Adopted IFRS in 2019

IFRS 16 *Leases*

The Group adopted IFRS 16 on 1 January 2019 using the modified retrospective approach. Under the specific transitional provisions in the standard, comparative information has not been restated. The reclassifications and the adjustments arising from the new leasing rules have been recognised in the opening balance sheet on 1 January 2019 (see note 29).

Until 31 December 2018, leases of aircraft and engines, plant and equipment and land and buildings were classified as either finance or operating leases. Payments made under operating leases were charged to profit or loss on a straight-line basis over the period of the lease. From 1 January 2019, leases are recognised as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Group. Each lease payment is allocated between reducing the liability and a finance cost. The finance cost is charged to the income statement over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

On adoption of IFRS 16, the Group recognised additional lease liabilities in relation to leases which had previously been classified as operating leases under the previous principles of IAS 17 *Leases*. These liabilities were measured at the present value of the remaining lease payments, discounted using the Group's incremental borrowing rate as of 1 January 2019. The weighted average incremental borrowing rate applied by the Group to the lease liabilities on 1 January 2019 was 3.7%.

The associated right-of-use assets for certain high value property leases are measured on a retrospective basis as if the new rules had always been applied. As above, the Group's incremental borrowing rate has been used. Other right-of-use assets are measured at the amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments relating to that lease recognised in the balance sheet as at 1 January 2019. In applying IFRS 16 for the first time, the Group has used the following practical expedients permitted by the standard:

- on initial application, IFRS 16 was only applied to contracts that were previously classified as leases, the Group has elected not to reassess whether a contract is, or contains, a lease at the date of initial application. Instead, for contracts entered into before the transition date the Group has relied on its assessment made applying IAS 17 and IFRIC 4 *Determining whether an Arrangement contains a Lease*;
- lease contracts with a duration of less than 12 months will continue to be expensed to the income statement on a straight-line basis over the lease term;
- the lease term has been determined with the use of hindsight where the contract contains options to extend the lease; and
- reliance on previous assessments on whether or not leases are onerous.

Note 29 sets out the adjustments made on transition to IFRS 16 on 1 January 2019. The most significant changes are where the Group is a lessee as the standard has not significantly changed the accounting where the Group is a lessor in a lease arrangement.

IFRIC 23 *Uncertainty over Income Tax Treatment*

The Group adopted IFRIC 23 on 1 January 2019. The interpretation clarifies how to apply the recognition and measurement requirements in IAS 12 *Income Taxes* when there is uncertainty over income tax treatments. Adoption of this interpretation did not have a material impact on the Group's financial statements.

Amendments to IFRS 9, IAS 39 and IFRS 7 *Interest Rate Benchmark Reform*

The Group has elected to early adopt the amendments in accordance with the transition provisions. Details of the impact to the Group are given on page 129.

1 Accounting policies continued

Key areas of judgement and sources of estimation uncertainty

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

Area	Key judgements	Key sources of estimation uncertainty	Page
Revenue recognition	– 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	Estimates of future revenue and costs of long-term contractual arrangements	125
Risk and revenue sharing arrangements	Determination of the nature of entry fees received		127
Taxation	Whether deferred tax assets should be recognised	Estimates necessary to assess whether it is probable that sufficient suitable taxable profits will arise in the UK to utilise the deferred tax assets	127
Financial instruments	Application of the business model and 'solely principal and interest' test		128
Business combinations	Identification of acquired assets and liabilities		129
Research and development	– Determination of the point in time where costs incurred on an internal programme development meet the criteria for capitalisation or ceasing capitalisation – Determination of the basis for amortising capitalised development costs		130
Leases	Determination of lease term	Estimates of the payments required to meet residual value guarantees at the end of engine leases	131
Impairment of goodwill	Determination of cash-generating units for assessing impairment of goodwill		131
Impairment of intangible assets (including programme-related intangible assets)		Estimates of cash flow forecasts and discount rates to support the carrying value of intangible assets (including programme-related intangible assets)	131
Provisions	Assessment of satisfying the criteria for the recognition and measurement of provisions	Estimates of expenditure required to settle the obligation relating to Trent 1000 claims and to settle long-term contracts assessed as onerous	132
Post-retirement benefits		Estimates of the assumptions applied for valuing the defined benefit obligation	133

Sensitivities for key sources of estimation risk are disclosed in the relevant notes where this is appropriate and practicable.

Significant accounting policies

The Group's significant accounting policies are set out below. With the exception of IFRS 16 and IFRIC 23, which have been adopted with effect from 1 January 2019, these accounting policies have been applied consistently to all periods presented in these Consolidated Financial Statements.

Presentation of underlying results

We measure financial performance on an underlying basis. We believe this is the most appropriate basis to measure our in-year performance as underlying results reflect the substance of trading activity, including the impact of the Group's foreign exchange forward contracts, which lock in transactions at predetermined exchange rates. In addition, underlying results exclude the accounting impact of business acquisitions and disposals, impairment charges and exceptional items. It is also consistent with the way that financial performance is measured by management and reported to the Board in accordance with IFRS 8 *Operating Segments*. Further details are given in note 2.

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.

1 Accounting policies continued

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 venturers under a contractual arrangement. Joint arrangements may be either joint ventures or joint operations. An associate is an entity, being 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 joint ventures and associates are accounted for using the equity method of accounting. Joint operations are accounted for using proportionate accounting.

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. Transactions with non-controlling interests are recorded directly in equity.

The Commercial Marine business was disposed of on 1 April 2019 and Rolls-Royce Power Development Limited was disposed of on 15 April 2019. We announced the proposed disposal of the North America Civil Nuclear business on 26 September 2019, and the Knowledge Management System business on 17 December 2019. Both North America Civil Nuclear and Knowledge Management System have been treated as a disposal group held for sale at 31 December 2019, with their assets and liabilities presented separately in the balance sheet. These disposals were completed on 31 January 2020 and 3 February 2020 respectively. In 2018, L'Orange was disposed of on 1 June and Commercial Marine was treated as a disposal group and held for sale (see note 27).

On 30 September 2019, we acquired Siemens' eAircraft business and in accordance with IFRS 3 *Business Combinations*, the fair value of the assets and liabilities acquired have been consolidated in the Group's results from the date of acquisition (see note 27).

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.

Revenue recognition

Key judgement – Whether Civil Aerospace OE and aftermarket contracts should be combined
In the Civil Aerospace business, OE contracts are with the airframers (except for spare engines), while the aftermarket contracts 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, as the operators are ultimately purchasing an aircraft from the airframer, of which the engines are part, the engine contract should be considered separately from the aftermarket contract. In making this judgement, they also took account of industry practice.

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

Key judgement – Whether any costs should be treated as wastage
In rare circumstances, the Group may incur costs of wasted material, labour or other resources to fulfil a contract where the level of cost was not reflected in the contract price. The identification of such costs is a matter of judgement and would only be expected to arise where there has been a series of abnormal events which give rise to a significant level of cost which is also of a nature that the Group would not expect to incur and hence is not reflected in the contract price. For example: where there are technical issues that require resolution to meet regulatory requirements; have a wide-ranging impact across a product type; and cause significant operational disruption to customers. Similarly, in these rare circumstances, significant disruption costs to support customers resulting from the actual performance of a delivered good or service may be treated as a cost in the period. Any costs identified as wastage are expensed when the obligation to incur them arises – see note 2.

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 its assessment, and by comparison to the sales price of spare engines to other third parties, the sales made to joint ventures reflect the fair value of the goods sold.

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

1 Accounting policies continued

Key estimate – Estimates of future revenue and costs on long-term contractual arrangements (continued)
As previously explained, under IFRS 15 the Group, most significantly in Civil Aerospace, experiences volatility in revenue recognition and contract accounting adjustments of **£33m** have been recognised in 2019 (2018: £(276)m). Based upon the stage of completion of all widebody programmes as at 31 December 2019 within Civil Aerospace, the following changes in key estimates would result in the following catch-up adjustments recognised in 2020 (at underlying rates):
- 5% increase/decrease in shop visit costs over the life of the programmes – £142m impact
- 2% increase/decrease in revenue over the life of the programmes – £200m impact

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

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

Sales of services and OE 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 and profit 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 and therefore 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.

- Future variable revenue from long-term contracts is constrained to take account of the risk of non-recovery of resulting contract balances from reduced utilisation e.g. engine flying hours, based on historical forecasting experience and the risk of aircraft being parked by the customer.
- A significant amount of revenue and cost related to long-term contract accounting is denominated in currencies other than that of the relevant Group undertaking, most significantly US dollar transactions in sterling and euro denominated undertakings. These are translated at estimated long-term exchange rates.
- The assessment of stage of completion is generally measured for each contract. However, in certain cases, such as for CorporateCare agreements where there are many contracts covering aftermarket services, each for a small number of engines, the Group accounts for a portfolio of contracts together as the effect on the Consolidated Financial Statements would not differ materially from applying the standard to the individual contracts in the portfolio. When accounting for a portfolio of long-term service arrangements the Group uses estimates and assumptions that reflect the size and composition of the portfolio.
- A contract asset/liability is recognised where payment is received in arrears/advance of the costs incurred to meet performance obligations.
- Where material, wastage costs (see key judgements on page 125) 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 engine is transferred to the customer.

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

1 Accounting policies continued

Risk and revenue sharing arrangements (RRSAs)

Key judgement – Determination of the nature of entry fees received
RRSAs with key suppliers (workshare partners) are a feature of the Civil Aerospace business. Under these contractual arrangements, the key commercial objectives are that: (i) during the development phase the workshare partner shares in the risks of developing an engine by performing its own development work, providing development parts and paying a non-refundable cash entry fee; and (ii) during the production phase it supplies components in return for a share of the programme cash flows as a 'life of type' supplier (i.e. as long as the engine remains in service).

The non-refundable cash entry fee is judged by the Group to be a contribution towards the development expenditure incurred. These receipts are deferred on the balance sheet and recognised against the cost of sales over the estimated number of units to be delivered.

The payments to suppliers of their shares of the programme cash flows for their production components are charged to cost of sales as programme revenue arises. Cash entry fees received are initially deferred on the balance sheet and recognised as a reduction in cost of sales incurred, on a 15-year straight-line basis pro rata over the estimated number of units produced.

The Group 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.

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 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 in the balance sheet 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

Key judgement – Whether deferred tax assets should be recognised
Deferred tax assets are recognised to the extent it is probable that future taxable profits will be available, against which the deductible temporary difference can be utilised, based on management's assumptions relating to the quantum of future taxable profits.

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
Future taxable profits require significant estimates to be made, including: the pattern of future maintenance activity and the costs to be incurred; lifecycle cost improvements over the term of the contracts; and escalation of revenue and costs. The estimates take account of the inherent uncertainties, constraining the expected level of profit as appropriate. Changes in these estimates will affect future profits and therefore the recoverability of the deferred tax assets. Further details can be found in note 5.

A 5% change in margin in the main Civil Aerospace widebody programmes would result in an increase/decrease in profits by circa £2bn (increase/decrease the deferred tax asset by £170m).

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.

1 Accounting policies continued

Deferred tax assets are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised. Further details on the Group's tax position can be found on page 204.

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 assets and liabilities into functional currencies at the rate prevailing at the year end are included in profit/(loss) before taxation.

The trading results of Group undertakings are translated into sterling at the average exchange rates for the year. The assets and liabilities of overseas undertakings, including goodwill and fair value adjustments arising on acquisition, are translated at the exchange rates prevailing at the year end. Exchange adjustments arising from the retranslation of the opening net investments, and from the translation of the profits or losses at average rates, are recognised in OCI. The cumulative amount of exchange adjustments was, on transition to IFRS in 2004, deemed to be nil.

Financial instruments

Key judgement – Application of the business model and 'solely payments of principal and interest' test
The Group's customer invoices have relatively short payment terms and the related contracts are exposed to basic credit risk and time value of money and therefore the associated financial assets are held as payments of principal and interest.

The Group's customer invoices are ordinarily settled at their due date, in accordance with the contractual payment terms. For certain customers, the Group has the right to discount invoices before their due date to accelerate payment. Where this occurs, customer balances are classified as 'held to collect and sell'. Fair value movements are recognised in OCI, if material (see note 14).

Financial instruments – Classification and measurement

Financial assets
Financial assets primarily include trade receivables, cash and cash equivalents (comprising cash at bank, money market funds and short-term deposits), short-term investments, derivatives (foreign exchange, commodity and interest rate contracts), and unlisted investments.
- Trade receivables are classified either as held to collect and measured at amortised cost or as held to collect and sell and measured at fair value 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 and short-term investments are measured at fair value through profit and loss (FVPL). Money market funds and short-term deposits are measured at FVOCI.
- Derivatives and unlisted investments are measured at FVPL.

Financial liabilities
Financial liabilities primarily consist of trade payables, borrowings, derivatives, financial RRSAs and C Shares.
- Derivatives are classified and measured at FVPL.
- All other financial liabilities are classified and measured at amortised cost.

Financial instruments – Impairment of financial assets and contract assets

IFRS 9 *Financial Instruments* sets out the basis for the accounting of expected credit losses (ECLs) on financial assets and contract assets resulting from transactions within the scope of IFRS 15. 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. In general, the Group has chosen to not apply hedge accounting in respect of these exposures. Prior to its acquisition in 2017, ITP Aero adopted hedge accounting for its equivalent exposures. It has continued to do so, although the value of the derivatives is not material, relative to those held by the rest of the Group.

The Group economically hedges the fair value and cash flow exposures of its borrowings. Cross-currency interest rate swaps are held to manage the fair value exposures of borrowings denominated in foreign currencies and are designated as fair value hedges. Interest rate swaps are held to manage the interest rate exposures of fixed and floating rate borrowings and may be designated as fair value hedges, cash flow hedges or FVPL as appropriate.

1 Accounting policies continued

Derivative financial instruments qualify for hedge accounting when: (i) there is a formal designation and documentation at inception of the hedge of the hedging relationship and the Group's risk management objective and strategy for undertaking the hedge; and (ii) the hedge is expected to be effective.

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 to match the recognition of the hedged item. Any ineffectiveness in the hedging relationships is included in the income statement.

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

Financial instruments – Replacement of benchmark interest rates

Following the financial crisis, the reform and replacement of benchmark interest rates such as GBP LIBOR and other interbank offered rates (IBORs) has become a priority for global regulators. There is currently uncertainty around the timing and precise nature of these changes. The Group's risk exposure that is directly affected by the interest rate benchmark reform is its portfolio of long-term borrowings of £3.0bn. These borrowings are hedged, using interest rate swaps and cross-currency interest rate swaps, for changes in fair value attributable to the relevant benchmark interest rate. However, as part of the reforms noted above, the UK Financial Conduct Authority has decided to no longer compel panel banks to participate in the IBOR submission process after the end of 2021 and to cease oversight of these benchmark interest rates. Regulatory authorities and private sector working groups have been discussing alternative benchmark rates for IBOR. It is currently anticipated that IBOR rates will be replaced with a backward looking risk-free rate based on actual transactions.

Management is in the process of establishing a committee to oversee the Group's IBOR transition plan. This transition project will include changes to systems, processes, risk and valuation models, as well as managing related tax and accounting implications. The Group currently anticipates that the areas of greatest change will be amendments to the contractual terms of IBOR-referenced floating-rate debt and swaps, and updating hedge designations.

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

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

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

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

Business combinations and goodwill

Key judgement – Identification of acquired assets and liabilities
In allocating the purchase price to the acquired assets and liabilities, such as technology, patents and licences, customer relationships, trademarks and in-process development, judgement is required. The allocations based on the Group's industry experience and the advice of third party valuers, if required.

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 Adopted IFRS and goodwill was recognised based on the carrying value under the previous accounting policies. Goodwill in respect of the acquisition of a subsidiary is recognised as an intangible asset. Goodwill arising on the acquisition of joint arrangements and associates is included in the carrying value of the investment.

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 on a 15-year straight-line basis pro rata over the estimated number of units produced.

1 Accounting policies continued

Research and development

Key judgement – Determination of the point in time where costs incurred on an internal programme development meet the criteria for capitalisation or ceasing capitalisation
The Group incurs significant research and development expenditure in respect of various development programmes. Determining when capitalisation should commence and cease is a critical judgement, as is the determination of when subsequent expenditure on the programme assets should be capitalised.

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

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

Key judgement – Determination of the basis for amortising capitalised development costs
The economic benefits of the development costs are primarily those cash inflows arising from long-term service agreements, which are expected to be relatively consistent for each engine. Amortisation of development costs is recognised on a straight-line basis over 15 years on a proportional basis to aircraft delivery.

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

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

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

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

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

The development costs associated with each engine are amortised on a straight-line basis, over a 15-year period from its delivery. The period of 15 years is an estimate of the period of operation of the engine by its initial operator. In accordance with IAS 38, the basis on which programme assets are amortised is assessed annually.

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

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

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

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

- Land and buildings, as advised by the Group's professional advisers:
  - freehold buildings – five to 45 years (average 25 years);
  - leasehold buildings – lower of adviser's estimates or period of lease; and
  - 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 14 years).

1 Accounting policies continued

Leases

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

Key estimates – Estimates of the payments required to meet residual value guarantees at the end of engine leases
Engine leases in the Civil Aerospace segment often include clauses that require the engines to be returned to the lessor with specific levels of useable life remaining or cash payments to the lessor. The costs of meeting these requirements are included in the lease payments. The amounts payable are calculated based upon an estimate of the utilisation of the engines over the lease term, whether the engine is restored to the required condition by performing an overhaul at our own cost or through the payments of amounts specified in the contract and any new contractual arrangements arising when the current lease contracts end. At 31 December 2019, the lease liability included £401m relating to the cost of meeting these residual value guarantees, with up to £80m in 2020 and £112m due over the following four years. Where estimates of payments change, an adjustment is made to the lease liability and the right-of-use asset.

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 commence after the initial transition date, the lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the 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. Lease liabilities are revalued at each reporting date using the spot exchange rate.

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

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

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

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

Impairment of non-current assets

Key judgement – Determination of cash-generating units for assessing impairment of goodwill
The Group conducts impairment reviews at the cash generating unit (CGU) level. As permitted by IAS 36 *Impairment of assets*, impairment reviews for goodwill are performed at the groups of CGUs level, representing the lowest level at which the Group monitors goodwill for internal management purposes and no higher than the Group's operating segments. The level at which goodwill impairment reviews was performed was at the Rolls-Royce Deutschland Ltd & Co KG and Rolls-Royce Power Systems AG aggregated level.

Key estimate – Estimates of cash flow forecasts and discount rates to support the carrying value of intangible assets (including programme related intangible assets)
The carrying value of intangible assets on the balance sheet is dependent on the estimates of future cash flows arising from the Group's operations, in particular:

- The assessment as to whether there are any indications of impairment of development expenditure, certification costs, and customer relationships recognised as intangible assets (**31 December 2019: £3,612m**, 31 December 2018: £3,427m) is dependent on estimates of cash flows generated by the relevant programme, the discount rate used to calculate a present value and assumptions on foreign exchange rates.
- In addition, in relation to programme intangible assets, estimates comprise: product performance related estimates (including flying hours and time-on-wing); and estimates for future market share, pricing and cost for uncontracted business. Sensitivities have been disclosed in note 9.

1 Accounting policies continued

Impairment of non-current assets is considered in accordance with IAS 36. Where the asset does not generate cash flows that are independent of other assets, impairment is considered for the cash-generating unit 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 cash-generating unit) is estimated to be below the carrying value, the carrying value is reduced to the recoverable amount and the impairment loss is recognised as an expense. The recoverable amount is the higher of value in use or fair value less costs to dispose, if this is readily available. The value in use is the present value of future cash flows using a pre-tax discount rate that reflects the time value of money and the risk specific to the asset.

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.

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

Supply chain financing (SCF) – The Group offers a SCF programme in partnership with banks to enable suppliers who are on our standard 75 day or more payment terms to receive their payment sooner. As the Group continues to have a contractual obligation to pay its suppliers and it does not retain any ongoing involvement in the SCF, the related payables are retained on the Group's balance sheet and classified as trade payables. Further details are disclosed in note 18.

Provisions

Key judgement – Assessment of satisfying the criteria for the recognition and measurement of provisions
Judgement is required to determine whether a valid expectation has been created and what costs are allowable to be provided for (especially when measuring contract loss provisions).

Key estimate – Estimates of expenditure required to settle the obligation relating to Trent 1000 claims and to settle long-term contracts assessed as onerous
The Group has provisions at 31 December 2019 of **£2,804m** (31 December 2018: £1,917m). 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 2019, the contract loss provision and the Trent 1000 exceptional cost provision are most sensitive to changes in estimates.

The Group has considered two sensitivities which are the impact of a three-month delay on achieving single digit AOGs and a 12-month delay in the availability of the final HPT blade. If either of these two sensitivities materialised the financial impact could be in the range of £60m–£100m.

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 and are discounted to present value where the effect is material.

1 Accounting policies continued

The principal provisions are recognised as follows:

- Trent 1000 in-service issues – when wastage costs are identified as described on page 125;
- 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 been publicly announced.

Post-retirement benefits

Key estimate – Estimates of the assumptions for valuing the defined benefit obligation
The Group's defined benefit pension schemes and similar arrangements are assessed annually in accordance with IAS 19 *Employee Benefits*. The valuation, which is based on assumptions determined with independent actuarial advice, resulted in a net deficit of **£208m** before deferred taxation being recognised on the balance sheet at 31 December 2019 (31 December 2018: surplus of £641m). The size of the net surplus/deficit is sensitive to the actuarial assumptions, which include the discount rate, price inflation, pension and salary increases, transfers, mortality and other demographic assumptions and the levels of contributions. Further details and sensitivities are included in note 21.

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

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.

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.

Actuarial gains and losses are recognised immediately in OCI.

In 2018, following clarification provided by the High Court judgement on the Lloyds Banking Group on 26 October 2018, in the UK, the Group recognised the estimated impact of the obligation to equalise pensions for men and women as a past-service cost – see note 21.

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

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 of the total shareholder return (TSR) performance condition in the long-term incentive plan (LTIP).

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

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.

Customer financing support

In connection with the sale of its products, the Group will, on occasion, provide financing support for its customers. These arrangements fall into two categories: credit-based guarantees and asset-value guarantees. In accordance with the requirements of IFRS 9 and IFRS 4 *Insurance Contracts*, credit-based guarantees are treated as insurance contracts. The Group considers asset-value guarantees to be non-financial liabilities and accordingly these are also treated as insurance contracts. As described on page 167, 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 balance sheet events

Non-adjusting post balance sheet events in relation to pensions and mergers and acquisitions activity are disclosed in notes 21 and 27 respectively.

1 Accounting policies continued

Revisions to IFRS not applicable in 2019

Standards and interpretations issued by the IASB are only applicable if endorsed by the EU. 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 is effective from the beginning of 1 January 2021 (although the IASB proposed to delay the effective date by one year to 1 January 2022). IFRS 17 establishes the principles for the recognition, measurement, presentation and disclosure of insurance contracts within the scope of the Standard. The objective of IFRS 17 is to ensure that an entity provides relevant information that faithfully represents those contracts.

The Group is in the process of assessing whether the new standard will impact on the Consolidated Financial Statements.

2 Segmental analysis

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

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

Non-core businesses include the trading results of the North America Civil Nuclear business and the Knowledge Management System business which have been treated as a disposal group held for sale at 31 December 2019, the Commercial Marine business until the date of disposal on 1 April 2019, Rolls-Royce Power Development Limited (RRPD) until the date of disposal on 15 April 2019, L'Orange until the date of disposal on 1 June 2018 and other smaller businesses including former Energy businesses not included in the disposal to Siemens in 2014 (Retained Energy). Segmental analysis for 2018 has been restated to reflect the 2019 definition of non-core.

Underlying results

We present the financial performance of our businesses in accordance with IFRS 8 and consistently with the basis on which performance is communicated to the Board each month. Underlying results are presented to reflect the economic impact of the Group's foreign exchange and interest rate risk management activities with interest receivable/(payable) on interest rate swaps not designated into hedging relationships for accounting purposes reclassified from fair value movement on a reported basis to interest receivable/(payable) on an underlying basis – see note 4.

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

Acquisition accounting, business disposals and impairment
We exclude these so that the current year and comparative results are directly comparable.

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

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

In 2019, the risk-free discount rate we applied to exceptional onerous contract provisions reduced from between 4%–5% to 2%–3%. This was largely driven by movements in US bonds in the last quarter of 2019. The change in the risk-free rate (US bonds) is market driven and the impact of the reduction in the rate has been included as a reconciling difference between underlying performance and reported performance.

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

2 Segmental analysis continued

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

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

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

See page 139 for the reconciliation between underlying performance and reported performance.

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

	Civil Aerospace £m	Power Systems [1] £m	Defence £m	ITP Aero £m	Corporate and inter-segment £m	Core businesses £m
Year ended 31 December 2019						
Underlying revenue from sale of original equipment	3,246	2,386	1,461	782	(502)	7,373
Underlying revenue from aftermarket services	4,861	1,159	1,789	154	(75)	7,888
Total underlying revenue	8,107	3,545	3,250	936	(577)	15,261
Gross profit/(loss)	622	909	669	206	(64)	2,342
Commercial and administrative costs	(299)	(374)	(151)	(61)	(53)	(938)
Restructuring	(7)	–	(7)	(1)	–	(15)
Research and development costs	(374)	(176)	(105)	(33)	–	(688)
Share of results of joint ventures and associates	102	(2)	9	–	–	109
Underlying operating profit/(loss)	44	357	415	111	(117)	810
Segment assets	17,954	3,587	2,743	2,160	(2,476)	23,968
Interests in joint ventures and associates	365	18	19	–	–	402
Segment liabilities	(24,819)	(1,450)	(2,950)	(1,129)	2,645	(27,703)
Net (liabilities)/assets	(6,500)	2,155	(188)	1,031	169	(3,333)
Investment in intangible assets, property, plant and equipment, right-of-use assets and joint ventures and associates	1,274	197	110	53	–	1,634
Depreciation, amortisation and impairment	807	278	109	88	–	1,282
Year ended 31 December 2018						
Underlying revenue from sale of original equipment	3,119	2,310	1,452	666	(375)	7,172
Underlying revenue from aftermarket services	4,259	1,124	1,672	113	(54)	7,114
Total underlying revenue	7,378	3,434	3,124	779	(429)	14,286
Gross profit	493	866	690	156	35	2,240
Commercial and administrative costs	(336)	(363)	(170)	(57)	(51)	(977)
Restructuring	(8)	(1)	(3)	(2)	–	(14)
Research and development costs	(332)	(188)	(100)	(30)	–	(650)
Share of results of joint ventures and associates	21	1	10	–	–	32
Underlying operating (loss)/profit	(162)	315	427	67	(16)	631
Segment assets	14,271	3,692	2,612	2,210	(1,621)	21,164
Interests in joint ventures and associates	380	14	16	–	–	410
Segment liabilities	(21,309)	(1,651)	(2,924)	(1,168)	1,743	(25,309)
Net (liabilities)/assets	(6,658)	2,055	(296)	1,042	122	(3,735)
Investment in intangible assets, property, plant and equipment and joint ventures and associates	1,283	119	151	74	–	1,627
Depreciation, amortisation and impairment	500	234	92	87	–	913

[1] The underlying results for Power Systems for 31 December 2018 have been restated to reclassify the North America Civil Nuclear business as non-core.

2 Segmental analysis continued

Reconciliation to reported results

	Core businesses £m	Non-core businesses [1,2] £m	Total underlying £m	Underlying adjustments and adjustments to foreign exchange £m	Group at actual exchange rates £m
Year ended 31 December 2019					
Revenue from sale of original equipment	7,373	83	7,456	596	8,052
Revenue from aftermarket services	7,888	106	7,994	541	8,535
Total revenue	15,261	189	15,450	1,137	16,587
Gross profit/(loss)	2,342	45	2,387	(1,445)	942
Commercial and administrative costs	(938)	(41)	(979)	(149)	(1,128)
Restructuring	(15)	1	(14)	14	–
Research and development costs	(688)	(8)	(696)	(74)	(770)
Share of results of joint ventures and associates	109	1	110	(6)	104
Operating profit/(loss)	810	(2)	808	(1,660)	(852)
Gain arising on disposal of businesses	–	–	–	139	139
Profit/(loss) before financing and taxation	810	(2)	808	(1,521)	(713)
Net financing	(223)	(2)	(225)	47	(178)
Profit/(loss) before taxation	587	(4)	583	(1,474)	(891)
Taxation	(281)	4	(277)	(143)	(420)
Profit/(loss) for the year	306	–	306	(1,617)	(1,311)
Attributable to:					
Ordinary shareholders			302	(1,617)	(1,315)
Non-controlling interests			4	–	4
Year ended 31 December 2018					
Revenue from sale of original equipment	7,172	358	7,530	285	7,815
Revenue from aftermarket services	7,114	423	7,537	377	7,914
Total revenue	14,286	781	15,067	662	15,729
Gross profit/(loss)	2,240	210	2,450	(1,252)	1,198
Commercial and administrative costs	(977)	(184)	(1,161)	(434)	(1,595)
Restructuring	(14)	(2)	(16)	16	–
Research and development costs	(650)	(39)	(689)	(79)	(768)
Share of results of joint ventures and associates	32	–	32	(28)	4
Operating profit/(loss)	631	(15)	616	(1,777)	(1,161)
Gain arising on the disposal of L'Orange	–	–	–	358	358
Profit/(loss) before financing and taxation	631	(15)	616	(1,419)	(803)
Net financing	(148)	(2)	(150)	(1,994)	(2,144)
Profit/(loss) before taxation	483	(17)	466	(3,413)	(2,947)
Taxation	(153)	(8)	(161)	715	554
Profit/(loss) for the year	330	(25)	305	(2,698)	(2,393)
Attributable to:					
Ordinary shareholders			297	(2,698)	(2,401)
Non-controlling interests			8	–	8

1 Includes the North America Civil Nuclear business and the Knowledge Management System business which have been treated as a disposal group held for sale at 31 December 2019, the Commercial Marine business disposed of on the 1 April 2019, RRPD disposed of on the 15 April 2019, L'Orange until the date of disposal on 1 June 2018 and other smaller non-core businesses including former Energy businesses not included in the disposal to Siemens in 2014 (Retained Energy). See note 27 for more details.
2 Non-core businesses for 31 December 2018 has been restated to include the North America Civil Nuclear business.

2 Segmental analysis continued

Disaggregation of revenue from contracts with customers

Analysis by type and basis of recognition

	Civil Aerospace £m	Power Systems [1] £m	Defence £m	ITP Aero [2] £m	Corporate and inter-segment £m	Core businesses £m
Year ended 31 December 2019						
Original equipment recognised at a point in time	**3,246**	**2,285**	**567**	**702**	**(478)**	**6,322**
Original equipment recognised over time	**–**	**101**	**894**	**80**	**(24)**	**1,051**
Aftermarket services recognised at a point in time	**1,599**	**1,026**	**696**	**48**	**(32)**	**3,337**
Aftermarket services recognised over time	**3,138**	**133**	**1,093**	**106**	**(43)**	**4,427**
Total underlying customer contract revenue [3]	**7,983**	**3,545**	**3,250**	**936**	**(577)**	**15,137**
Other underlying revenue	**124**	**–**	**–**	**–**	**–**	**124**
Total underlying revenue	**8,107**	**3,545**	**3,250**	**936**	**(577)**	**15,261**
Year ended 31 December 2018						
Original equipment recognised at a point in time	3,119	2,257	694	585	(355)	6,300
Original equipment recognised over time	–	53	758	81	(20)	872
Aftermarket services recognised at a point in time	1,575	996	718	(4)	21	3,306
Aftermarket services recognised over time	2,630	128	954	117	(75)	3,754
Total underlying customer contract revenue [3]	7,324	3,434	3,124	779	(429)	14,232
Other underlying revenue	54	–	–	–	–	54
Total underlying revenue	7,378	3,434	3,124	779	(429)	14,286

[1] The underlying revenue for Power Systems for 31 December 2018 has been re-presented to reclassify the North America Civil Nuclear business as non-core.
[2] ITP Aero prior year disaggregation of revenue has been restated to be consistent with current year presentation.
[3] Includes **£(93)m** (2018: £(196)m) of revenue recognised in the year relating to performance obligations satisfied in previous years.

	Core businesses £m	Non-core businesses [1,2] £m	Total underlying £m	Underlying adjustments and adjustments to foreign exchange [3] £m	Group at actual exchange rates £m
Year ended 31 December 2019					
Original equipment recognised at a point in time	**6,322**	**40**	**6,362**	**596**	**6,958**
Original equipment recognised over time	**1,051**	**43**	**1,094**	**–**	**1,094**
Aftermarket services recognised at a point in time	**3,337**	**94**	**3,431**	**313**	**3,744**
Aftermarket services recognised over time	**4,427**	**12**	**4,439**	**228**	**4,667**
Total customer contract revenue	**15,137**	**189**	**15,326**	**1,137**	**16,463**
Other revenue	**124**	**–**	**124**	**–**	**124**
Total revenue	**15,261**	**189**	**15,450**	**1,137**	**16,587**
Year ended 31 December 2018					
Original equipment recognised at a point in time	6,300	64	6,364	283	6,647
Original equipment recognised over time	872	294	1,166	2	1,168
Aftermarket services recognised at a point in time	3,306	388	3,694	148	3,842
Aftermarket services recognised over time	3,754	35	3,789	229	4,018
Total customer contract revenue	14,232	781	15,013	662	15,675
Other revenue	54	–	54	–	54
Total revenue	14,286	781	15,067	662	15,729

[1] Includes the North America Civil Nuclear business and the Knowledge Management System business which have been treated as a disposal group held for sale at 31 December 2019, the Commercial Marine business disposed of on the 1 April 2019, RRPD disposed of on 15 April 2019, L'Orange until the date of disposal on 1 June 2018 and other smaller non-core businesses including former Energy businesses not included in the disposal to Siemens in 2014 (Retained Energy). See note 27 for more details.
[2] Non-core businesses for 31 December 2018 has been restated to include North America Civil Nuclear business.
[3] Includes **£(187)m** (2018: £nil) of revenue recognised relating to performance obligations satisfied in previous years over and above that in underlying revenue.

2 Segmental analysis continued

Analysis by geographical destination

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

	2019 £m	2018 £m
United Kingdom	1,805	1,505
Germany	961	1,177
Switzerland	520	675
Spain	375	343
France	284	251
Italy	235	304
Russia	106	79
Norway	87	246
Rest of Europe	979	815
Europe	5,352	5,395
United States	4,720	5,041
Canada	298	366
North America	5,018	5,407
South America	377	351
United Arab Emirates	438	105
Rest of Middle East	714	584
Middle East	1,152	689
China	1,698	1,483
Singapore	702	452
Japan	607	365
South Korea	252	334
India	82	82
Malaysia	32	111
Rest of Asia	590	588
Asia	3,963	3,415
Africa	246	152
Australasia	361	229
Other	118	91
	16,587	15,729

Order backlog

Contracted consideration that is expected to be recognised as revenue when performance obligations are satisfied in the future (referred to as order backlog) is as follows:

	2019			2018		
	Within five years £bn	After five years £bn	Total £bn	Within five years £bn	After five years £bn	Total £bn
Civil Aerospace	22.9	25.6	48.5	22.1	30.2	52.3
Power Systems	2.6	0.3	2.9	2.9	0.2	3.1
Defence	7.7	0.9	8.6	6.3	0.5	6.8
ITP Aero	0.7	0.2	0.9	0.8	0.1	0.9
	33.9	27.0	60.9	32.1	31.0	63.1

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. We exclude Civil Aerospace OE orders (for deliveries beyond the next 7–12 months) that our customers have placed where they retain a right to cancel. Our expectation based on historical experience is that these orders will be fulfilled. Within the 0–5 years category, contracted revenue in: Defence will largely be recognised in the next three years; Power Systems will be recognised over the next two years as it is a short cycle business; and ITP Aero (where internal Group revenues have been eliminated) evenly spread over the next five years.

2 Segmental analysis continued

Underlying adjustments

	2019 Revenue £m	2019 Profit before financing £m	2019 Net financing £m	2018 Revenue £m	2018 Profit before financing £m	2018 Net financing £m
Underlying performance	15,450	808	(225)	15,067	616	(150)
Transactions recognised at exchange rate on date of cash flow and revaluation of trading assets/liabilities [1]	1,137	145	80	781	(23)	163
Impact of unrealised fair value changes to derivative contracts held for trading [2]	–	(1)	(6)	–	(1)	(2,144)
Impact of unrealised fair value changes to derivative contracts held for financing [3]	–	–	1	–	–	(3)
Exceptional programme charges [4,5]	–	(1,409)	–	(119)	(976)	(15)
Impact of discount rate changes [6]	–	–	(40)	–	–	–
Exceptional restructuring charges [4,7]	–	(136)	–	–	(317)	–
(Loss)/gains arising on the acquisitions and disposals [8]	–	(24)	(8)	–	183	(8)
Impairments and asset write-offs [9]	–	(84)	–	–	(155)	–
Other [10]	–	(12)	20	–	(130)	13
Total underlying adjustments	1,137	(1,521)	47	662	(1,419)	(1,994)
Reported per consolidated income statement	16,587	(713)	(178)	15,729	(803)	(2,144)

[1] The adjustments for realised gains/(losses) on settled derivative contracts include adjustments to reflect the gains/(losses) in the same period as the related trading cash flows.
[2] The adjustments for unrealised fair value changes to derivative contracts contain those included in equity accounted joint ventures and exclude those for which the related trading contracts have been cancelled when the fair value changes are recognised immediately in underlying profit before taxation.
[3] Includes the losses on hedge ineffectiveness in the period of **£13m** (2018: losses £3m).
[4] The table below summarises the exceptional items recorded in 2019 and 2018.

	Year to 31 December 2019 £m	2018 £m
Programme charges and associated contract losses [5]	1,409	976
Related foreign exchange impact [5]	171	147
Restructuring charges [7]	136	317
Pension charges [10]	–	121
	1,716	1,561

[5] Included within programme exceptional items is **£1,361m** (2018: £790m), **£1,531m** (2018: £905m) at prevailing exchange rates, in respect of the abnormal wastage costs on the Trent 1000. This includes £0.2bn of insurance receipts in respect of the Trent 1000 in-service issues. In addition, there is an exceptional item of **£48m** (2018: 186m), **£49m** (2018: £218m) at prevailing exchange rates that relates to the decision by Airbus to cease A380 deliveries in 2021. For information on the associated provisions – see note 20.
[6] Included within discount rate changes is £30m relating to Trent 900 and £10m relating to Trent 1000 for the impact from the change in discount rates on contract losses recorded in exceptional items in prior years as a result of the fall in US bonds, which drives the calculation of the risk-free rate.
[7] The Group recorded an exceptional restructuring charge of **£136m** (2018: £317m) in the year. The costs include: **£88m** (2018: £223m) in respect of the Group-wide restructuring programme announced on 14 June 2018; costs relating to ongoing multi-year significant restructuring programmes including restructuring at Power Systems and in respect of Defence, reflecting actions to remove cost and improve operational efficiency.
[8] (Loss)/gains arising on the acquisitions and disposals of businesses. See note 27 for more details (also including the amortisation of intangible assets arising on previous acquisitions).
[9] In 2019, there has been an impairment of £58m relating to Bergen Engines AS, and impairment charge and asset write offs of £26m following the announcement to sell the North America Civil Nuclear business within the Power Systems business segment. The impairment charge in 2018 of £155m related to Commercial Marine.
[10] Other includes the 2018 cost of equalisation of pension benefits between men and women – see note 21.

Appropriate rates of tax have been applied to adjustments made to profit before tax in the table above. Adjustments in 2019 which impact the UK tax loss have an effective tax rate of zero. See note 5 for more details. The total underlying adjustments to profit before tax in 2019 are a charge of £143m (2018: credit £715m). The charge in 2019 was £57m plus an additional charge of £86m relating to the derecognition of UK deferred tax assets on foreign exchange and commodity financial assets and liabilities. The credit in 2018 was £672m plus an additional credit of £43m relating to the reduction in the Spanish Basque region tax rate.

2 Segmental analysis continued

Reconciliation to the balance sheet

	2019 £m	2018 £m
Reportable segment assets	23,968	21,164
Interests in joint ventures and associates	402	412
Non-core businesses	84	188
Assets held for sale	18	750
Cash and cash equivalents and short-term investments	4,449	4,980
Fair value of swaps hedging fixed rate borrowings	249	293
Deferred and income tax assets	1,926	2,126
Post-retirement scheme surpluses	1,170	1,944
Total assets	32,266	31,857
Reportable segment liabilities	(27,703)	(25,309)
Non-core businesses	(43)	(159)
Liabilities associated with assets held for sale	(15)	(376)
Borrowings and lease liabilities	(5,685)	(4,662)
Fair value of swaps hedging fixed rate borrowings	(6)	–
Deferred and income tax liabilities	(790)	(1,100)
Post-retirement scheme deficits	(1,378)	(1,303)
Total liabilities	(35,620)	(32,909)
Net liabilities	(3,354)	(1,052)

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

	2019 £m	2018 £m
United Kingdom	6,446	4,626
Germany	2,568	2,604
United States	1,506	1,338
Spain	1,324	1,380
Other	826	710
	12,670	10,658

3 Research and development

	2019 £m	2018 £m
Expenditure in the year	(1,118)	(1,145)
Capitalised as intangible assets	481	498
Amortisation and impairment of capitalised costs [1]	(133)	(121)
Net cost recognised in the income statement	(770)	(768)
Underlying adjustments relating to effects of acquisition accounting and foreign exchange	74	79
Net underlying cost recognised in the income statement	(696)	(689)

[1] See note 9 for analysis of amortisation and impairment.

4 Net financing

		2019		2018	
	Note	Per consolidated income statement £m	*Underlying financing* [1] £m	Per consolidated income statement £m	*Underlying financing* [1] £m
Interest receivable		**31**	***31***	27	*27*
Net fair value gains on non-hedge accounted interest rate swaps [2]	19	**14**	**–**	–	–
Financial RRSAs – foreign exchange differences and changes in forecast payments	19	**11**	**–**	25	–
Net fair value gains on commodity contracts	19	**36**	**–**	–	–
Financing on post-retirement scheme surpluses	21	**60**	**–**	56	–
Net foreign exchange gains		**100**	**–**	163	–
Financing income		**252**	***31***	271	*27*
Interest payable		**(182)**	***(163)***	(107)	*(99)*
Net fair value losses on foreign currency contracts	19	**(43)**	**–**	(2,122)	–
Financial RRSAs – foreign exchange differences and changes in forecast payments	19	**(10)**	**–**	(27)	–
Financial charge relating to financial RRSAs	19	**(3)**	***(3)***	(8)	*(8)*
Net fair value losses on commodity contracts	19	**–**	**–**	(22)	–
Financing on post-retirement scheme deficits	21	**(37)**	**–**	(33)	–
Other financing charges		**(155)**	***(90)***	(96)	*(70)*
Financing costs		**(430)**	***(256)***	(2,415)	*(177)*
Net financing costs		**(178)**	***(225)***	(2,144)	*(150)*
Analysed as:					
Net interest payable		**(151)**	***(132)***	(80)	*(72)*
Net fair value gains/(losses) on derivative contracts		**7**	**–**	(2,144)	–
Net post-retirement scheme financing		**23**	**–**	23	–
Net other financing		**(57)**	***(93)***	57	*(78)*
Net financing costs		**(178)**	***(225)***	(2,144)	*(150)*

[1] See note 2 for definition of underlying results.
[2] The consolidated income statement shows the net fair value gain on any interest rate swaps not designated into hedging relationships for accounting purposes. Underlying financing reclassifies the interest receivable on these interest rates swaps from fair value movement to interest payable.

5 Taxation

	UK		Overseas		Total	
	2019 £m	2018 £m	**2019 £m**	2018 £m	**2019 £m**	2018 £m
Current tax charge for the year	**15**	13	**228**	167	**243**	180
Adjustments in respect of prior years	**(4)**	(13)	**(3)**	15	**(7)**	2
Current tax	**11**	–	**225**	182	**236**	182
Deferred tax charge/(credit) for the year	**117**	(630)	**(24)**	(43)	**93**	(673)
Adjustments in respect of prior years	**20**	22	**(15)**	(42)	**5**	(20)
Derecognition of deferred tax	**86**	–	**–**	–	**86**	–
Deferred tax credit resulting from reduction in tax rates	**–**	–	**–**	(43)	**–**	(43)
Deferred tax	**223**	(608)	**(39)**	(128)	**184**	(736)
Charged/(credited) in the income statement	**234**	(608)	**186**	54	**420**	(554)

5 Taxation continued

Other tax credits/(charges)

	OCI				Equity	
	Items that will not be reclassified		Items that may be reclassified			
	2019 £m	2018 £m	2019 £m	2018 £m	2019 £m	2018 £m
Deferred tax:						
Movement in post-retirement schemes	324	(2)	–	–	–	–
Share-based payments – direct to equity	–	–	–	–	1	2
Cash flow hedge	–	–	(5)	5	–	–
Net investment hedge	–	–	(1)	–	–	–
Other tax credits/(charges)	324	(2)	(6)	5	1	2

Tax reconciliation

	2019 £m	2018 £m
Loss before taxation	(891)	(2,947)
Less share of results of joint ventures and associates (note 12)	(141)	(114)
Loss before taxation excluding joint ventures and associates	(1,032)	(3,061)
Nominal tax credit at UK corporation tax rate **19%** (2018: 19%)	(196)	(582)
UK tax rate differential [1]	56	51
Overseas rate differences [2]	58	91
Impairment of goodwill	1	29
Exempt gain on the disposal of Commercial Marine	(20)	–
Exempt gain on the disposal of L'Orange	–	(117)
R&D credits	(34)	(23)
Other permanent differences	8	36
Tax losses in year not recognised in deferred tax [3]	463	22
Derecognition of deferred tax [4]	86	–
Adjustments in respect of prior years	(2)	(18)
Reduction in closing deferred taxes resulting from decrease in tax rate in the Spanish Basque region	–	(43)
	420	(554)
Underlying items (note 2)	277	161
Non-underlying items	143	(715)
	420	(554)

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 in countries, such as the US and Germany, which have higher tax rates than the UK.
3 Tax losses not recognised mainly relate to the UK in 2019 – see pages 143 to 144.
4 Derecognition of deferred tax assets relating to foreign exchange and commodity financial assets and liabilities – see page 144.

Deferred taxation assets and liabilities

	2019 £m	2018 £m
At 1 January	1,130	380
Impact of adopting IFRS 16 (2018: Impact of adopting IFRS 9)	8	2
Amount (charged)/credited to income statement	(184)	736
Amount credited/(charged) to other comprehensive income	323	(2)
Amount (charged)/credited to cash flow hedge reserve	(5)	5
Amount credited to equity	1	2
On disposal/acquisition of businesses [1]	(3)	6
Transferred to assets held for sale [2]	(2)	(4)
Exchange differences	1	5
At 31 December	1,269	1,130
Deferred tax assets	1,887	2,092
Deferred tax liabilities	(618)	(962)
	1,269	1,130

1 The 2019 deferred tax on disposal of businesses relates to Commercial Marine. The 2018 comparative relates to the disposal of L'Orange.
2 The 2019 deferred tax transferred to assets held for sale relates to the North America Civil Nuclear business. The 2018 comparative relates to Commercial Marine.

5 Taxation continued

The analysis of the deferred tax position is as follows:

	At 1 January £m	Impact of adopting IFRS 16 £m	At 1 January restated £m	Recognised in income statement £m	Recognised in OCI £m	Recognised in equity £m	Merger and acquisition related activity £m	Exchange differences £m	At 31 December £m
2019									
Intangible assets	(620)	–	(620)	(135)	–	–	(2)	31	(726)
Property, plant and equipment	(85)	(74)	(159)	10	–	–	(1)	12	(138)
Other temporary differences	164	82	246	147	(6)	1	2	(16)	374
Net contract liabilities	57	–	57	(2)	–	–	–	–	55
Pensions and other post-retirement scheme benefits	(461)	–	(461)	(1)	324	–	(3)	(13)	(154)
Foreign exchange and commodity financial assets and liabilities	625	–	625	(200)	–	–	–	–	425
Losses	1,010	–	1,010	9	–	–	(1)	(1)	1,017
R&D credit	277	–	277	(12)	–	–	–	(12)	253
Advance corporation tax	163	–	163	–	–	–	–	–	163
	1,130	8	1,138	(184)	318	1	(5)	1	1,269

	At 1 January £m	Impact of adopting IFRS 9 £m	At 1 January restated £m	Recognised in income statement £m	Recognised in OCI £m	Recognised in equity £m	Merger and acquisition related activity £m	Exchange differences £m	At 31 December £m
2018									
Intangible assets	(419)	–	(419)	(203)	–	–	5	(3)	(620)
Property, plant and equipment	(158)	–	(158)	77	–	–	1	(5)	(85)
Other temporary differences	258	2	260	(106)	5	2	(1)	4	164
Net contract liabilities	63	–	63	(6)	–	–	–	–	57
Pensions and other post-retirement scheme benefits	(482)	–	(482)	19	(2)	–	(3)	7	(461)
Foreign exchange and commodity financial assets and liabilities	381	–	381	244	–	–	–	–	625
Losses	306	–	306	704	–	–	–	–	1,010
R&D credit	268	–	268	7	–	–	–	2	277
Advance corporation tax	163	–	163	–	–	–	–	–	163
	380	2	382	736	3	2	2	5	1,130

Unrecognised deferred tax assets

	2019 £m	2018 £m
Advance corporation tax	19	19
UK losses	438	–
Foreign exchange and commodity financial assets and liabilities	86	–
Losses and other unrecognised deferred tax assets	68	111
Deferred tax not recognised on unused tax losses and other items on the basis that future economic benefit is uncertain	611	130

Deferred tax assets of **£1,887m** include **£1,010m** (2018: £998m) relating to tax losses in the UK and **£163m** (2018: £163m) relating to Advance Corporation Tax (ACT). These assets have been recognised based on the expectation that the UK business will generate taxable profits and tax liabilities in the future against which the losses and ACT can be utilised.

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

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

5 Taxation continued

The recoverability of UK deferred tax assets relating to UK tax losses and ACT has been assessed in 2019 on the following basis:

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

The assessment takes into account UK tax laws that, in broad terms, restrict the offset of the carried forward tax losses to 50% of current year profits. Based on this assessment, the Group has recognised a deferred tax asset of £1,010m relating to losses and £163m relating to ACT. This reflects the Group's conclusions that:

- It is probable that the UK business will generate taxable income and tax liabilities in the future against which these losses and the ACT can be utilised.
- Based on current forecasts and using various scenarios these losses and the ACT will be used in full within the next 20 to 30 years which is within the expected widebody engine programme lifecycles.

A deferred tax asset of £438m has not been recognised. This is based on management's assumptions relating to the amounts and timing of future taxable profits and takes into account that higher losses were incurred in 2019 than expected, primarily due to the recognition of a £1.4bn exceptional charge in respect of the Trent 1000.

Changes in future profits will impact the recoverability of the deferred tax assets, and as explained in note 1, the key assumptions impact contract margins. A 5% change in such margins would result in around a £2bn change in UK profits over the remaining life of the programmes against which the recovery of the tax losses and ACT would be assessed. Such a variance could result in a change of up to £170m in the related deferred tax balances recorded on the Group balance sheet, assuming a 17% tax rate and the 50% loss offset restriction mentioned above.

The Group has also reassessed the recovery of other deferred tax assets, including those arising on unrealised losses on derivative contracts. Whilst the deferred tax asset has reduced anyway as a result of the reduction in the unrealised losses in 2019, the Group has also derecognised £86m in line with the approach outlined above. The impact of this is non-underlying.

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

The 2016 Budget announced that the UK tax rate will reduce to 17% with effect from 1 April 2020. The rate reduction to 17% has been substantively enacted on 6 September 2016. The deferred tax assets and liabilities of UK companies within the Group have therefore been calculated at 17%.

The temporary differences associated with investments in subsidiaries, joint ventures and associates, for which a deferred tax liability has not been recognised, aggregate to **£108m** (2018: £99m). No deferred tax liability has been recognised on the potential withholding tax due on the remittance of undistributed profits as the Group is able to control the timing of such remittances and it is probable that consent will not be given in the foreseeable future.

6 Earnings per ordinary share

Basic earnings per ordinary share (EPS) is calculated by dividing the loss attributable to ordinary shareholders by the weighted average number of ordinary shares in issue during the year, excluding ordinary shares held under trust, which have been treated as if they had been cancelled.

Diluted EPS is calculated by adjusting the weighted average number of ordinary shares in issue during the year for the bonus element of share options.

	2019			2018		
	Basic	**Potentially dilutive share options** [1]	**Diluted**	Basic	Potentially dilutive share options [1]	Diluted
Loss attributable to ordinary shareholders (£m)	**(1,315)**		**(1,315)**	(2,401)		(2,401)
Weighted average number of ordinary shares (millions)	**1,904**	**–**	**1,904**	1,859	–	1,859
EPS (pence)	**(69.07p)**	**–**	**(69.07p)**	(129.15p)	–	(129.15p)

[1] As there is a loss, the effect of potentially dilutive ordinary shares is antidilutive.

The reconciliation between underlying EPS and basic EPS is as follows:

	2019		2018	
	Pence	**£m**	Pence	£m
Underlying EPS/underlying profit attributable to ordinary shareholders	**15.86**	**302**	15.98	297
Total underlying adjustments to loss before tax (note 2)	**(77.42)**	**(1,474)**	(183.59)	(3,413)
Related tax effects	**(7.51)**	**(143)**	38.46	715
EPS/loss attributable to ordinary shareholders	**(69.07)**	**(1,315)**	(129.15)	(2,401)
Diluted underlying EPS	**15.86**		15.98	

7 Auditors' remuneration

	2019 £m	2018 £m
Fees payable to the Company's auditors and its associates for the audit of the Parent Company and Consolidated Financial Statements	2.8	1.8
Fees payable to the Company's auditor and its associates for the audit of the Company's subsidiaries pursuant to legislation [1]	7.0	7.3
Total fees payable for audit services	9.8	9.1
Fees payable to the Company's auditor and its associates for other services:		
Audit related assurance services [2]	0.5	0.5
Other assurance services [3]	0.6	0.4
Total fees payable to the Company's auditor and its associates [4]	10.9	10.0
Fees payable in respect of the Group's pension schemes:		
Audit	0.1	0.1

1 The level of fees payable to the Company's auditor for the audit of the Company's Financial Statements reflects the fact that limited incremental work is required in respect of the audit of these financial statements. Rolls-Royce plc, a subsidiary of the Company, is also required to prepare Consolidated Financial Statements and the fees payable to the Company's auditor for the audit of those financial statements, including the audit of the sub-consolidation, is included in the audit of the Company's subsidiaries pursuant to legislation.
2 This includes **£0.5m** (2018: £0.5m) for the review of the half-year report.
3 This relates to the audit of grant claims.
4 Audit fees for overseas entities are reported at the average exchange rate for the year.

8 Employee information

	2019 Number	2018 Number
United Kingdom	23,300	23,400
Germany	9,800	10,000
United States	6,000	6,300
Spain	3,200	2,800
Nordics	1,300	3,000
Singapore	1,300	1,400
Canada	1,000	1,000
India	1,000	1,000
Italy	900	800
France	700	700
Rest of world	3,200	4,100
Monthly average number of employees	51,700	54,500
Civil Aerospace	26,100	25,500
Power Systems	10,400	10,500
Defence	9,900	10,500
ITP Aero	3,900	3,700
Corporate [1]	100	100
Core businesses	50,400	50,300
Non-core businesses [2]	1,300	4,200
Monthly average number of employees	51,700	54,500

	2019 £m	2018 £m
Wages, salaries and benefits	3,075	3,208
Social security costs	473	479
Share-based payments (note 23)	30	35
Pensions and other post-retirement scheme benefits (note 21)	356	470
Group employment costs [3]	3,934	4,192

1 Corporate consists of employees who do not provide a shared service to the business segments. Where corporate functions provide such a service, employees have been allocated to the business segments on an appropriate basis.
2 Includes the North America Civil Nuclear business (disposal group held for sale), Commercial Marine (disposed of on 1 April 2019), RRPD (disposed of on 15 April 2019), L'Orange (disposed of on 1 June 2018) and Retained Energy. See note 27 for more details.
3 Remuneration of key management personnel is shown in note 26.

9 Intangible assets

	Goodwill £m	Certification costs £m	Development expenditure £m	Customer relationships £m	Software £m	Other £m	Total £m
Cost							
At 1 January 2018	1,869	917	2,459	1,432	869	794	8,340
Additions	–	35	498	–	110	37	680
Transferred to assets held for sale [1]	(666)	–	(38)	(26)	(6)	(12)	(748)
Disposal of L'Orange [2]	(136)	–	(48)	(40)	–	(11)	(235)
Disposals	–	(4)	(1)	–	(16)	–	(21)
Reclassifications	5	–	–	–	3	(3)	5
Exchange differences	15	–	13	18	4	6	56
At 31 December 2018	1,087	948	2,883	1,384	964	811	8,077
Additions	**–**	**15**	**481**	**–**	**101**	**43**	**640**
Acquisition of businesses	**11**	**–**	**–**	**–**	**4**	**23**	**38**
Transferred to assets held for sale [1]	**(34)**	**–**	**(11)**	**(16)**	**(3)**	**(11)**	**(75)**
Disposals	**–**	**–**	**(8)**	**(1)**	**(111)**	**(19)**	**(139)**
Reclassifications from PPE	**–**	**–**	**17**	**–**	**19**	**(18)**	**18**
Exchange differences	**(40)**	**(1)**	**(68)**	**(64)**	**(7)**	**(26)**	**(206)**
At 31 December 2019	**1,024**	**962**	**3,294**	**1,303**	**967**	**803**	**8,353**
Accumulated amortisation and impairment							
At 1 January 2018	324	339	1,045	256	488	323	2,775
Charge for the year [3]	–	35	114	90	103	39	381
Impairment	155	–	7	–	22	–	184
Transferred to assets held for sale [1]	(439)	–	(29)	(21)	(1)	(12)	(502)
Disposal of L'Orange [2]	–	–	(31)	(27)	–	(8)	(66)
Disposals	–	–	–	–	(8)	–	(8)
Reclassifications	5	(1)	–	–	1	–	5
Exchange differences	(3)	–	5	6	2	3	13
At 31 December 2018	42	373	1,111	304	607	345	2,782
Charge for the year [3]	**–**	**19**	**113**	**72**	**88**	**26**	**318**
Impairment	**18**	**–**	**20**	**9**	**7**	**–**	**54**
Transferred to assets held for sale [1]	**(34)**	**–**	**(11)**	**(16)**	**(3)**	**(11)**	**(75)**
Disposals	**–**	**–**	**(7)**	**(1)**	**(99)**	**(19)**	**(126)**
Reclassifications from PPE	**–**	**–**	**–**	**–**	**10**	**(1)**	**9**
Exchange differences	**4**	**–**	**(25)**	**(14)**	**(5)**	**(11)**	**(51)**
At 31 December 2019	**30**	**392**	**1,201**	**354**	**605**	**329**	**2,911**
Net book value							
At 31 December 2019	**994**	**570**	**2,093**	**949**	**362**	**474**	**5,442**
At 31 December 2018	1,045	575	1,772	1,080	357	466	5,295

[1] The North America Civil Nuclear business was classified as a disposal group held for sale on 26 September 2019, prior to this an impairment of goodwill of £15m was recognised. The Commercial Marine business was classified as a disposal group held for sale on 30 June 2018 – see note 27.
[2] The disposal of the L'Orange business to Woodward Inc. was completed on 1 June 2018 – see note 27.
[3] Charged to cost of sales and commercial and administrative costs except development costs, which are charged to research and development costs.

9 Intangible assets continued

Goodwill

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

	Primary reporting segment	2019 £m	2018 £m
Rolls-Royce Power Systems AG	Power Systems	718	750
Rolls-Royce Deutschland Ltd & Co KG	Civil Aerospace	234	246
Other	Various	42	49
		994	1,045

Goodwill has been tested for impairment during 2019 on the following basis:

- The carrying values of goodwill have been assessed by reference to value in use. These have been estimated using cash flows from the most recent forecasts prepared by management, 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 a range of growth rates between 1.0%–2.5% that reflect the products, industries and countries in which the relevant CGU or group of CGUs operate.
- The key assumptions for the impairment tests are the discount rate and, in the cash flow projections, the programme assumptions, the growth rates and the impact of foreign exchange rates on the relationship between selling prices and costs. Impairment tests are performed using prevailing exchange rates.

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

Rolls-Royce Power Systems AG

- trading assumptions (e.g. volume of equipment deliveries, pricing achieved and cost escalation) are based on current and known future programmes, estimates of capture of market share and long-term economic forecasts;
- cash flows beyond the five-year forecasts are assumed to grow at **1.0%** (2018: 1.8%); and
- pre-tax discount rate **12%** (2018: 12%).

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

Rolls-Royce Deutschland Ltd & Co KG

- trading assumptions (e.g. volume of engine deliveries, flying hours of installed fleet and cost escalation) are based on current and known future programmes, estimates of customers' fleet requirements and long-term economic forecasts;
- cash flows beyond the five-year forecasts are assumed to grow at **2.5%** (2018: 2.5%); and
- pre-tax discount rate **14%** (2018: 13%).

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

Commercial Marine

On 6 July 2018, the Group announced the sale of Commercial Marine to KONGSBERG. The disposal met the criteria of IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations* that where the carrying value of a disposal group is expected to be recovered through a sale transaction, the disposal group should be treated as held for sale, with assets and liabilities presented separately on the balance sheet measured at the lower of carrying value or fair value less costs to sell.

As a result of the classification of the Commercial Marine business as a disposal group, its carrying value was assessed against the anticipated proceeds and the disposal costs. An impairment charge of £155m for the related goodwill (with an additional £5m impairment charge to property, plant and equipment) was recognised in the income statement at 31 December 2018 and the remaining net balance of £227m transferred to assets held for sale and associated liabilities.

The Commercial Marine business was disposed of on 1 April 2019 – see note 27.

9 Intangible assets continued

Other intangible assets (including programme-related intangible assets)

Other intangible assets have been reviewed for impairment in accordance with the requirements of IAS 36 *Impairment of Assets*. Where an impairment test was considered necessary, it has been performed on the following basis:

- The carrying values have been assessed by reference to value in use. These have been estimated using cash flows from the most recent forecasts prepared by management, which are consistent with past experience and external sources of information on market conditions over the lives of the respective programmes.
- The key assumptions underlying cash flow projections are assumed market share, programme timings, unit cost assumptions, discount rates, and foreign exchange rates.
- The pre-tax cash flow projections have been discounted at **7%–15%** (2018: 7%–13%), based on the Group's weighted average cost of capital, adjusted for the estimated programme risk, for example taking account of whether or not the forecast cash flows arise from contracted business.

In addition, for programme-related intangible assets, these have been reviewed for impairment in accordance with the requirements of IAS 36. Where there is a triggering event, an impairment test has been performed on the following basis:

- The programme related intangible asset's carrying value as at 31 December is compared to the asset's recoverable amount. The Group has determined that the recoverable amount of the asset should be calculated on a value in use basis as this represents the highest value to the Group in terms of the future cash flows that it can generate.
- Future cash flows used in the value in use calculations are based on our most recent forecasts prepared by management and are discounted using a pre-tax discount rate that reflects current market assessment of the time value of money. These forecasts include contracted business together with management's expectation of speculative business over the life of the programme together with cash outflows that are necessary to maintain the current level of economic benefit expected to arise from the asset in its current condition.
- The key programme assumptions underlying cash flow projections are forecast market share and pricing, engine flying hours, number of shop visits/cost of shop visits, R&D, capital investment and foreign exchange rates.
- The pre-tax cash flow projections have been discounted at **7%–15%** (2018: 7%–13%).

No impairment was identified (2018: no impairment). For programmes where the headroom could be significantly reduced over the next 12 months any of the following changes in assumptions, in isolation, would cause the recoverable amount of the programme assets to equal its carrying value:

- an increase in discount rates by 36%
- an increase in costs of 10%

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

	Residual life	Net book value 2019 £m	Net book value 2018 £m
Trent programme intangible assets [1]	7–15 years	**1,720**	1,524
Business Aviation programme intangible assets [2]	15 years	**587**	393
Customer relationship assets on acquisition of ITP Aero	typically 13–35 years	**676**	740
Intangible assets from acquisition of Power Systems [3]		**489**	578
		3,472	3,235

[1] Included within the Trent programmes are the Trent 1000, Trent 7000 and Trent XWB.
[2] Included within Business Aviation are the Pearl 700 and Pearl 15.
[3] Includes £109m in respect of a brand intangible asset which is not amortised. Remaining assets are amortised over a range of 2–10 years.

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

10 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 2018	1,842	5,022	734	773	8,371
Additions	54	273	251	396	974
Transferred to assets held for sale [1]	(91)	(138)	–	(30)	(259)
Disposal of L'Orange [2]	(23)	(72)	–	(4)	(99)
Disposals/write-offs	(29)	(140)	(19)	–	(188)
Reclassifications	140	287	(3)	(424)	–
Exchange differences	23	64	4	11	102
At 31 December 2018	1,916	5,296	967	722	8,901
Impact of adopting IFRS 16 (note 29)	(12)	(11)	(205)	(29)	(257)
At 1 January 2019	**1,904**	**5,285**	**762**	**693**	**8,644**
Additions	**27**	**286**	**126**	**328**	**767**
Acquisition of businesses	**–**	**3**	**–**	**–**	**3**
Transferred to assets held for sale [1]	**(5)**	**(9)**	**–**	**(2)**	**(16)**
Disposal of businesses	**(4)**	**(168)**	**–**	**–**	**(172)**
Disposals/write-offs	**(54)**	**(187)**	**(17)**	**(4)**	**(262)**
Reclassifications [3]	**186**	**390**	**11**	**(605)**	**(18)**
Reclassification of joint venture to joint operations	**5**	**3**	**–**	**–**	**8**
Exchange differences	**(39)**	**(106)**	**(6)**	**(9)**	**(160)**
At 31 December 2019	**2,020**	**5,497**	**876**	**401**	**8,794**
Accumulated depreciation					
At 1 January 2018	554	2,984	173	2	3,713
Charge for the year [4]	67	376	80	–	523
Impairment	–	2	–	5	7
Transferred to assets held for sale [1]	(26)	(96)	–	–	(122)
Disposal of L'Orange [2]	(4)	(34)	–	–	(38)
Disposals/write-offs	(19)	(123)	(9)	–	(151)
Exchange differences	7	33	–	–	40
At 31 December 2018	579	3,142	244	7	3,972
Impact of adopting of IFRS 16 (note 29)	(7)	(13)	(40)	–	(60)
At 1 January 2019	**572**	**3,129**	**204**	**7**	**3,912**
Charge for the year [4]	**67**	**381**	**43**	**–**	**491**
Impairment	**1**	**29**	**–**	**11**	**41**
Transferred to assets held for sale [1]	**(5)**	**(9)**	**–**	**(1)**	**(15)**
Disposal of businesses	**–**	**(165)**	**–**	**–**	**(165)**
Disposals/write-offs	**(45)**	**(150)**	**(5)**	**(1)**	**(201)**
Reclassifications [3]	**9**	**6**	**(19)**	**(5)**	**(9)**
Reclassification of joint venture to joint operations	**1**	**3**	**–**	**–**	**4**
Exchange differences	**(10)**	**(57)**	**–**	**–**	**(67)**
At 31 December 2019	**590**	**3,167**	**223**	**11**	**3,991**
Net book value					
At 31 December 2019	**1,430**	**2,330**	**653**	**390**	**4,803**
At 1 January 2019	**1,332**	**2,156**	**558**	**686**	**4,732**
At 31 December 2018	1,337	2,154	723	715	4,929

[1] The North America Civil Nuclear business was classified as a disposal group held for sale on 26 September 2019. The Commercial Marine business was classified as a disposal group held for sale on 30 June 2018 – see note 27.
[2] The disposal of the L'Orange business to Woodward Inc. was completed on 1 June 2018 – see note 27.
[3] Includes reclassifications for assets under construction and to intangible assets.
[4] Depreciation charged during the year is presented in the income statement or included in the cost of inventory as appropriate.

10 Property, plant and equipment continued

Property, plant and equipment includes:

	2019 £m	2018 £m
Assets held for use in operating leases		
Cost	720	813
Depreciation	(214)	(192)
Net book value	506	621
Capital expenditure commitments	317	362
Cost of fully depreciated assets	1,666	1,498
Cost of fully depreciated assets included in assets held for sale	2	75

The Group's share of equity accounted entities' capital commitments is **£30m** (2018: £9m).

11 Right-of-use assets

	Land and buildings £m	Plant and equipment £m	Aircraft and engines £m	Total £m
Cost				
At 31 December 2018	–	–	–	–
Impact of adopting IFRS 16 (see note 29)	493	107	1,654	2,254
Transferred to assets held for sale [1]	(40)	(1)	–	(41)
At 1 January 2019	453	106	1,654	2,213
Additions/modifications of leases	70	28	129	227
Transferred to assets held for sale [1]	(4)	–	–	(4)
Disposals	(2)	(4)	(13)	(19)
Exchange differences	(13)	(2)	(3)	(18)
At 31 December 2019	504	128	1,767	2,399
Accumulated depreciation and impairment				
At 1 January 2019	–	–	–	–
Charge for the year	58	32	309	399
Impairment	1	1	10	12
Transferred to assets held for sale [1]	(1)	–	–	(1)
Disposals	(2)	(4)	(13)	(19)
Exchange differences	(1)	–	–	(1)
At 31 December 2019	55	29	306	390
Net book value				
At 31 December 2019	449	99	1,461	2,009
At 1 January 2019	453	106	1,654	2,213
At 31 December 2018	–	–	–	–
Right-of-use assets held for use in operating leases				
Cost	4	2	1,767	1,773
Depreciation	(2)	(1)	(306)	(309)
Net book value at 31 December 2019	2	1	1,461	1,464

[1] The North America Civil Nuclear business was classified as a disposal group held for sale on 26 September 2019. The Commercial Marine business was classified as a disposal group held for sale on 30 June 2018 – see note 27.

12 Investments

Composition of the Group

The entities contributing to the Group's financial results are listed on pages 187 to 193.

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

Non-controlling interests

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

Equity accounted and other investments

	Equity accounted			Other
	Joint ventures £m	Associates £m	Total £m	Unlisted £m
At 1 January 2018	375	–	375	26
Additions	17	–	17	6
Disposals	–	–	–	(3)
Impairment	(7)	–	(7)	(2)
Consolidation of previously non-consolidated subsidiary	–	–	–	(5)
Share of retained loss [1]	(101)	–	(101)	–
Reclassification of deferred profit to deferred income [2]	70	–	70	–
Exchange differences	41	–	41	–
Share of OCI	17	–	17	–
At 1 January 2019	**412**	**–**	**412**	**22**
Additions	8	–	8	2
Disposals	(4)	–	(4)	(6)
Transfer from joint venture to joint operation	(3)	–	(3)	–
Impairment	–	–	–	(1)
Consolidation of previously non-consolidated subsidiary	–	–	–	(4)
Share of retained profit [1]	12	–	12	–
Reclassification of deferred profit to deferred income [2]	4	–	4	–
Exchange differences	(19)	–	(19)	1
Share of OCI	(8)	–	(8)	–
At 31 December 2019	**402**	**–**	**402**	**14**

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

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

	2019 £m	2018 £m
Share of results of joint ventures and associates	141	114
Adjustments for intercompany trading	(37)	(110)
Share of results of joint ventures and associates to the Group (income statement)	104	4
Dividends paid by joint ventures and associates to the Group (cash flow statement)	(92)	(105)
Share of retained profit/(loss) above [1]	12	(101)

[1] During the year, we sold spare engines to Rolls-Royce & Partners Finance, a joint venture company.

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%

12 Investments continued

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

	APL		HAESL		SAESL	
	2019 £m	2018 £m	2019 £m	2018 £m	2019 £m	2018 £m
Revenue	322	254	1,907	1,497	1,529	1,141
Profit and total comprehensive income for the year	107	61	81	72	47	41
Dividends paid during the year	(29)	(47)	(76)	(65)	(42)	(43)
Profit for the year included the following:						
Depreciation and amortisation	(146)	(110)	(15)	(13)	(16)	(12)
Interest income	4	1	–	–	–	–
Interest expense	(89)	(58)	(3)	(2)	(6)	(3)
Income tax expense	(22)	(14)	(16)	(14)	(3)	(4)
Current assets	119	355	453	421	433	379
Non-current assets	3,319	2,759	113	124	172	161
Current liabilities	(230)	(755)	(269)	(248)	(264)	(207)
Non-current liabilities	(2,617)	(1,825)	(103)	(101)	(163)	(164)
Net assets	591	534	194	196	178	169
Included in the above:						
Cash and cash equivalents	25	103	4	46	14	17
Current financial liabilities [1]	(182)	(702)	–	–	–	–
Non-current financial liabilities [1]	(2,364)	(1,603)	(89)	(88)	(163)	(164)
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	296	267	97	98	89	85
Goodwill	–	–	35	36	94	97
Adjustments for intercompany trading	(296)	(267)	(7)	(3)	(1)	–
Included in the balance sheet	–	–	125	131	182	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		Associates		Total	
	2019 £m	2018 * £m	2019 £m	2018 * £m	2019 £m	2018 £m	2019 £m	2018 * £m
Assets:								
Non-current assets	1,802	1,522	745	911	–	–	2,547	2,433
Current assets	503	578	456	467	–	–	959	1,045
Liabilities: [1]								
Current liabilities	(382)	(605)	(322)	(262)	–	–	(704)	(867)
Non-current liabilities	(1,441)	(1,045)	(703)	(802)	–	–	(2,144)	(1,847)
Group adjustment for goodwill	129	133	–	–	–	–	129	133
Adjustment for intercompany trading	(304)	(270)	(81)	(215)	–	–	(385)	(485)
	307	313	95	99	–	–	402	412
[1] Liabilities include borrowings of	(1,399)	(1,278)	(627)	(650)	–	–	(2,026)	(1,928)

* The summarised results for 2018 have been re-presented to include the Group's share of all its individually material joint ventures on a gross basis. Previously, the assets and liabilities of certain joint ventures were shown on a net basis. Disclosure of Group adjustments for intercompany trading and goodwill upon consolidation have been disclosed separately to provide greater transparency. The carrying amounts at 31 December 2018 remain the same as previously reported. This enhanced presentation does not impact the Group consolidated results or financial position previously reported.

13 Inventories

	2019 £m	2018 £m
Raw materials	522	553
Work in progress	1,652	1,551
Finished goods	2,119	2,168
Payments on account	27	15
	4,320	4,287
Inventories stated at net realisable value	227	223
Amount of inventory write-down	69	69
Reversal of inventory write-down	12	21

14 Trade receivables and other assets

	Current		Non-current		Total	
	2019 £m	2018 * £m	2019 £m	2018 * £m	2019 £m	2018 * £m
Trade receivables [1]	2,538	2,680	–	–	2,538	2,680
Amounts owed by joint ventures and associates [1]	197	229	12	–	209	229
Costs to obtain contracts with customers [2]	10	8	33	34	43	42
Other receivables [3]	1,490	1,218	181	145	1,671	1,363
Prepayments	356	367	248	9	604	376
	4,591	4,502	474	188	5,065	4,690

Trade receivables and other assets are analysed as follows:		
Financial instruments (note 19):		
Trade receivables and similar items	3,477	3,578
Other non-derivative financial assets	726	489
Non-financial instruments	862	623
	5,065	4,690

* Balances at 31 December 2018 have been re-presented to move £217m from prepayments to other receivables to better reflect the nature of these balances.
[1] Includes **£267m** (2018: £146m) of trade receivables held to collect or sell and **£76m** (2018: nil) receivables from joint ventures and associates held to collect or sell.
[2] These are amortised over the term of the related contract, resulting in amortisation of **£8m** (2018: £13m) in the year. There were no impairment losses recognised in either year.
[3] Other receivables includes the RRSA component of the LTSA which is held separately on the basis of differing counterparties, together with receivables arising from overhaul activity outside of LTSA coverage.

The expected credit losses for trade receivables and other assets has increased by £12m to **£138m** (2018: £126m). Amounts included are considered as current so no ageing of expected credit losses is disclosed.

For many years the Group has undertaken the sale of trade receivables, without recourse, to banks. This is commonly known as invoice discounting or factoring, and is common place in the aerospace industry. The absolute amount carried out in any given year depends on specific engine delivery volumes and phasing. This activity has been used to normalise customer receipts as certain aerospace customers have extended their payment terms. This in turn has helped to normalise our Group cash flows in line with physical delivery volumes. Over the last three years the sale of trade receivables has averaged £1,037m at the year end. Trade receivables factored are generally due within the following quarter.

At 31 December 2019 £1,117m was drawn under factoring facilities, an increase of £95m compared to December 2018, representing cash collected before it was contractually due from the customer.

In exceptional circumstances, the sale of trade receivables has taken place where amounts contractually due from aerospace customers before the period end have been deferred into the following period. There was £504m relating to this activity at the 2018 year end. There were no equivalent amounts in 2019.

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

	2019			2018		
	Trade receivables and other financial assets £m	Loss allowance £m	Range of expected credit loss rate %	Trade receivables and other financial assets £m	Loss allowance £m	Range of expected credit loss rate %
Investment grade	1,230	(40)	0%–2.45%	976	(34)	0%–2.06%
Non-investment grade	271	(2)	0%–2.51%	348	(5)	0%–2.06%
Without credit rating	2,636	(96)	0%–54%	2,653	(87)	0%–47%
	4,137	(138)	3%	3,977	(126)	3%

14 Trade receivables and other assets continued

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

	2019 £m	2018 £m
At 1 January	(126)	(95)
Increases in loss allowance recognised in the income statement during the year	(27)	(15)
Other net movements	14	(16)
At 31 December	(139)	(126)

15 Contract assets and liabilities

	Current		Non-current		Total	
	2019 £m	2018 £m	2019 £m	2018 £m	2019 £m	2018 £m
Contract assets						
Contract assets with operators	404	295	1,092	1,108	1,496	1,403
Participation fee contract assets	57	49	542	605	599	654
	461	344	1,634	1,713	2,095	2,057

Contract assets are analysed as follows:	2019 £m	2018 £m
Financial instruments (note 19)	–	–
Non-financial instruments	2,095	2,057
	2,095	2,057

Contract assets include **£1,086m** (2018: £1,097m) of Civil Aerospace LTSA assets, with most of the remainder relating to Defence. The main driver of the increase is driven by Defence which increased by £90m due to the timing differences between revenue being recognised on a stage of completion basis and when customers are billed, as well as the timing of the flow down of amounts received in prior years from programme partners. Revenue from performance obligations satisfied in previous years has been adjusted by £(166)m.

Participation fee contract assets have reduced by £(55)m due to amortisation exceeding additions by £(35)m and FX on consolidation of overseas entities of £(20)m. No impairment losses (2018: none) of contract assets have arisen during the year.

The expected credit losses for contract assets has decreased by £9m in relation to normal business cycle to **£13m** (2018: £22m).

	Current		Non-current		Total	
	2019 £m	2018 £m	2019 £m	2018 £m	2019 £m	2018 £m
Contract liabilities	4,228	3,794	6,612	5,336	10,840	9,130

Contract liabilities are analysed as follows:	2019 £m	2018 £m
Financial instruments (note 19)	131	–
Non-financial instruments	10,709	9,130
	10,840	9,130

During the year, **£3,491m** (2018: £2,823m) of the opening contract liability was recognised as revenue and contract liabilities have increased by £1,710m. The main reasons for the increase being a £1,199m growth in Civil Aerospace LTSA liabilities to **£6,783m** (2018: £5,584m) driven by an overall growth in engine flying hour receipts. Our installed base increased by 6% in 2019 compared with 2018. In addition, engine flying hours increased by 7% year-on-year. Revenue from performance obligations satisfied in previous years has been adjusted by £(114)m.

16 Cash and cash equivalents

	2019 £m	2018 £m
Cash at bank and in hand	**825**	1,023
Money-market funds	**1,095**	1,222
Short-term deposits	**2,523**	2,729
Cash and cash equivalents per the balance sheet	**4,443**	4,974
Overdrafts (note 17)	**(8)**	(22)
Cash and cash equivalents per cash flow statement (page 119)	**4,435**	4,952
Cash held as collateral against third party obligations (note 20)	**–**	4

Cash and cash equivalents at 31 December 2019 includes **£34m** (2018: £31m) that is not available for general use by the Group. This balance predominantly relates to cash held in non-wholly owned subsidiaries and joint arrangements.

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

17 Borrowings and lease liabilities

	Current		Non-current		Total	
	2019 £m	2018 £m	**2019 £m**	2018 £m	**2019 £m**	2018 £m
Unsecured						
Overdrafts	**8**	22	**–**	–	**8**	22
Bank loans	**27**	298	**16**	354	**43**	652
6.75% Notes 2019 £500m [1]	**–**	504	**–**	–	**–**	504
2.375% Notes 2020 US$500m [2]	**378**	–	**–**	383	**378**	383
2.125% Notes 2021 €750m [2]	**–**	–	**655**	699	**655**	699
0.875% Notes 2024 €550m [3]	**–**	–	**481**	498	**481**	498
3.625% Notes 2025 US$1,000m [3]	**–**	–	**781**	765	**781**	765
3.375% Notes 2026 £375m [4]	**–**	–	**410**	403	**410**	403
1.625% Notes 2028 €550m [3]	**–**	–	**501**	502	**501**	502
Other loans [5]	**22**	–	**52**	5	**74**	5
Total unsecured	**435**	824	**2,896**	3,609	**3,331**	4,433
Secured [6]						
Lease liabilities – property	**50**	–	**473**	–	**523**	–
Lease liabilities – aero engines	**261**	–	**1,463**	–	**1,724**	–
Lease liabilities – equipment	**29**	–	**78**	–	**107**	–
Obligations under finance leases	**–**	34	**–**	195	**–**	229
Total secured	**340**	34	**2,014**	195	**2,354**	229
Total borrowings and lease liabilities	**775**	858	**4,910**	3,804	**5,685**	4,662

[1] 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.
[2] These notes are the subject of cross-currency interest rate swap agreements under which the Group has undertaken to pay floating rates of GBP interest, which form a fair value hedge.
[3] These notes are the subject of cross-currency interest rate swap agreements under which the Group has undertaken to pay floating rates of GBP interest, which form a fair value hedge. They are also subject to interest rate swap agreements under which the Group has undertaken to pay fixed rates of interest, which are classified as fair value through profit and loss.
[4] These notes are the subject of interest rate swap agreements under which the Group has undertaken to pay floating rates of interest, which form a fair value hedge. They are also subject to interest rate swap agreements under which the Group has undertaken to pay fixed rates of interest, which are classified as fair value through profit and loss.
[5] In 2019, the Group reclassified £79m as borrowings previously included in other financial liabilities. Other loans of **£8m** (2018: £5m) are held by entities classified as joint operations. The loans are disclosed after adjustments have been made on consolidation to eliminate the extent of the Group's interest in the entity.
[6] Obligations under leases are secured by related leased assets.

18 Trade payables and other liabilities

	Current		Non-current		Total	
	2019 £m	2018 £m	2019 £m	2018 £m	2019 £m	2018 £m
Trade payables	2,300	2,520	–	–	2,300	2,520
Amounts owed to joint ventures and associates	798	635	36	18	834	653
Accruals	1,751	1,673	89	109	1,840	1,782
Deferred receipts from RRSA workshare partners	17	9	516	520	533	529
Government grants [1]	12	14	71	85	83	99
Other taxation and social security	128	125	–	–	128	125
Other payables [2]	3,444	3,316	1,359	1,208	4,803	4,524
	8,450	8,292	2,071	1,940	10,521	10,232

	2019 £m	2018 £m
Trade payables and other liabilities are analysed as follows:		
Financial instruments (note 19):		
Trade payables and similar items	5,849	5,659
Other non-derivative financial liabilities	1,541	1,754
Non-financial instruments	3,131	2,819
	10,521	10,232

[1] During the year **£12m** (2018: £8m) of government grants were released to the income statement.
[2] Other payables include **£280m** (2018: £378m) for financial penalties from agreements with investigating bodies and **£nil** (2018: £245m) for deferred consideration in relation to the acquisition of ITP Aero. In addition, other payables includes amounts due to RRSA concessions, warranty credits and other sundry payables.

Our payment terms with suppliers vary on the products and services being sourced, the competitive global markets we operate in and other commercial aspects of suppliers' relationships. Industry average payment terms vary between 90–120 days. We offer reduced payment terms for smaller suppliers, so that they are paid in 30 days. In line with aerospace industry practice, we offer a SCF programme in partnership with banks to enable suppliers who are on our standard 75-day payment terms to receive their payment sooner. The SCF programme is available to suppliers at their discretion and does not change our rights and obligations with suppliers nor the timing of our payment to suppliers. At 31 December 2019, suppliers had drawn **£859m** under the SCF scheme (31 December 2018: £817m).

19 Financial instruments

Carrying values and fair values of financial instruments

	Notes	Basis for determining fair value	Assets: Fair value through profit or loss £m	Assets: Fair value through OCI £m	Assets: Amortised cost £m	Liabilities: Fair value through profit or loss £m	Liabilities: Other £m	Total £m
2019								
Unlisted non-current asset investments	12	A	14	–	–	–	–	14
Trade receivables and similar items	14	B/C	–	344	3,133	–	–	3,477
Other non-derivative financial assets	14	B	–	–	726	–	–	726
Other assets		D	28	–	–	–	–	28
Derivative financial assets [1]		C	525	–	–	–	–	525
Short-term investments		B	–	–	6	–	–	6
Cash and cash equivalents	16	B	1,095	–	3,348	–	–	4,443
Borrowings	17	E/F	–	–	–	–	(3,331)	(3,331)
Lease liabilities	17	G	–	–	–	–	(2,354)	(2,354)
Derivative financial liabilities [1]		C	–	–	–	(3,374)	–	(3,374)
Financial RRSAs		H	–	–	–	–	(110)	(110)
Other liabilities		H	–	–	–	–	(72)	(72)
C Shares		B	–	–	–	–	(31)	(31)
Trade payables and similar items	18	B	–	–	–	–	(5,849)	(5,849)
Other non-derivative financial liabilities	18	B	–	–	–	–	(1,541)	(1,541)
Contract liabilities	15	B	–	–	–	–	(131)	(131)
			1,662	344	7,213	(3,374)	(13,419)	(7,574)
2018 *								
Unlisted non-current asset investments	12	A	22	–	–	–	–	22
Trade receivables and similar items	14	B/C	–	146	3,432	–	–	3,578
Other non-derivative financial assets	14	B	–	–	489	–	–	489
Derivative financial assets [1]		C	365	–	–	–	–	365
Short-term investments		B	–	–	6	–	–	6
Cash and cash equivalents	16	B	1,222	–	3,752	–	–	4,974
Borrowings	17	E/F	–	–	–	–	(4,662)	(4,662)
Derivative financial liabilities [1]		C	–	–	–	(3,871)	–	(3,871)
Financial RRSAs		H	–	–	–	–	(227)	(227)
Other liabilities		H	–	–	–	–	(62)	(62)
C Shares		B	–	–	–	–	(29)	(29)
Trade payables and similar items	18	B	–	–	–	–	(5,659)	(5,659)
Other non-derivative financial liabilities	18	B	–	–	–	–	(1,754)	(1,754)
			1,609	146	7,679	(3,871)	(12,393)	(6,830)

* Disclosures relating to 31 December 2018 have been re-presented in this table and the other related tables in this note to reflect the changes explained in note 14.
[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 **£13m** (2018: £11m) and liabilities **£2,862m** (2018: £3,517m).

Fair values equate to book values for both 2019 and 2018, with the following exceptions:

	Basis for determining fair value	2019 Book value £m	2019 Fair value £m	2018 Book value £m	2018 Fair value £m
Borrowings	E	(3,206)	(3,147)	(3,754)	(3,634)
Borrowings	F	(125)	(130)	(908)	(887)
Financial RRSAs	H	(110)	(112)	(227)	(235)

The fair value of a financial instrument is the price at which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arms-length transaction. Fair values have been determined with reference to available market information at the balance sheet date, using the methodologies described on page 158.

19 Financial instruments continued

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

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

Carrying values 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	C Shares £m	Total £m
2019								
Non-current assets	**234**	**14**	**203**	**451**	**–**	**16**	**–**	**467**
Current assets	**16**	**9**	**49**	**74**	**–**	**12**	**–**	**86**
Assets	**250**	**23**	**252**	**525**	**–**	**28**	**–**	**553**
Current liabilities	**(394)**	**(5)**	**–**	**(399)**	**(31)**	**(32)**	**(31)**	**(493)**
Non-current liabilities	**(2,960)**	**(6)**	**(9)**	**(2,975)**	**(79)**	**(40)**	**–**	**(3,094)**
Liabilities	**(3,354)**	**(11)**	**(9)**	**(3,374)**	**(110)**	**(72)**	**(31)**	**(3,587)**
	(3,104)	**12**	**243**	**(2,849)**	**(110)**	**(44)**	**(31)**	**(3,034)**
2018								
Non-current assets	47	4	292	343	–	–	–	343
Current assets	16	2	4	22	–	–	–	22
Assets	63	6	296	365	–	–	–	365
Current liabilities	(523)	(15)	–	(538)	(52)	(28)	(29)	(647)
Non-current liabilities	(3,304)	(25)	(4)	(3,333)	(175)	(34)	–	(3,542)
Liabilities	(3,827)	(40)	(4)	(3,871)	(227)	(62)	(29)	(4,189)
	(3,764)	(34)	292	(3,506)	(227)	(62)	(29)	(3,824)

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

Derivative financial instruments

The Group uses various financial instruments to manage its exposure to movements in foreign exchange rates. Where the effectiveness of a hedging relationship in a cash flow hedge is demonstrated, changes in the fair value that are deemed effective are included in the cash flow hedge reserve and released to match actual payments on the hedged item. 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 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		Interest rate instruments – non-hedge accounted		Total	
	2019 £m	2018 £m	**2019 £m**	2018 £m	**2019 £m**	2018* £m	**2019 £m**	2018 £m	**2019 £m**	2018 £m
At 1 January	**(3,764)**	(2,312)	**(34)**	1	**292**	227	**–**	–	**(3,506)**	(2,084)
Movements in fair value hedges	**–**	–	**–**	–	**(27)**	101	**–**	–	**(27)**	101
Movements in cash flow hedges	**(4)**	(14)	**13**	(9)	**–**	(1)	**–**	–	**9**	(24)
Movements in other derivative contracts[1]	**(43)**	(2,122)	**36**	(22)	**–**	–	**14**	–	**7**	(2,144)
Contracts settled	**707**	684	**(3)**	(4)	**(36)**	(35)	**–**	–	**668**	645
At 31 December	**(3,104)**	(3,764)	**12**	(34)	**229**	292	**14**	–	**(2,849)**	(3,506)

* Prior year balances have been re-presented in order to give a more accurate reflection of the cash flows associated with interest rate instruments.
[1] Included in financing.

19 Financial instruments continued

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

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

Movements in the carrying values were as follows:

	Financial RRSAs		Other liabilities		Other assets	
	2019 £m	2018 £m	**2019 £m**	2018 £m	**2019 £m**	2018 £m
At 1 January as previously reported	**(227)**	(247)	**(62)**	(57)	**–**	–
Reclassification to borrowings [1]	**79**	–	**–**	–	**–**	–
At 1 January restated	**(148)**	(247)	**(62)**	(57)	**–**	–
Exchange adjustments included in OCI	**10**	(3)	**1**	(1)	**–**	–
Additions	**(4)**	(3)	**(37)**	(25)	**–**	–
Financing charge [2]	**(3)**	(8)	**(3)**	(1)	**–**	–
Excluded from underlying profit:						
Changes in forecast payments [2]	**1**	(2)	**–**	–	**–**	–
Exchange adjustments [2]	**6**	–	**–**	–	**–**	–
Cash paid	**28**	36	**29**	22	**–**	–
Reclassification from trade receivables	**–**	–	**–**	–	**16**	–
At 31 December	**(110)**	(227)	**(72)**	(62)	**16**	–

[1] In 2019, the Group reclassified £79m as borrowings previously included in other financial liabilities.
[2] Included in financing.

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 and cross-currency interest rate swaps (the hedging instruments) which for accounting purposes are designated as fair value hedges. Although the hedging instruments have similar critical terms to the hedged item, some ineffectiveness, predominantly due to cross currency basis, will still remain. The impact of any hedge ineffectiveness 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 ineffect-iveness in the period [3] £m	Weighted average FX rate	Weighted average interest rate
At 31 December 2019											
Sterling	**(375)**	**(3)**	**(36)**	**(410)**	**375**	**36**	**–**	**3**	**–**	**1.00**	**GBP LIBOR + 0.893**
US Dollar	**(987)**	**(10)**	**(175)**	**(1,159)**	**987**	**172**	**–**	**2**	**(8)**	**1.52**	**GBP LIBOR + 1.2575**
Euro	**(1,607)**	**63**	**(34)**	**(1,637)**	**1,607**	**27**	**(6)**	**(69)**	**(6)**	**1.15**	**GBP LIBOR + 0.8301**
At 31 December 2018											
Sterling	(875)	25	(34)	(907)	875	34	–	(25)	–	1.00	GBP LIBOR + 2.0867
US Dollar	(987)	(61)	(165)	(1,148)	987	169	–	65	4	1.52	GBP LIBOR + 1.2575
Euro	(1,607)	(33)	(97)	(1,699)	1,607	90	–	26	(7)	1.15	GBP LIBOR + 0.8301

[1] Hedged items are included in borrowings in the balance sheet.
[2] Hedging instruments are included in other financial assets or liabilities in the balance sheet.
[3] Hedge ineffectiveness is included in net financing in the income statement.

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

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

19 Financial instruments continued

Risk management policies and hedging activities

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

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

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

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

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

Credit risk – The Group is exposed to credit risk to the extent of non-payment by either its customers or the counterparties of its financial instruments. The effective monitoring and controlling of credit risk is a key component of the Group's risk management activities. The Group has credit policies covering both trading and financial exposures. Credit risks arising from treasury activities are managed by a central treasury function in accordance with the Group credit policy. The objective of the policy is to diversify and minimise the Group's exposure to credit risk from its treasury activities by ensuring the Group transacts strictly with 'BBB' or higher rated financial institutions based on pre-established limits per financial institution. At the balance sheet date, there were no significant concentrations of credit risk to individual customers or counterparties. The Group's revenue is generated from customers located across multiple geographical locations (see note 2), these customers are typically: airframers and airline operators relating to Civil Aerospace; government defence departments for the UK and US; multiple smaller entities for Power Systems; and aero engine manufacturers for ITP Aero. Whilst there are a limited number of customers related to Civil Aerospace and Defence, they are spread across various geographical locations. The maximum exposure to credit risk at the balance sheet date is represented by the carrying value of each financial asset, including derivative financial instruments.

Interest rate risk – The Group's interest rate risk is primarily in relation to its fixed rate borrowings (fair value risk), floating rate borrowings and cash and cash equivalents (cash flow risk). Interest rate derivatives are used to manage the overall interest rate profile of the Group. The fixed or floating rate interest rate decision on long-term borrowings is determined for each new agreement at the point it is entered into. The aggregate interest rate position of the Group is reviewed regularly and can be revised at any time in order to react to changes in market conditions or circumstances.

The Group also has exposures to the fair values of non-derivative financial instruments such as USD, EUR and GBP and fixed rate borrowings. To manage the risk of changes in these fair values, the Group has entered into fixed-to-floating interest rate swaps and cross-currency interest rate swaps which for accounting purposes are designated as fair value hedges. The swaps have similar critical terms to the hedged items, such as the reference rate, reset dates, notional amounts, payment dates and maturities. Therefore there is an economic relationship and the hedge ratio is established as 1:1. Possible sources of ineffectiveness in the fair value hedge relationship are changes in the credit risk of either party to the interest rate swap and, for cross-currency interest rate swaps, the cross-currency basis risk as this risk is present in the hedging instrument only. Another possible source of ineffectiveness would be if the notional of the borrowings is less than the notional of the derivative, for example in the event of a partial repayment of hedged debt prior to its maturity.

The Group has exposure to changes in cash flows due to changes in interest rates. To manage this risk the Group has entered into floating-to-fixed interest rate swaps to hedge a proportion of its floating rate exposure to fixed rates. The swaps have similar critical terms to the floating leg of swaps that form part of the fair value hedges, such as the reference rate, reset dates, notional amounts, payment dates and maturities. For accounting purposes, these derivative contracts are generally not designated as hedging instruments.

The Group's Spanish subsidiary, ITP Aero, has also entered into a floating-to-fixed interest rate swap to hedge the cash flow risk on a floating rate borrowing which for accounting purposes is designated as a cash flow hedge.

Commodity risk – The Group has exposures to the price of jet fuel and base metals arising from business operations. To minimise its cash flow exposures to changes in commodity prices, the Group enters into derivative commodity transactions. The commodity hedging policy is similar to the Group FX policy, in that the Group forecasts highly probable exposures to commodities, and takes out hedges within prescribed maximum and minimum levels as set out in the policy. The maximum and minimum policy bands decline gradually over time. For accounting purposes, these derivative contracts are generally not designated in hedging relationships.

Other price risk – The Group's cash equivalent balances represent investments in money-market instruments, with a term of up to three months. The Group does not consider that these are subject to significant price risk.

19 Financial instruments continued

Derivative financial instruments

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

		Expected maturity				Fair value	
	Nominal amount £m	Within one year £m	Between one and two years £m	Between two and five years £m	After five years £m	Assets £m	Liabilities £m
At 31 December 2019							
Foreign exchange contracts:							
Cash flow hedges	646	266	206	174	–	13	(17)
Non-hedge accounted	29,878	5,151	4,704	13,300	6,723	237	(3,337)
Interest rate contracts:							
Fair value hedges	2,969	329	639	484	1,517	235	(6)
Cash flow hedges	15	4	4	7	–	–	–
Non-hedge accounted	2,001	–	–	484	1,517	17	(3)
Commodity contracts:							
Cash flow hedges	54	11	9	21	13	8	(1)
Non-hedge accounted	342	125	101	116	–	15	(10)
	35,905	5,886	5,663	14,586	9,770	525	(3,374)
At 31 December 2018							
Foreign exchange contracts:							
Cash flow hedges	335	162	120	53	–	4	(11)
Non-hedge accounted	29,080	5,528	5,113	14,808	3,631	59	(3,816)
Interest rate contracts:							
Fair value hedges	3,469	500	329	639	2,001	293	–
Cash flow hedges	19	4	4	11	–	–	(1)
Non-hedge accounted	–	–	–	–	–	3	(3)
Commodity contracts:							
Cash flow hedges	6	2	1	1	2	1	(8)
Non-hedge accounted	250	92	79	77	2	5	(32)
	33,159	6,288	5,646	15,589	5,636	365	(3,871)

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	US dollar £m	Euro £m	Other £m	Total £m
At 31 December 2019					
Currencies sold forward:					
Sterling	–	4	–	221	225
US dollar	24,411	–	4,468	581	29,460
Euro	21	297	–	264	582
Other	8	91	152	6	257
At 31 December 2018					
Currencies sold forward:					
Sterling	–	–	63	230	293
US dollar	24,376	–	3,280	753	28,409
Euro	84	119	–	274	477
Other	87	39	94	16	236

19 Financial instruments continued

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

	2019 £m	2018 £m
Sterling	2,376	875
US dollar	1,370	1,233
Euro	1,635	1,636

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

	Sterling £m	US dollar £m	Euro £m	Other £m	Total £m
At 31 December 2019					
Unlisted non-current investments	4	8	2	–	14
Trade receivables and similar items	139	2,735	541	62	3,477
Other non-derivative financial assets	33	649	23	21	726
Other assets	–	28	–	–	28
Short-term investments	–	–	6	–	6
Cash and cash equivalents	2,269	853	1,224	97	4,443
Assets	2,445	4,273	1,796	180	8,694
Borrowings	(416)	(1,172)	(1,739)	(4)	(3,331)
Lease liabilities	(225)	(1,784)	(76)	(269)	(2,354)
Financial RRSAs	–	(25)	(85)	–	(110)
Other liabilities	(29)	(43)	–	–	(72)
C Shares	(31)	–	–	–	(31)
Trade payables and similar items	(1,802)	(3,244)	(730)	(73)	(5,849)
Other non-derivative financial liabilities	(758)	(576)	(136)	(71)	(1,541)
Contract liabilities	–	(131)	–	–	(131)
Liabilities	(3,261)	(6,975)	(2,766)	(417)	(13,419)
	(816)	(2,702)	(970)	(237)	(4,725)
At 31 December 2018					
Unlisted non-current investments	2	7	13	–	22
Trade receivables and similar items	376	2,463	687	52	3,578
Other non-derivative financial assets	72	341	47	29	489
Short-term investments	–	–	–	6	6
Cash and cash equivalents	2,008	928	1,792	246	4,974
Assets	2,458	3,739	2,539	333	9,069
Borrowings	(1,441)	(1,435)	(1,753)	(33)	(4,662)
Financial RRSAs	–	(47)	(180)	–	(227)
Other liabilities	(24)	(38)	–	–	(62)
C Shares	(29)	–	–	–	(29)
Trade payables and similar items	(2,099)	(2,600)	(860)	(100)	(5,659)
Other non-derivative financial liabilities	(854)	(421)	(379)	(100)	(1,754)
Liabilities	(4,447)	(4,541)	(3,172)	(233)	(12,393)
	(1,989)	(802)	(633)	100	(3,324)

19 Financial instruments continued

Currency exposures

The Group's actual currency exposure on financial instruments after taking account of derivative foreign currency contracts, which are not designated as hedging instruments for accounting purposes are as follows:

Functional currency of Group operations	Sterling £m	US dollar £m	Euro £m	Other £m	Total £m
At 31 December 2019					
Sterling	–	2	2	(4)	–
US dollar	–	–	(1)	–	(1)
Euro	1	(3)	–	(1)	(3)
Other	70	12	69	4	155
At 31 December 2018					
Sterling [1]	–	3	(237)	6	(228)
US dollar	(2)	–	(5)	5	(2)
Euro	2	(14)	–	12	–
Other	–	10	13	–	23

[1] The euro exposure primarily relates to deferred consideration on the acquisition of ITP Aero. Movements in this balance in relation to foreign exchange (recognised through the consolidated income statement) are partially matched by the related foreign exchange movement in the subsidiary's net assets, recognised through the consolidated statement of other comprehensive income.

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 2019					
Unlisted non-current asset investments	14	–	–	–	14
Trade receivables and similar items	3,102	210	92	73	3,477
Other non-derivative financial assets	722	2	1	1	726
Other assets	28	–	–	–	28
Derivative financial assets	525	–	–	–	525
Short-term investments	6	–	–	–	6
Cash and cash equivalents	4,443	–	–	–	4,443
	8,840	212	93	74	9,219
At 31 December 2018					
Unlisted non-current asset investments	22	–	–	–	22
Trade receivables and similar items	3,108	265	132	73	3,578
Other non-derivative financial assets	489	–	–	–	489
Derivative financial assets	365	–	–	–	365
Short-term investments	6	–	–	–	6
Cash and cash equivalents	4,974	–	–	–	4,974
	8,964	265	132	73	9,434

19 Financial instruments continued

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 2019					
Borrowings	**(511)**	**(722)**	**(662)**	**(1,704)**	**(3,331)**
Lease liabilities	**(425)**	**(306)**	**(872)**	**(1,258)**	**(2,354)**
Financial RRSAs	**(35)**	**(7)**	**(14)**	**(63)**	**(110)**
Other liabilities	**(34)**	**(23)**	**(10)**	**(5)**	**(72)**
C Shares	**(31)**	**–**	**–**	**–**	**(31)**
Trade payables and similar items	**(5,677)**	**(62)**	**(20)**	**(90)**	**(5,849)**
Other non-derivative financial liabilities	**(1,162)**	**(308)**	**(35)**	**(36)**	**(1,541)**
Contract liabilities	**(131)**	**–**	**–**	**–**	**(131)**
	(8,006)	**(1,428)**	**(1,613)**	**(3,156)**	**(13,419)**
At 31 December 2018					
Borrowings	(983)	(520)	(1,014)	(2,699)	(4,662)
Financial RRSAs	(48)	(62)	(59)	(73)	(227)
Other liabilities	(27)	(3)	(25)	(7)	(62)
C Shares	(29)	–	–	–	(29)
Trade payables and similar items	(5,542)	(51)	(40)	(26)	(5,659)
Other non-derivative financial liabilities	(1,273)	(150)	(259)	(72)	(1,754)
	(7,902)	(786)	(1,397)	(2,877)	(12,393)

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 2019					
Derivative financial assets:					
Cash inflows	**1,475**	**1,487**	**2,072**	**3,202**	
Cash outflows	**(1,376)**	**(1,448)**	**(2,035)**	**(3,085)**	
Other net cash flows [1]	**17**	**12**	**34**	**24**	
	116	**51**	**71**	**141**	**525**
Derivative financial liabilities:					
Cash inflows	**4,383**	**4,113**	**11,987**	**4,804**	
Cash outflows	**(4,960)**	**(4,737)**	**(13,872)**	**(6,186)**	
Other net cash flows [1]	**(5)**	**(5)**	**(4)**	**–**	
	(582)	**(629)**	**(1,889)**	**(1,382)**	**(3,374)**
At 31 December 2018					
Derivative financial assets:					
Cash inflows	1,001	934	2,187	2,061	
Cash outflows	(979)	(869)	(2,185)	(1,934)	
Other net cash flows [1]	24	7	15	16	
	46	72	17	143	365
Derivative financial liabilities:					
Cash inflows	4,753	4,753	13,481	3,437	
Cash outflows	(5,531)	(5,656)	(16,298)	(4,257)	
Other net cash flows [1]	(14)	(12)	(12)	–	
	(792)	(915)	(2,829)	(820)	(3,871)

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

The Group regularly renegotiates the contractual maturities of its foreign exchange contracts. In general, the effect of such negotiations is the settlement of derivative financial liabilities somewhat earlier than the contractual maturity date.

19 Financial instruments continued

Interest rate risk

In respect of income-earning financial assets and interest-bearing financial liabilities, the following table indicates their effective interest rates. The value shown is the carrying amount, before taking account of swaps.

	2019			2018		
	Fixed rate £m	Floating rate £m	Total £m	Fixed rate £m	Floating rate £m	Total £m
Short-term investments	–	6	6	–	6	6
Cash and cash equivalents [1]	–	4,443	4,443	–	4,974	4,974
Borrowings	(2,252)	(1,079)	(3,331)	(99)	(4,334)	(4,433)
Lease liabilities (2018: finance lease liabilities)	(1,578)	(776)	(2,354)	(229)	–	(229)
	(3,830)	2,594	(1,236)	(328)	646	318
Weighted average interest rates						
Borrowings	1.9%	1.6%		1.5%	2.1%	
Lease liabilities [2]	3.6%	3.1%		4.1%		

[1] Cash and cash equivalents comprises bank balances and term deposits and earn interest based on short-term floating market interest rates.
[2] Interest rates for lease liabilities are considered to be the discount rates at the balance sheet date.

Some of the Group's borrowings are subject to the Group meeting certain obligations, including customary financial covenants. If the Group fails to meet its obligations these arrangements give rights to the lenders, upon agreement, to accelerate repayment of the facilities. At 31 December 2019, **none** of these were in breach (2018: none). There are no rating triggers contained in any of the Group's facilities that could require the Group to accelerate or repay any facility for a given movement in the Group's credit rating.

In addition, the Group has **£2,500m** (2018: £2,500m) of undrawn committed borrowing facilities which are available for at least the next four years.

Sensitivity analysis

Sensitivities at 31 December (all other variables held constant) – impact on profit after tax and equity	2019 £m	2018 £m
Sterling 10% weaker against the US dollar	(2,557)	(2,401)
Sterling 10% stronger against the US dollar	2,105	1,998
Euro 10% weaker against the US dollar	(376)	(268)
Euro 10% stronger against the US dollar	307	219
Sterling 10% weaker against the Euro	(32)	(32)
Sterling 10% stronger against the Euro	26	26
Commodity prices 10% lower	(32)	(21)
Commodity prices 10% higher	32	21
Interest rates 50 basis points lower	(82)	–
Interest rates 50 basis points higher	85	–

19 Financial instruments continued

C Shares and payments to shareholders

The Company issues non-cumulative redeemable preference shares (C Shares) as an alternative to paying a cash dividend. C Shares in respect of a year are issued in the following year. Shareholders are able to redeem any number of their C Shares for cash. Any C Shares retained attract a dividend of 75% of LIBOR on the 0.1p nominal value of each share, paid on a twice-yearly basis, and have limited voting rights. The Company has the option to compulsorily redeem the C Shares, at any time, if the aggregate number of C Shares in issue is less than 10% of the aggregate number of C Shares issued, or on the acquisition or capital restructuring of the Company.

Movements in issued and fully paid C Shares during the year were as follows:

	2019		2018	
	Millions	Nominal value £m	Millions	Nominal value £m
At 1 January	29,071	29	28,429	28
Issued	221,954	222	216,717	217
Redeemed	(220,417)	(220)	(216,075)	(216)
At 31 December	30,608	31	29,071	29

Payments to shareholders in respect of the year represent the value of C Shares to be issued in respect of the results for the year. Issues of C Shares were declared as follows:

	2019		2018	
	Pence per share	£m	Pence per share	£m
Interim	4.60	87	4.60	86
Final	7.10	137	7.10	135
	11.70	224	11.70	221

20 Provisions for liabilities and charges

	At 1 January 2019 £m	Reclassified to lease liabilities (IFRS 16) £m	Charged to income statement £m	Reversed £m	Utilised £m	Transfers £m	Exchange differences £m	At 31 December 2019 £m
Trent 1000 exceptional costs [1]	779	–	1,275	–	(672)	–	–	1,382
Contract losses [2]	206	–	592	(4)	(78)	62	(5)	773
Warranties and guarantees	373	–	129	(19)	(123)	–	(15)	345
Customer financing	17	–	12	–	(7)	–	–	22
Restructuring	204	(8)	49	(48)	(128)	–	(1)	68
Insurance	87	–	25	(17)	(25)	–	–	70
Tax related interest and penalties	62	–	14	(19)	(1)	–	(1)	55
Employer liability claims	48	–	4	–	(3)	–	–	49
Other	141	(67)	33	(34)	(21)	(9)	(3)	40
	1,917	(75)	2,133	(141)	(1,058)	53	(25)	2,804
Current liabilities	1,122							858
Non-current liabilities	795							1,946

1 The charge to the income statement for Trent 1000 includes £15m as a result of discount unwind.
2 The charge to the income statement for contract losses includes a £40m impact from the change in discount rates on contract losses recorded in prior years as a result of the fall in US bonds, which drives the calculation of the risk-free discount rate.

In November, we announced the outcome of recent testing and a thorough technical and financial review of the Trent 1000 TEN programme, following technical issues which were identified in 2019. This resulted in a revised timeline and a more conservative estimate of durability for the improved HP turbine blade for the TEN variant. An exceptional charge of £1,361m (at underlying exchange rates) has been recorded in the income statement. The charge is £1,531m at prevailing exchange rates and net of £203m reflecting insurance receipts and contract accounting adjustments. Of the charge, £1,275m has been recorded in relation to Trent 1000 exceptional costs, and a further £459m in relation to contract losses (see below). See note 2 for further details.

During 2019, we have utilised £672m of the Trent 1000 exceptional costs provision. This represents customer disruption costs settled in cash and credit notes, and remediation shop visit costs. We expect to use this provision over the period 2020 to 2023.

Provisions for contract losses are recorded when the direct costs to fulfil a contract are assessed as being greater than the expected revenue. Included within the provision charged of £592m, is £459m (at prevailing exchange rates) relating to the upfront recognition of future losses on a small number of contracts which are now loss making as a result of the margin impact of our updated HP turbine durability expectations on the Trent 1000 TEN. Provisions for contract losses are expected to be utilised over the term of the customer contracts, typically within 10–15 years.

Provisions for warranties and guarantees primarily relate to products sold and generally cover a period of up to three years.

20 Provisions for liabilities and charges continued

Customer financing provisions cover guarantees provided for asset value and/or financing.

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 **US$2.8bn** (2018: US$2.3bn) (on a discounted basis) to provide facilities to enable customers to purchase aircraft (of which approximately US$656m could be called during 2020). 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. Consequently, the Directors do not consider that there is a significant exposure arising from the provision of these facilities.

Commitments on delivered aircraft in excess of the amounts provided are shown in the table below. These are reported on a discounted basis at the Group's borrowing rate to reflect better the time span over which these exposures could arise. These amounts do not represent values that are expected to crystallise. The commitments are denominated in US dollars. As the Group does not generally adopt cash flow hedge accounting for future foreign exchange transactions, this amount is reported, together with the sterling equivalent at the reporting date spot rate. The values of aircraft providing security are based on advice from a specialist aircraft appraiser.

	2019		2018	
	£m	*$m*	£m	*$m*
Gross commitments	60	*79*	93	*119*
Value of security [1]	(9)	*(11)*	(24)	*(30)*
Indemnities	(8)	*(11)*	(19)	*(24)*
Net commitments	43	*57*	50	*65*
Net commitments with security reduced by 20% [2]	43	*57*	60	*77*
[1] Security includes unrestricted cash collateral of:	–	–	4	*6*

[2] Although sensitivity calculations are complex, the reduction of relevant security by 20% illustrates the sensitivity to changes in this assumption.

Restructuring provisions are made for Group approved, formal restructuring programmes where the restructuring has either commenced or has been publicly announced. Included is the Group-wide restructuring programme announced on 14 June 2018, which is an on-going multi-year restructuring programme across the business and reflects the severance costs as well as the consultancy costs that will help deliver the planned reductions. The majority of the provision is expected to be utilised over the next two years.

The Group's captive insurance company retains a portion of the exposures it insures on behalf of the remainder of the Group. Significant delays occur in the notification and settlement of claims and judgement is involved in assessing outstanding liabilities, the ultimate cost and timing of which cannot be known with certainty at the balance sheet date. The insurance provisions are based on information currently available, however it is inherent in the nature of the business that ultimate liabilities may vary. Provisions for outstanding claims are established to cover the outstanding expected liability as well as claims incurred but not yet reported.

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.

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 provisions comprise a number of liabilities with varying expected utilisation rates.

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 trustee administered fund. Employees are entitled to retirement benefits based on either their final or career average salaries and length of service.
- Overseas defined benefit schemes are a mixture of funded and unfunded plans and provide benefits in line with local practice. Additionally in the US, and to a lesser extent in some other countries, the Group's employment practices include the provision of healthcare and life insurance benefits for retired employees. These schemes are unfunded.

The valuations of the defined benefit schemes are based on the most recent funding valuations, where relevant, updated by the scheme actuaries to 31 December 2019.

The defined benefit schemes expose the Group to actuarial risks such as longevity, interest rate, inflation and investment risks. In the UK, and in the principal US and Canadian pension schemes, the Group has adopted investment policies to mitigate some of these risks. This involves investing a significant proportion of the schemes' assets in liability driven investment (LDI) portfolios, which hold investments designed to offset interest rate and inflation rate risks. In addition, during the year, the scheme has completed a buy-in/buy-out of UK pensioner liabilities – see page 169.

Amounts recognised in the income statement

	2019			2018		
	UK schemes £m	**Overseas schemes £m**	**Total £m**	UK schemes £m	Overseas schemes £m	Total £m
Defined benefit schemes:						
Current service cost and administrative expenses	164	52	216	183	58	241
Past-service cost in respect of equalisation [1]	–	–	–	121	–	121
Other past-service cost/(credit) [2]	–	6	6	(9)	(1)	(10)
	164	58	222	295	57	352
Defined contribution schemes	66	91	157	41	100	141
Operating cost	230	149	379	336	157	493
Net financing (credit)/charge in respect of defined benefit schemes	(59)	36	(23)	(55)	32	(23)
Total income statement charge	171	185	356	281	189	470

[1] In the UK in 2018, past-service costs of £121m were recognised relating to the estimated cost of equalising benefits earned after May 1990 between men and women. The UK scheme (Rolls-Royce UK Pension Fund) has to provide Guaranteed Minimum Pensions (GMPs) which, as a result of statutory rules, have been calculated differently for men and women. Although equal treatment in pension provision for males and females has been required since 1990, there has been uncertainty on whether and how pension schemes are required to equalise GMPs. A High Court judgement on the Lloyds Banking Group hearing was published on 26 October 2018. The judgement confirmed that GMPs earned from 1990 must be equalised and highlighted an acceptable range of methods. The estimated cost of this equalisation was £97m. In addition, a cost of £24m was recognised in relation to obligations to equalise certain other post-1990 benefits between men and women. The total cost of £121m represents the Directors' best estimate of the cost, based on actuarial advice. However, the final cost will differ from this amount when the final method of equalisation is agreed with the Trustee and subsequently implemented.

[2] In addition in 2018, a past-service credit of £9m arose related to the restructuring activities. This credit was offset against the restructuring costs. All amounts were excluded from the underlying results.

The operating cost is charged as follows:

	Defined benefit		Defined contribution		Total	
	2019 £m	2018 £m	**2019 £m**	2018 £m	**2019 £m**	2018 £m
Cost of sales	158	176	113	104	271	280
Commercial and administrative costs	40	148	26	21	66	169
Research and development costs	24	28	18	16	42	44
	222	352	157	141	379	493

Pension contributions to UK pension arrangements are generally paid via a salary sacrifice scheme under which employees agree to a reduction in gross contractual pay in return for the Group making additional pension contributions on their behalf. As a result, there is a decrease in wages and salaries and a corresponding increase in pension costs of **£47m** (2018: £31m) in the year.

21 Post-retirement benefits continued

Net financing comprises:

	2019			2018		
	UK schemes £m	Overseas schemes £m	Total £m	UK schemes £m	Overseas schemes £m	Total £m
Financing on scheme obligations	303	66	369	286	59	345
Financing on scheme assets	(362)	(30)	(392)	(341)	(27)	(368)
Net financing (income)/charge in respect of defined benefit schemes	(59)	36	(23)	(55)	32	(23)
Financing income on scheme surpluses	(59)	(1)	(60)	(55)	(1)	(56)
Financing cost on scheme deficits	–	37	37	–	33	33

Amounts recognised in OCI in respect of defined benefit schemes

	2019			2018		
	UK schemes £m	Overseas schemes £m	Total £m	UK schemes £m	Overseas schemes £m	Total £m
Actuarial gains and losses arising from:						
Demographic assumptions	309	38	347	(130)	(4)	(134)
Financial assumptions	(1,723)	(228)	(1,951)	782	134	916
Experience adjustments	79	29	108	(6)	9	3
Return on scheme assets excluding financing income	456	106	562	(705)	(53)	(758)
	(879)	(55)	(934)	(59)	86	27

On 5 June 2019, the Group entered into a partial buy-in with Legal & General Assurance Society Limited covering the benefits of circa 33,000 in-payment pensioners. As a result of the transaction, an asset re-measurement net loss estimated at £600m has been recognised within the line 'Actuarial gains/(losses) recognised in OCI'. The buy-in was in anticipation of a buy-out. On 1 December 2019, 90% of the buy-in liabilities (covering 29,614 pensioners) were transferred, resulting in pension assets and pension liabilities of £3.6bn being derecognised from the Group's balance sheet. The remaining 10% of the buy-in liabilities (covering 2,261 pensioners) was concluded in January 2020 with the final balancing payment made on 1 February 2020. Pension assets and liabilities of £408m will be derecognised in 2020. There is no impact upon the income statement arising from this transaction.

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

	2019			2018		
	UK schemes £m	Overseas schemes £m	Total £m	UK schemes £m	Overseas schemes £m	Total £m
Present value of funded obligations	(8,499)	(842)	(9,341)	(10,847)	(758)	(11,605)
Fair value of scheme assets	9,640	845	10,485	12,773	735	13,508
Net asset/(liability) on funded schemes	1,141	3	1,144	1,926	(23)	1,903
Present value of unfunded obligations	–	(1,352)	(1,352)	–	(1,289)	(1,289)
Net asset/(liability) recognised in the balance sheet	1,141	(1,349)	(208)	1,926	(1,312)	614
Post-retirement scheme surpluses [1]	1,141	29	1,170	1,926	18	1,944
Post-retirement scheme deficits	–	(1,378)	(1,378)	–	(1,303)	(1,303)
Included in liabilities associated with assets held for sale	–	–	–	–	(27)	(27)

[1] The surplus in the UK scheme is recognised as, on 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:

	2019			2018		
	Assets £m	Obligations £m	Net £m	Assets £m	Obligations £m	Net £m
Canada	227	(275)	(48)	186	(227)	(41)
Germany	2	(853)	(851)	–	(749)	(749)
US pension schemes	616	(635)	(19)	549	(596)	(47)
US healthcare schemes	–	(420)	(420)	–	(446)	(446)
Other	–	(11)	(11)	–	(29)	(29)
Net asset/(liability) recognised in the balance sheet	845	(2,194)	(1,349)	735	(2,047)	(1,312)

21 Post-retirement benefits continued

Defined benefit schemes

Assumptions

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

		2019	2018
Discount rate		2.15%	2.95%
Inflation assumption (RPI) [1]		3.15%	3.40%
Rate of increase in salaries		3.15%	3.65%
Transfer assumption (active/deferred)		45%/35%	40%/32.5%
Life expectancy from age 65:	current male pensioner	21.8 years	22.1 years
	future male pensioner currently aged 45	23.1 years	23.4 years
	current female pensioner	23.1 years	23.4 years
	future female pensioner currently aged 45	25.0 years	25.2 years

[1] This is the assumption for the Retail Price Index. The Consumer Price Index is assumed to be **1.0%** lower (2018: 1.1% lower).

Discount rates are determined by reference to the market yields on AA rated corporate bonds. The rate is determined by using the profile of forecast benefit payments to derive a weighted average discount rate from the yield curve.

The inflation assumption is determined by the market-implied assumption based on the yields on long-term index-linked government securities and increases in salaries are based on actual experience, allowing for promotion, of the real increase above inflation.

The mortality assumptions adopted for the UK pension schemes are derived from the SAPS S2 'All' actuarial tables, with future improvements in line with the CMI 2018 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.

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:

		2019	2018
Discount rate		2.40%	3.40%
Inflation assumption		1.90%	2.90%
Long-term healthcare cost trend rate		4.80%	4.80%
Male life expectancy from age 65:	current pensioner	21.4 years	21.1 years
	future pensioner currently aged 45	21.7 years	23.1 years

Changes in present value of defined benefit obligations

	2019			2018		
	UK schemes £m	Overseas schemes £m	Total £m	UK schemes £m	Overseas schemes £m	Total £m
At 1 January	(10,847)	(2,047)	(12,894)	(11,499)	(2,120)	(13,619)
Exchange differences	–	71	71	–	(56)	(56)
Current service cost	(158)	(50)	(208)	(179)	(56)	(235)
Past-service cost	–	–	–	(112)	–	(112)
Finance cost	(303)	(65)	(368)	(286)	(59)	(345)
Contributions by employees	(2)	(3)	(5)	(2)	(3)	(5)
Benefits paid out	571	79	650	585	78	663
Acquisition of businesses	–	(2)	(2)	–	–	–
Disposal of businesses	–	28	28	–	31	31
Actuarial (losses)/gains	(1,335)	(168)	(1,503)	646	140	786
Transfers	–	(37)	(37)	–	(2)	(2)
Settlement	3,575	–	3,575	–	–	–
At 31 December	(8,499)	(2,194)	(10,693)	(10,847)	(2,047)	(12,894)
Funded schemes	(8,499)	(842)	(9,341)	(10,847)	(758)	(11,605)
Unfunded schemes	–	(1,352)	(1,352)	–	(1,289)	(1,289)
The defined benefit obligations are in respect of:						
Active plan participants	(4,751)	(1,185)	(5,936)	(4,229)	(1,088)	(5,317)
Deferred plan participants	(2,154)	(171)	(2,325)	(1,975)	(157)	(2,132)
Pensioners	(1,594)	(838)	(2,432)	(4,643)	(802)	(5,445)
Weighted average duration of obligations (years)	23	16	22	19	15	18

21 Post-retirement benefits continued

Changes in fair value of scheme assets

	2019			2018		
	UK schemes £m	Overseas schemes £m	Total £m	UK schemes £m	Overseas schemes £m	Total £m
At 1 January	12,773	735	13,508	13,607	750	14,357
Exchange differences	–	(17)	(17)	–	24	24
Administrative expenses	(6)	(2)	(8)	(4)	(2)	(6)
Financing	362	30	392	341	27	368
Return on plan assets excluding financing	456	106	562	(705)	(53)	(758)
Contributions by employer	199	67	266	117	64	181
Contributions by employees	2	3	5	2	3	5
Benefits paid out	(571)	(79)	(650)	(585)	(78)	(663)
Acquisition of businesses	–	2	2	–	–	–
Settlement	(3,575)	–	(3,575)	–	–	–
At 31 December	9,640	845	10,485	12,773	735	13,508
Total return on scheme assets	818	136	954	(364)	(26)	(390)

Fair value of scheme assets at 31 December

	2019			2018		
	UK schemes £m	Overseas schemes £m	Total £m	UK schemes £m	Overseas schemes £m	Total £m
Sovereign debt	5,799	277	6,076	9,388	315	9,703
Corporate debt instruments	3,135	467	3,602	3,447	356	3,803
Interest rate swaps	14	–	14	1,342	–	1,342
Inflation swaps	(18)	–	(18)	(375)	–	(375)
Cash and similar instruments [1]	(784)	13	(771)	(1,991)	22	(1,969)
Liability driven investment (LDI) portfolios [2]	8,146	757	8,903	11,811	693	12,504
Longevity swap [3]	–	–	–	(292)	–	(292)
Listed equities	323	76	399	592	39	631
Unlisted equities	95	–	95	128	–	128
Synthetic equities [4]	3	5	8	(13)	(4)	(17)
Sovereign debt	–	–	–	–	5	5
Corporate debt instruments	662	4	666	548	–	548
Cash	–	4	4	–	2	2
Partial buy-in insurance policy	408	–	408	–	–	–
Other	3	(1)	2	(1)	–	(1)
At 31 December	9,640	845	10,485	12,773	735	13,508

[1] Cash and similar instruments include repurchase agreements on UK Government bonds amounting to **£(1,308)m** (2018: £(1,991)m). The latest maturity date for these short-term borrowings is 12 October 2020.
[2] A portfolio of gilt and swap contracts, backed by investment-grade credit instruments and LIBOR generating assets, that is designed to hedge the majority of the interest rate and inflation risks associated with the schemes' obligations.
[3] The longevity swap was transferred to Legal & General Assurance Society Limited as part of the partial buy-in described on page 169.
[4] A portfolio 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 **£328m** (2018: £281m).

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 2019, there was an indirect holding of **£0.1m** of the Group's financial instruments (2018: £0.3m).

Future contributions

The Group expects to contribute approximately **£170m** to its defined benefit schemes in 2020 (2019: £220m): UK: £100m, Overseas: £70m (2019: UK: £140m, Overseas: £80m).

In the UK, the funding is based on a statutory triennial funding valuation process. This includes a negotiation between the Group and the Trustee on actuarial assumptions used to value obligations (Technical Provisions) which may differ from those used for accounting set out above. The assumptions used to value Technical Provisions must be prudent rather than a best estimate of the liability. Most notably, the Technical Provision discount rate is currently based upon UK Government yields plus 0.5% rather than being based on yields of AA corporate bonds. Following the triennial valuation process, a Schedule of Contributions (SoC) must be agreed which sets out the required contribution for current service cost and any contributions from the employer to eliminate a deficit. The most recent valuation, as at 31 March 2017, agreed by the Trustee in December 2017, showed that the UK scheme was estimated to be 112% funded on the Technical

21 Post-retirement benefits continued

Provisions basis. Employer contributions (inclusive of employee contributions paid by a salary sacrifice arrangement) will subsequently be paid at a rate of 28.5% during 2020 until a new SoC is agreed (2019: 27%). The current SoC includes an arrangement for a potential increase in contributions during 2021 to 2023 (capped at £48.3m a year) if the Technical Provisions funding position is below 107% at 31 March 2020. As at 31 December 2019, the Technical Provisions funding position was estimated to be **112%** (2018: 111%).

Changes to UK defined benefit scheme

A consultation with active managers in the UK scheme was concluded in January 2020. The consultation process agreed certain changes for future accrual for the relevant manager group which will mitigate future funding cost increases. The accounting impact of this change will occur in 2020 rather than 2019. The change is expected to be immaterial to these accounts. The triennial valuation due at 31 March 2020 for the UK scheme will take these changes into account.

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 2019, 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 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.

		2019 £m	2018 £m
Reduction in the discount rate of 0.25% [1]	Obligation	**(495)**	(510)
	Plan assets (LDI portfolio)	**502**	624
Increase in inflation of 0.25% [1]	Obligation	**(290)**	(275)
	Plan assets (LDI portfolio)	**235**	272
Real increase in salaries of 0.25%	Obligations	**(80)**	(90)
Increase of 1% in transfer value assumption	Obligations	**(64)**	(56)
One year increase in life expectancy	Obligations	**(408)**	(465)

[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

	Non-equity		Equity	
	Special Share of £1	Nominal value £m	Ordinary shares of 20p each Millions	Nominal value £m
Issued and fully paid				
At 1 January 2018	1	–	1,840	368
Shares issued to employee share trust	–	–	8	2
Shares issued in relation to the acquisition of ITP Aero	–	–	48	9
At 31 December 2018	1	–	1,896	379
Shares issued to employee share trust	**–**	**–**	**6**	**1**
Shares issued in relation to the acquisition of ITP Aero	**–**	**–**	**29**	**6**
At 31 December 2019	**1**	**–**	**1,931**	**386**

The rights attaching to each class of share are set out on page 206.

In accordance with IAS 32 *Financial Instruments: Presentation*, the Company's non-cumulative redeemable preference shares (C Shares) are classified as financial liabilities. Accordingly, movements in C Shares are included in note 19.

23 Share-based payments

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

	2019 £m	2018 £m
Total expense recognised for equity-settled share-based payment transactions	30	32
Total expense recognised for cash-settled share-based payment transactions	–	3
Share-based payments recognised in the consolidated income statement	30	35
Liability for cash-settled share-based payment transactions	1	6

A description of the share-based payment plans is included in the Directors' Remuneration Report on pages 95 to 104.

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

	ShareSave		LTIP and PSP	APRA
	Number Millions	Weighted average exercise price Pence	Number Millions	Number Millions
Outstanding at 1 January 2018	27.5	714	13.0	0.2
Granted	–	–	5.7	0.2
Forfeited	(1.3)	738	(4.4)	–
Exercised	(0.1)	656	(0.4)	–
Outstanding at 1 January 2019	**26.1**	**713**	**13.9**	**0.4**
Granted	**16.6**	**677**	**5.3**	**0.2**
Forfeited	**(5.1)**	**814**	**(0.9)**	**–**
Exercised	**(5.7)**	**627**	**(5.1)**	**(0.2)**
Outstanding at 31 December 2019	**31.9**	**693**	**13.2**	**0.4**
Exercisable at 31 December 2019	**–**	**–**	**–**	**–**
Exercisable at 31 December 2018	–	–	–	–

The weighted average share price at the date share options were exercised was **906p** (2018: 883p). The closing price at 31 December 2019 was **683p** (2018: 830p).

The weighted average remaining contractual life for the cash settled options at 31 December 2019 was **one year** (2018: two years).

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:

	2019	2018
LTIP	**851p**	815p
LTIP (ELT & Board)	**774p**	739p
ShareSave – three year grant	**165p**	n/a
ShareSave – five year grant	**176p**	n/a
APRA	**892p**	858p

LTIP and PSP

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.

APRA

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

24 Leases

Leases as lessee

The net book value of right-of-use assets at 31 December 2019 was £2,009m (see note 11) with a lease liability of £2,354m (as per note 17). Leases that have not yet commenced to which the Group is committed have a future liability of £5m and consists of factory equipment and a single property. The consolidated income statement shows the following amounts relating to leases:

	2019 £m
Land and buildings depreciation and impairment [1]	(59)
Plant and equipment depreciation [2]	(33)
Aircraft and engines depreciation and impairment [3]	(319)
Total depreciation and impairment charge for right-of-use assets	**(411)**
Interest expense [4]	(88)
Expense relating to short-term leases of 12 months or less recognised as an expense on a straight-line basis [2]	(23)
Expense relating to variable lease payments not included in lease liabilities [3,5]	(1)
Total lease expense	**(523)**
Income from sub-leasing right-of-use assets	79
Total amount recognised in the income statement	**(444)**

1 Included in cost of sales and commercial and administration costs depending on the nature and use of the right-of-use asset.
2 Included in cost of sales, commercial and administration costs, or research and development depending on the nature and use of the right-of-use asset.
3 Included in cost of sales.
4 Included in financing costs.
5 Variable lease payments primarily arise on a small number of contracts where engine lease payments are solely dependent upon utilisation rather than a periodic charge.

The total cash outflow for leases in 2019 was £383m. Of this: £359m related to leases reflected in the lease liability; £23m to short-term leases where lease payments are expensed on a straight-line basis; and £1m for variable lease payments where obligations are only due when the right-of-use assets are used. The timing difference between the income statement charge and cash flow relates to costs incurred at the end of leases for residual value guarantees that are recognised within depreciation over the term of the lease, the most significant amounts relate to engine leases.

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

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

Until 31 December 2018, leases were classified as either finance or operating leases. Payments made under operating leases and residual value guarantees were charged to the income statement on a straight-line basis over the period of the lease. From 1 January 2019, leases are recognised as a right-of-use asset and a corresponding lease liability at the date at which the leased asset is available for use by the Group. Each lease payment is allocated between reducing the liability and a finance cost. The finance cost is charged to the income statement over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

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

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

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

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

24 Leases continued

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

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

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

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

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

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

There was a single onerous lease contract where as a permitted practical expedient the Group has adjusted the right-of-use asset at the date of initial application by the amount of the provision on the balance sheet at 31 December 2018.

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

Leases as lessor

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

	2019 £m	2018 £m
Operating lease income – credited within revenue from aftermarket services [1, 2]	127	64

[1] Includes variable lease payments of £97m that do not depend on an index or a rate.
[2] Items of property, plant and equipment subject to an operating lease are disclosed in note 10.

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

	2019 £m	2018 £m
Within one year	13	23
Between one and two years	14	22
Between two and three years	12	22
Between three and four years	8	21
Between four and five years	5	17
After five years	17	55
	69	160

25 Contingent liabilities

Contingent liabilities in respect of customer financing commitments are described in note 20.

In January 2017, after full cooperation, the Company concluded deferred prosecution agreements with the SFO and the US Department of Justice and a leniency agreement with the MPF, the Brazilian federal prosecutors. Other authorities are investigating members of the Group for matters relating to misconduct in relation to historical matters. The Group is responding appropriately. Action may be taken by further authorities against the Company or individuals. In addition, we could still be affected by actions from customers and customers' financiers. The Directors are not currently aware of any matters that are likely to lead to a material financial loss over and above the penalties imposed to date, but cannot anticipate all the possible actions that may be taken or their potential consequences.

Contingent liabilities exist in respect of guarantees provided by the Group in the ordinary course of business for product delivery, performance and reliability. The Group has, in the normal course of business, entered into arrangements in respect of export finance, performance bonds, countertrade obligations and minor miscellaneous items. Various Group undertakings are parties to legal actions and claims which arise in the ordinary course of business, some of which are for substantial amounts. As a consequence of the insolvency of an insurer as previously reported, the Group is no longer fully insured against known and potential claims from employees who worked for certain of the Group's UK based businesses for a period prior to the acquisition of those businesses by the Group. While the outcome of some of these matters cannot precisely be foreseen, the Directors do not expect any of these arrangements, legal actions or claims, after allowing for provisions already made, to result in significant loss to the Group.

The Group's share of equity accounted entities' contingent liabilities is **nil** (2018: nil).

26 Related party transactions

	2019 £m	2018 £m
Sales of goods and services to joint ventures and associates	3,776	3,237
Purchases of goods and services from joint ventures and associates	(3,685)	(2,957)
Lease payments to joint ventures and associates	(210)	(189)
Guarantees of joint arrangements' and associates' borrowings	1	–
Guarantees of non-wholly owned subsidiaries' borrowings	3	3
Dividends received from joint ventures and associates	92	105
Other income received from joint ventures and associates	1	2

Included in sales of goods and services to joint ventures and associates are sales of spare engines amounting to **£277m** (2018: £563m).

Profit recognised in the year on such sales amounted to **£93m** (2018: £157m), including profit on current year sales and recognition of profit deferred on sales in previous years. On an underlying basis (at actual achieved rates on settled derivative transactions), the amounts were **£78m** (2018: £132m). Cash receipts relating to the sale of spare engines amounted to **£414m** (2018: £563m).

The aggregated balances with joint ventures are shown in notes 14 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 (pages 62 to 64) and the members of the Executive Team (described on page 65). Remuneration for key management personnel is shown below:

	2019 £m	2018 £m
Salaries and short-term benefits	9	19
Post-retirement schemes	–	–
Share-based payments	5	5
	14	24

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 on pages 95 to 104. The charge for share-based payments above is based on when the award is charged to the income statement in accordance with IFRS 2 *Share-Based Payments*, rather than when the shares vest, which is the basis used in the Directors' Remuneration Report.

27 Acquisitions and disposals

Acquisitions

Siemens' eAircraft business

On the 30 September 2019, the Group completed the acquisition of the electric and hybrid-electric aerospace propulsion activities of Siemens. On acquisition the book value of assets acquired consisted of £2.8m of property, plant and equipment and £0.2m of other assets and liabilities. Of the £43m (€48.5m) acquisition cost, which was settled in cash, £38m has been allocated to identifiable intangible assets and £5m to other assets and liabilities. Goodwill of £11m was recognised on the transaction.

The Group increased its shareholding in the Berlin-based electricity storage specialist, Qinous GmbH from 19.9% to 73.1% on 15 January 2020 for a consideration of €10m. The acquisition will be incorporated within our Power Systems business.

Disposals

Commercial Marine and Rolls-Royce Power Development Limited

On the 1 April 2019, the Group completed the sale of its Commercial Marine business to KONGSBERG for £547m. The business was disclosed as a disposal group held for sale from 30 June 2018. In our 2018 half-year financial statements, we reported an impairment charge of £160m as a result of the decision to classify Commercial Marine as a business held for sale. Upon the disposal of Commercial Marine on 1 April 2019, and in accordance with IAS 21 *The Effects of Changes in Foreign Exchange Rates* we have recycled the cumulative currency translation reserve through the income statement in 2019. This has resulted in a cumulative currency translation gain of £98m.

On the 15 April 2019, the Group sold its shareholding in Rolls-Royce Power Development Limited to Rockland Capital Partners for £46m. The principal activity of this company was to operate a fleet of six industrial Trent power stations in the UK.

	Commercial Marine £m	Rolls-Royce Power Development Limited £m	Total £m
Proceeds			
Cash consideration	547	46	**593**
Cash and cash equivalents disposed	(118)	–	**(118)**
Net cash consideration	429	46	**475**
Disposal costs paid	(21)	(1)	**(22)**
Cash inflow per cash flow statement	408	45	**453**

	Commercial Marine £m	Rolls-Royce Power Development Limited £m	Total £m
Assets and liabilities disposed			
Intangible assets	236	–	**236**
Property, plant and equipment	139	7	**146**
Right-of-use assets	40	–	**40**
Deferred tax assets	7	–	**7**
Inventory	207	4	**211**
Trade receivables and other assets	210	4	**214**
Current tax assets	1	–	**1**
Lease liabilities	(39)	–	**(39)**
Trade payables and other liabilities	(274)	(5)	**(279)**
Deposits (payments received on account)	(74)	–	**(74)**
Provisions for liabilities and charges	(27)	–	**(27)**
Post-retirement scheme deficits	(28)	–	**(28)**
Net assets disposed	398	10	**408**

The gain on disposal of businesses totalled £139m.

	Commercial Marine £m	Rolls-Royce Power Development Limited £m	Total £m
Income statement			
Net cash consideration	429	46	**475**
Less: carrying amount of net assets sold	(398)	(10)	**(408)**
Profit on disposal before disposal costs	31	36	**67**
Disposal costs	(23)	(3)	**(26)**
Profit on disposal on business before tax	8	33	**41**
Tax on disposal	–	–	**–**
Profit on disposal of business after tax	8	33	**41**
Cumulative currency translation gain recycled from other comprehensive income	98	–	**98**
Gain recognised in the income statement	106	33	**139**

27 Acquisitions and disposals continued

Disposals continued

Trigno Energy S.r.l.

On 29 January 2020, the Group exercised its put option to sell 100% of the shares held in Trigno Energy S.r.l. The transaction is expected to complete in the first quarter of 2020. The shares will be transferred to Pilkington Italia S.r.l. for an estimated consideration of €5.6m.

Businesses held for sale

On 26 September 2019, the Group signed an agreement for the sale of the North America Civil Nuclear business to Westinghouse Electric Company LLC. for a cash consideration of approximately $18m. The sale was completed on 31 January 2020.

As a result of the decision to classify the business as a disposal group held for sale, in accordance with IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations,* its carrying value was assessed against the anticipated proceeds and the disposal costs. An impairment charge of £25m has been recognised in the income statement, of which £15m relates to goodwill and an additional £10m impairment charge to property, plant and equipment and intangible assets. The impairment charge was allocated to the non-core businesses. The remaining assets of £17m have been transferred to assets held for sale, together with associated liabilities of £14m at 31 December 2019.

On 17 December 2019, the Group signed a share purchase agreement with Valsoft Corp. for the sale of the Knowledge Management System business. The consideration for the disposal is expected to be $2.6m. The sale was completed on 3 February 2020.

Disposal – 2018

L'Orange

On 1 June 2018, the Group sold its L'Orange business, part of Rolls-Royce Power Systems, to Woodward Inc. for €673m. Under the sale agreement, the cash consideration may be adjusted by up to +/-€44m, based on L'Orange aftermarket sales over the five-year period to 31 May 2023 and this will be reviewed at each reporting date over the adjustment period, based on actual sales. No significant change has been identified to the cash consideration at 31 December 2019. Profit on disposal of the business (net of disposal costs) was £358m.

28 Derivation of summary funds flow statement

The table below shows the derivation of the summary funds flow statement (lines marked *) on page 20 from the cash flow statement (CFS) on page 119.

	2019		2018 †	
	£m	£m	£m	£m
* Underlying operating profit (see note 2)		808		616
Depreciation and impairment of property, plant and equipment	532		521	
Amortisation and impairment of intangible assets	372		565	
Depreciation and impairment of right-of-use assets	411		–	
Impairment of goodwill	(84)		(155)	
Acquisition accounting	(163)		(175)	
* Depreciation and amortisation		1,068		756
* Lease payments (capital plus interest)		(319)		–
* Additions of intangible assets		(591)		(680)
* Purchases of property, plant and equipment		(747)		(905)
* Increase in inventories		(43)		(616)
Movement in receivables/payables	77		1,129	
Movement in contract balances	526		363	
Realised derivatives in financing	(187)		(465)	
Revaluation of trading assets (excluding exceptional items)	158		170	
* Movement on receivables/payables/contract balances (excluding Civil LTSA)		574		1,197
* Underlying Civil Aerospace LTSA contract balances		754		679
* Movement on provisions		(506)		(242)
* Trent 1000 insurance		173		–
* Net interest received and paid		(73)		(70)
* Other		(41)		22
* Trading cash flow		1,057		757
* Contributions to defined benefit schemes in excess of underlying PBT charge		(9)		59
* Tax		(175)		(248)
* Group free cash flow		873		568
Of which: Disposed entities		*(41)*		*(78)*
Group free cash flow (pre disposed entities)		*914*		*646*
Of which: Non-core businesses		*3*		*(2)*
Core free cash flow		*911*		*648*
* Shareholder payments		(224)		(219)
* Acquisition of eAircraft		(43)		–
* Disposal of Commercial Marine and RRPD (2018: Disposal of L'Orange)		453		573
* Exceptional restructuring costs		(216)		(70)
* DPA payments		(102)		–
* Pension fund contribution		(35)		–
* IFRS 16		123		–
* Other		(8)		10
* Foreign exchange		(98)		54
* Change in net funds		723		916

	2019 £m	2018 † £m
Change in net funds	723	916
IFRS 16 impact (non cash)	(123)	–
Reclassification of other financial liabilities to borrowings	(79)	–
Change in net funds excluding IFRS 16	521	916

† The comparative information for the year ended 31 December 2018 has been re-presented to be on a comparable basis with the presentation adopted for the year ended 31 December 2019. There is no change to trading or group free cash flow. In summary, items previously included in 'other' within 'trading cash flow', which related to 'movements in receivables/payables' or movements in 'contract balances' have been included within those items.

During the year ended 31 December 2019, the Group received insurance receipts of £173m relating to the Trent 1000 in-service issues. This amount has been recognised within the Group's underlying results – see note 2.

28 Derivation of summary funds flow statement continued

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 payments made to shareholders, amounts spent (or received) on business acquisitions, SFO payments and foreign exchange changes on net funds. The Board considers that free cash flow reflects cash generated from the Group's underlying trading.

The table below shows a reconciliation of free cash flow to the change in cash and cash equivalents presented in the cash flow statement on page 119.

	2019		2018		
	£m	£m	£m	£m	Source
Change in cash and cash equivalents		(413)		1,953	A
Returns to shareholders		224		219	A
Net cash flow from changes in borrowings and lease liabilities (2018: finance leases)		1,385		(1,091)	A
Increase in short-term investments		–		3	A
Acquisition of Siemens' eAircraft business	43		–		A
Disposal of Commercial Marine and RRPD (2018: Disposal of L'Orange)	(453)		(573)		A
Other acquisitions and disposals	1		(10)		B
Changes in group structure		(409)		(583)	
Payments of financial penalties from agreements with investigating bodies		102		–	A
Exceptional restructuring expenditure		216		70	B
Pension fund contribution		35		–	B
Other		4		(3)	B
Capital element of lease repayments [1]		(271)		–	A
Free cash flow		873		568	

[1] As IFRS 16 has been adopted with effect from 1 January 2019, no adjustments have been made to present the comparative period on a consistent basis.

Sources:
A Cash flow statement
B Cash flow statement adjusted for non-underlying items including exchange differences

29 Impact of adopting IFRS 16 *Leases*

For leases previously classified as finance leases, the Group recognised the carrying amount of the lease asset and lease liability immediately before transition as the carrying amount of the right-of-use asset and the lease liability at the date of initial application. The measurement principles of IFRS 16 are only applied after that date.

The following table reconciles the operating lease obligations under the previous accounting standard, IAS 17 *Leases*, to the lease liability recorded under IFRS 16 on transition:

	£m
Operating lease commitments as reported at 31 December 2018	2,343
Lease commitments at end of aero engines lease contracts previously reflected in provisions and other liabilities	515
Discounted using the incremental borrowing rate at the date of initial application	(749)
Additional commitments recognised during final data review [1]	180
Impact of adopting IFRS 16	**2,289**
Commitments relating to disposal groups	(41)
At 1 January 2019	**2,248**
Finance lease liabilities recognised as at 31 December 2018	229
Lease liability recognised as at 1 January 2019	**2,477**
Of which are:	
Current lease liabilities	322
Non-current lease liabilities	2,155

[1] These have been offset by right-of-use assets with an equivalent value.

The recognised right-of-use assets relate to the following types of asset:

	1 January 2019 £m
Land and buildings	453
Plant and equipment	106
Aircraft and engines	1,654
Total right-of-use assets	2,213

29 Impact of adopting IFRS 16 *Leases* continued

Condensed consolidated balance sheet

The change in accounting policy affected the following items in the balance sheet on 1 January 2019:

	Previous accounting as at 31 December 2018 £m	IFRS 16 impact £m	Transferred to assets held for sale [1] £m	As at 1 January 2019 £m
ASSETS				
Property, plant and equipment [2]	4,929	(197)	–	**4,732**
Right-of-use assets [3]	–	2,254	(41)	**2,213**
Deferred tax assets [4]	2,092	2	–	**2,094**
Other non-current assets	8,016	–	–	**8,016**
Non-current assets	15,037	2,059	(41)	**17,055**
Current assets	16,070	–	–	**16,070**
Assets held for sale	750	–	41	**791**
TOTAL ASSETS	31,857	2,059	–	**33,916**
LIABILITIES				
Borrowings and lease liabilities	(858)	(295)	7	**(1,146)**
Trade payables and other liabilities [5]	(8,292)	49	–	**(8,243)**
Provisions for liabilities and charges [6]	(1,122)	30	–	**(1,092)**
Other current liabilities	(4,579)	–	–	**(4,579)**
Current liabilities	(14,851)	(216)	7	**(15,060)**
Borrowings and lease liabilities	(3,804)	(1,994)	34	**(5,764)**
Trade payables and other liabilities [5]	(1,940)	60	–	**(1,880)**
Deferred tax liabilities [4]	(962)	6	–	**(956)**
Provisions for liabilities and charges [6]	(795)	45	–	**(750)**
Other non-current liabilities	(10,181)	–	–	**(10,181)**
Non-current liabilities	(17,682)	(1,883)	34	**(19,531)**
Liabilities associated with assets held for sale	(376)	–	(41)	**(417)**
TOTAL LIABILITIES	(32,909)	(2,099)	–	**(35,008)**
NET LIABILITIES	(1,052)	(40)	–	**(1,092)**
EQUITY				
Accumulated losses [7]	(2,991)	(40)	–	**(3,031)**
Other equity attributable to ordinary shareholders	1,917	–	–	**1,917**
Equity attributable to ordinary shareholders	(1,074)	(40)	–	**(1,114)**
Non-controlling interests	22	–	–	**22**
TOTAL EQUITY	(1,052)	(40)	–	**(1,092)**

[1] Relates to the Commercial Marine business which was classified as held for sale at 31 December 2018. See note 27 for more details.
[2] Transfer of net book value of finance leased assets to right-of-use assets.
[3] Initial recognition of right-of-use assets accounted for under IFRS 16.
[4] Deferred tax on the difference between the right-of-use assets measured on a retrospective basis at the Group's incremental borrowing rate and the lease liabilities at transition date.
[5] Lease-related creditors reclassified against the IFRS 16 right-of-use assets on transition.
[6] Provisions related to engine residual value guarantees reclassified against IFRS 16 right-of-use assets.
[7] Post-tax difference between right-of-use assets measured on a retrospective basis and the lease liabilities at the transition date.

COMPANY BALANCE SHEET

At 31 December 2019

	Notes	2019 £m	2018 £m
ASSETS			
Investments – subsidiary undertakings	2	12,801	12,521
Trade receivables and other assets	3	1,870	371
Cash and cash equivalents		9	–
Current assets		1,879	371
TOTAL ASSETS		14,680	12,892
LIABILITIES			
Trade payables and other liabilities	4	(2,228)	(2,008)
Other financial liabilities	5	(31)	(29)
Current liabilities		(2,259)	(2,037)
NET ASSETS		12,421	10,855
EQUITY			
Called-up share capital	6	386	379
Share premium account		319	268
Merger reserve		7,051	7,029
Capital redemption reserve		2,652	2,432
Other reserve		248	218
Retained earnings		1,765	529
TOTAL EQUITY		12,421	10,855

The Company has elected to take the exemption under section 408 of the Companies Act 2006 from presenting the parent company income statement. The profit for the Company for the year was **£1,498m** (2018: £nil).

The Financial Statements on pages 183 to 186 were approved by the Board on 28 February 2020 and signed on its behalf by

Warren East
Chief Executive

Stephen Daintith
Chief Financial Officer

Company's registered number: 7524813

COMPANY STATEMENT OF CHANGES IN EQUITY

For the year ended 31 December 2019

	Attributable to ordinary shareholders						
	Share capital £m	Share premium £m	Merger reserve £m	Capital redemption reserve £m	Other reserve [1] £m	Retained earnings [2] £m	Total equity £m
At 1 January 2019	379	268	7,029	2,432	218	529	10,855
Profit for the year [3]	–	–	–	–	–	1,498	1,498
Arising on issues of ordinary shares [4]	7	51	244	–	–	–	302
Issue of C Shares	–	–	(222)	–	–	–	(222)
Redemption of C Shares	–	–	–	220	–	(220)	–
Share-based payments – direct to equity	–	–	–	–	30	(42)	(12)
At 31 December 2019	386	319	7,051	2,652	248	1,765	12,421

[1] Other reserve represents the value of the share-based payments in respect of employees of subsidiary undertakings for which payment has not been received.
[2] Retained earnings represents the Company's distributable reserves as defined under the Companies Act 2006.
[3] During the year, the Company received an interim dividend of **£1,500m** (2018: nil) from its subsidiary undertaking.
[4] During the year, the Company issued **28,973,262** new ordinary shares relating to the remaining three instalments for the acquisition of ITP Aero (2018: 47,556,914 new ordinary shares relating to the first five instalments) and **7,803,043** new ordinary shares (2018: 7,460,173) to the Group's share trust for its employee share-based payment plans with a net book value of **£66m** (2018: £74m).

NOTES TO THE COMPANY FINANCIAL STATEMENTS

1 Accounting policies

Basis of accounting

Rolls-Royce Holdings plc (the Company) is a company incorporated and domiciled in the United Kingdom. These Financial Statements have been prepared in accordance with Financial Reporting Standard 101 *Reduced Disclosure Framework* (FRS 101) on the historical cost basis.

In preparing these Financial Statements, the Company applied the recognition, measurement and disclosure requirements of International Financial Reporting Standards as adopted by the EU (Adopted IFRS), but makes amendments where necessary in order to comply with the Companies Act 2006.

In these Financial Statements the Company has applied the exemptions available under FRS 101 in respect of the following disclosures:

- a cash flow statement and related notes;
- comparative period reconciliations for share capital;
- the effects of new, but not yet effective accounting standards; and
- the requirements of IAS 24 *Related Party Transactions* and has, therefore, not disclosed transactions between the Company and its wholly-owned subsidiaries.

The accounting policies set out below have, unless otherwise stated, been applied consistently to all periods presented in these Financial Statements.

There were no changes to accounting standards that had a material impact on these Financial Statements.

The Company's 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, disclosure of non-audit fees information is not included in respect of the Company.

Investments in subsidiary undertakings

Investments included in fixed assets are investments in subsidiary companies and these are held at historical cost less provision for impairment which is considered annually by the Directors.

Trade receivables

Trade receivables are recognised initially at the transaction price. They are subsequently measured at amortised cost using the effective interest method, less provision for impairment. A provision for the impairment of trade receivables is established when there is objective evidence that the Company will not be able to collect all amounts due according to the original terms of the receivables. The Company applies the IFRS 9 *Financial Instruments* simplified approach to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables.

Trade payables

Trade payables are recognised initially at the transaction price and subsequently measured at amortised cost using the effective interest method.

Equity

Ordinary shares are classified as equity. Equity instruments are measured at the fair value of the cash or other resources received or receivable, net of the direct costs of issuing the equity instruments.

Share-based payments

As described in the Directors' Remuneration Report on pages 95 to 104, the Company grants awards of its own shares to employees of its subsidiary undertakings (see note 23 of the Consolidated Financial Statements). The costs of share-based payments in respect of these awards are accounted for, by the Company, as an additional investment in its subsidiary undertakings. The costs are determined in accordance with IFRS 2 *Share-based Payment*. Any payments made by the subsidiary undertakings in respect of these arrangements are treated as a return of this investment.

Financial instruments

In accordance with IAS 32 *Financial Instruments: Presentation*, the Company's C Shares are classified as financial liabilities and held at amortised cost from the date of issue until redeemed.

2 Investments – subsidiary undertakings

	£m
Cost:	
At 1 January 2019	12,521
Additions [1]	250
Cost of share-based payments in respect of employees of subsidiary undertakings less receipts from subsidiaries in respect of those payments	30
At 31 December 2019	**12,801**

[1] Additions relate to investments in Rolls-Royce plc, relating to the remaining three instalments for the Group's acquisition of ITP Aero.

Details of the Company's subsidiary undertakings and joint venture and associates undertakings are listed on pages 187 to 193.

2 Investments – subsidiary undertakings continued

The carrying value of the Company's investments in subsidiary undertakings has been tested for impairment in accordance with IAS 36 *Impairment of Assets*. The carrying value is compared to the asset's recoverable amount and has been assessed by reference to value in use. The value in use has been calculated based upon a discounted cash flow methodology using the most recent forecast prepared by management of the Rolls-Royce Holdings plc group. Cash flows beyond the five-year period have been assumed to grow at 2.0% and discounted using a pre-tax discount rate of 12.6%. The key underlying assumptions in the cash flow projections are assumed market share, programme timings, unit cost assumptions, discount rates and foreign exchange rates. No impairment was identified.

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

3 Trade receivables and other assets

	2019 £m	2018 £m
Amounts owed by – subsidiary undertakings	1,870	371

Amounts owed by subsidiary undertakings are related to dividends receivable from Rolls-Royce Group Limited (formerly Rolls-Royce Group plc). The balance is short term in nature and Rolls-Royce Group Limited is the immediate parent undertaking of the Rolls-Royce plc group. In accordance with IFRS 9, a provision for impairment of **£1m** has been recognised as at 31 December 2019 (2018: £nil) in respect of this balance.

4 Trade payables and other liabilities

	2019 £m	2018 £m
Amounts owed to – subsidiary undertakings	2,228	2,008

Amounts owed to subsidiary undertakings are interest-free and repayable on demand.

5 Financial liabilities

C Shares

Movements during the year were as follows:

	C Shares of 0.1p millions	Nominal value £m
At 1 January 2019	29,071	29
Issued	221,954	222
Redeemed	(220,417)	(220)
At 31 December 2019	30,608	31

The rights attaching to C Shares are set out on page 206.

6 Share capital

	Non-equity			Equity	
	Special Share of £1	Preference shares of £1 each	Nominal value £m	Ordinary shares of 20p each Millions	Nominal value £m
Issued and fully paid					
At 1 January 2019	1	–	–	1,896	379
Shares issued to employee share trust	–	–	–	6	1
Shares issued in relation to the acquisition of ITP Aero	–	–	–	29	6
At 31 December 2019	1	–	–	1,931	386

The rights attaching to each class of share are set out on page 206.

In accordance with IAS 32, the Company's non-cumulative redeemable preference shares (C Shares) are classified as financial liabilities. Accordingly, movements in C Shares are included in note 5.

7 Reconciliation of net assets between Rolls-Royce Holdings plc Group and Company

At 31 December 2019, the Rolls-Royce Holdings plc consolidated group had net liabilities of £3.4bn (2018: £1.1bn) compared to £12.4bn (2018: £10.9bn) of net assets of the Company. The Company is a holding company and does not trade in its own right. As set out in note 2 we have assessed the carrying value of the Company's investment in subsidiaries, which supports the recovery of those investments.

The key drivers of the difference between the Company and consolidated group net balance sheet positions are as follows:

- The Company was created through a Scheme of Arrangement and incorporated in 2011. On incorporation, the value of the Company's investment in subsidiaries was based on the market capitalisation of the Rolls-Royce group. The Group's consolidated financial statements are prepared on a historical cost basis except where Adopted IFRS requires a valuation basis to be applied. See page 123 for further details.
- The adoption of IFRS 15 at 1 January 2017 reduced the Group's net balance sheet position by £5.3bn and the pension buy-in (see note 21 in the Consolidated Financial Statements) reduced the Group's net balance sheet position by circa £600m in 2019. Neither of these impacted the Company; and
- The mark-to-market loss on the foreign exchange hedge book of £3.1bn is recorded in a subsidiary of the Company and not in the Company itself.

8 Contingent liabilities

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 2019, these guarantees amounted to **£3,085m** (2018: £3,982m).

9 Other information

Employees

The Company had no employees in 2019 (2018: none).

Share-based payments

Shares in the Company have been granted to employees of the Group as part of share-based payment plans, and are charged in the employing company.

Emoluments of Directors

The remuneration of the Directors of the Company is shown below, further information is in the Directors' Remuneration Report on pages 95 to 104.

	2019			2018		
	Highest paid director £000	**Other directors £000**	**Total £000**	Highest paid director £000	Other directors £000	Total £000
Remuneration	**2,080**	**2,754**	**4,834**	2,209	2,733	4,942
Gains made on share options	**1,079**	**714**	**1,793**	1,734	1,644	3,378
Company contributions to pension schemes	**–**	**–**	**–**	–	–	–
	3,159	**3,468**	**6,627**	3,943	4,377	8,320

No Director accrued any retirement benefits in the year (2018: nil).

SUBSIDIARIES

As at 31 December 2019, the companies listed below and on the following pages are indirectly held by Rolls-Royce Holdings plc except Rolls-Royce Group Limited # which is 100% directly owned by Rolls-Royce Holdings plc. The financial year end of each company is 31 December unless otherwise indicated.

Company name	Address	Class of shares	% of class held
Aeromaritime America, Inc.	M&H Agent Services, Inc., 1850 North Central Avenue, Suite 2100, Phoenix, Arizona 85004, United States	Common	100
Aeromaritime Mediterranean Limited	7 Industrial Estate, Hal Far, Birzebbuga, BBG 3000, Malta	Ordinary	100
Aerospace Transmission Technologies GmbH **	Adelheidstrasse 40, D-88046, Friedrichshafen, Germany	Capital Stock	50
Amalgamated Power Engineering Limited *	Derby [1]	Deferred Ordinary	100 100
Bergen Engines AS	Hordvikneset 125, N-5108, Hordvik, Bergen 1201, Norway	Ordinary	100
Bergen Engines Bangladesh Private Limited	Green Grandeur, 6th Floor, Plot no.58 E, Kamal Ataturk Avenue Banani, C/A Dhaka, 1213, Bangladesh	Ordinary	100
Bergen Engines BV	Werfdijk 2, 3195HV Pernis, Rotterdam, Netherlands	Ordinary	100
Bergen Engines Denmark A/S	Østre Havnepromenade 34 9000 Ålborg, Denmark	Ordinary	100
Bergen Engines India Private Limited [3]	52-b, 2nd Floor, Okhla Industrial Estate, Phase III, New Delhi 110020, India	Ordinary	100
Bergen Engines Limited	Derby [1]	Ordinary	100
Bergen Engines PropertyCo AS	Hordvikneset 125, N-5108, Hordvik, Bergen 1201, Norway	Ordinary	100
Bergen Engines S.L.	Calle Dinamarca s/n (esquina Calle Alemania), Poligono Industrial de Constanti, 43120 Constanti, Tarragona, Spain	Social Participation	100
Bergen Engines S.r.l.	Via Castel Morrone 13, 16161, Genoa, Italy	Social Capital	100
Bristol Siddeley Engines Limited *	Derby [1]	Ordinary	100
Brown Brothers & Company Limited	Taxiway, Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, KY11 9JT, Scotland	Ordinary	100
C.A. Parsons & Company Limited *	Derby [1]	Ordinary	100
Data Systems & Solutions, LLC [4]	Wilmington [2]	Partnership (no equity)	100
Derby Specialist Fabrications Limited *	Derby [1]	Ordinary	100
Europea Microfusioni Aerospaziali S.p.A.	Zona Industriale AS1, 83040 Morra de Sanctis, Avellino, Italy	Ordinary	100
Heaton Power Limited *	Derby [1]	Ordinary	100
Industria de Tuberías Aeronáuticas México S.A. de C.V.	Acceso IV, No.6B, Zona Industrial Benito Juárez, Querétaro, 76120, Mexico	Class A	100
Industria de Tuberías Aeronáuticas S.A.U.	Pabellón Industrial, Torrelarrgoiti, Parcela 5H, Naves 7 a 10, Zamudia, Vizcaya, Spain	Ordinary	100
Industria de Turbo Propulsores S.A.	Parque Technológico Edificio 300, 48170 Zamudio, Vizcaya, Spain	Ordinary	100
ITP Engines UK Limited	The Whittle Estate, Cambridge Road, Whetstone, Leicester, LE8 6LH, England	Ordinary	100
ITP Externals India Private Ltd	Plot 60/A, IDA Gandhi Nagar, Hyderabad, 500037, India	Ordinary	100
ITP Externals S.L.U.	Pabellón Industrial, Polígono Ugaldeguren I, PIIIA, Pab 1–2 Zamudio, Vizcaya, Spain	Ordinary	100
ITP Ingeniería y Fabricación S.A. de C.V.	Acceso IV, No.6D, Zona Industrial Benito Juárez, Querétaro, 76120, Mexico	Class A Class B	100 100
ITP México Fabricación S.A. de C.V.	Acceso IV, No.6, Zona Industrial Benito Juárez, Querétaro, 76120, Mexico	Class A	100
ITP México S.A. de C.V.	Acceso IV, No.6, Zona Industrial Benito Juárez, Querétaro, 76120, Mexico	Fixed capital B Variable capital B	100 100
ITP Next Generation Turbines S.L.U.	Parque Technológico Edificio 300, 48170 Zamudio, Vizcaya, Spain	Ordinary	100
John Thompson Cochran Limited *	Taxiway, Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, KY11 9JT, Scotland	6% Cumulative Preference Ordinary	100 100
Kamewa AB * (in liquidation)	Box 1010, S-68129, Kristinehamn, Sweden	Ordinary	100
Kamewa Holding AB * (in liquidation)	Box 1010, S-68129, Kristinehamn, Sweden	Ordinary	100

Re-registered as a private company on 5 December 2019.
* Dormant entity.
** Though the interest held is 50%, the Company controls the entity (see note 1 accounting policies) and, as a result, consolidates the entity and records a non-controlling interest.
[1] Moor Lane, Derby, DE24 8BJ, England.
[2] Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.
[3] Reporting year end is 31 March.
[4] Sold to Westinghouse with effect from 31 January 2020 (see page 178).

Company name	Address	Class of shares	% of class held
Karl Maybach-Hilfe GmbH	Maybachplatz 1, 88045, Friedrichshafen, Germany	Capital Stock	100
MTU Africa (Proprietary) Limited	36 Marconi Street, Montague Gardens, Cape Town, 7441, South Africa	Capital Stock	100
MTU America Inc.	Wilmington [2]	Ordinary	100
MTU Asia PTE Limited	10 Tukang Innovation Drive, Singapore 618302	Ordinary	100
MTU Benelux B.V.	Merwedestraat 86, 3313 CS, Dordrecht, Netherlands	Ordinary	100
MTU China Company Limited	Room 1803 18/F Ascendas Plaza, No.333 Tian Yao Qiao Road, Xuhai Distrcit, Shanghai, 200030, China	Ordinary	100
MTU do Brasil Limitada	Via Anhanguera, KM 29203, 05276-000 Sao Paulo – SP, Brazil	Ordinary	100
MTU Engineering (Suzhou) Company Limited	9 Long Yun Road, Suzhou Industrial Park, Suzhou 215024, Jiang Su, China	Ordinary	100
MTU France S.A.S.	Immeuble Colorado, 8/10 rue de Rosa Luxembourg-Parc des Bellevues 95610, Erangy-sur-Oise, France	Ordinary	100
MTU Friedrichshafen GmbH	Maybachplatz 1, 88045, Friedrichshafen, Germany	Capital Stock	100
MTU Hong Kong Limited	Room 1006, 10/F, Hang Seng Tsimshatsui Building, 18 Carnarvon Road, Tsimshatsui, Kowloon, Hong Kong	Ordinary	100
MTU Ibérica Propulsión y Energia S.L.	Calle Copérnico 26–28, 28823 Coslada, Madrid, Spain	Ordinary	100
MTU India Private Limited [3]	6th Floor, RMZ Galleria, S/Y No. 144 Bengaluru, Bangalore, Kamataka 560,064, India	Ordinary	100
MTU Israel Limited	4 Ha'Alon Street, South Building, Third Floor, 4059300 Kfar Neter, Israel	Ordinary	100
MTU Italia S.r.l.	Via Aurelia Nord, 328, 19021 Arcola (SP), Italy	Capital Stock	100
MTU Japan Co. Limited	Resorttrust Building 4-14-3, Nishitenma Kita-ku, Osaka 530-0047, Japan	Ordinary	100
MTU Korea Limited	22nd Floor, Olive Tower, 41 Sejongdaero 9 gil, Junggu, 100-737 Seoul, Republic of Korea	Ordinary	100
MTU Middle East FZE	S3B5SR06, Jebel Ali Free Zone, South P.O. Box 61141, Dubai, United Arab Emirates	Ordinary	100
MTU Motor Türbin Sanayi ve Ticaret. A.Ş.	Hatira Sokak, No. 5, Ömerli Mahellesi, 34555 Arnavutköy, Istanbul, Turkey	Ordinary	100
MTU Onsite Energy GmbH	Dasinger Strasse 11, 86165, Augsburg, Germany	Capital Stock	100
MTU Onsite Energy Systems GmbH	Rotthofer Strasse 8, 94099 Ruhstorf a.d. Rott, Germany	Capital Stock	100
MTU Polska Sp. z o.o.	Ul. Śląska, Nr 9. Raum, Ort: Stargard Szczeciński, Plz: 73–110, Poland	Ordinary	100
MTU Power Systems Sdn. Bhd	Level 10 Menara LGB, 1 Jalan Wan Kadir Taman Tun Dr Ismail, 6000 Kuala Lumpur, Malaysia	Ordinary	100
MTU Reman Technologies GmbH	Friedrich-List-Strasse 8, 39122 Magdeburg, Germany	Capital Stock	100
MTU Rus Limited Liability Company	Shabolovka Street 2, 119049, Moscow, Russian Federation	Ordinary	100
MTU South Africa (Proprietary) Limited	36 Marconi Street, Montague Gardens, Cape Town, 7441, South Africa	Ordinary	100
MTU UK Limited	Derby [1]	Ordinary	100
NEI International Combustion Limited *	Derby [1]	Ordinary	100
NEI Mining Equipment Limited *	Derby [1]	Ordinary	100
NEI Nuclear Systems Limited *	Derby [1]	Ordinary	100
NEI Parsons Limited *	Derby [1]	Ordinary	100
NEI Peebles Limited *	Derby [1]	Ordinary	100
NEI Power Projects Limited *	Derby [1]	Ordinary	100
Nightingale Insurance Limited	Maison Trinity, Trinity Square, St. Peter Port, GY1 4AT, Guernsey	Ordinary	100
PKMJ Technical Services, Inc. [4]	Wilmington [2]	Ordinary	100
Power Jets (Research and Development) Limited *	The Whittle Estate, Cambridge Road, Whetstone, Leicester, LE8 6LH, England	Ordinary	100
Powerfield Limited	Derby [1]	Ordinary	100
Precision Casting Bilbao S.A.U.	Calle El Barracón 1, Baracaldo, Vizcaya, 48910 Spain	Ordinary	100

* Dormant entity.
[1] Moor Lane, Derby, DE24 8BJ, England.
[2] Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.
[3] Reporting year end is 31 March.
[4] Sold to Westinghouse with effect from 31 January 2020 (see page 178).

Company name	Address	Class of shares	% of class held
PT MTU Indonesia	Secure Building Blok B, Jl. Raya Protokol Halim, Perdanakusuma, Jakarta, 13610, Indonesia	Ordinary	100
PT Rolls-Royce	Secure Building Blok B, Jl. Raya Protokol Halim, Perdanakusuma, Jakarta, 13610, Indonesia	Ordinary	100
Rolls-Royce (Ireland) Unlimited Company *	Ulster International Finance, 1st Floor IFSC House, IFSC, Dublin 1, Ireland	Ordinary	100
Rolls-Royce (Thailand) Limited	4, 4.5 Level 12, Suite 1299, Rajdamri Road, Pathumwan, Bangkok, 10330, Thailand	Ordinary	100
Rolls-Royce Aero Engine Services Limited *	Derby [1]	Ordinary	100
Rolls-Royce Australia Pty Limited	Suite 102, 2–4 Lyonpark Road, Macquarie Park, NSW 2113, Australia	Ordinary	100
Rolls-Royce Australia Services Pty Limited	Suite 102, 2–4 Lyonpark Road, Macquarie Park, NSW 2113, Australia	Ordinary	100
Rolls-Royce Brasil Limitada	Rua drive Cincinato Braga No. 47, Planalto District, São Bernando do Campo, SP, 09890-900, Brazil	Quotas	100
Rolls-Royce Canada Limited	9500 Côte de Liesse, Lachine, Québec H8T 1A2, Canada	Common Stock	100
Rolls-Royce Chile SpA	Alcantra 200 office 601, Piso 6, C.O, 7550159 Las Condes, Santiago, Chile	Ordinary	100
Rolls-Royce China Holding Limited	305–306 Indigo Building 1, 20 Jiuxianqiao Road, Beijing, 100016, China	Registered Capital	100
Rolls-Royce Civil Nuclear Canada Limited [4]	597 The Queensway, Peterborough Ontario K9J 7J6, Canada	Common Shares	100
Rolls-Royce Civil Nuclear S.A.S.	23 chemin du Vieux Chêne, 38240, Meylan, France	Ordinary	100
Rolls-Royce Commercial Aero Engines Limited *	Derby [1]	Ordinary	100
Rolls-Royce Control Systems Holdings Co	Wilmington [2]	Common Stock	100
Rolls-Royce Controls and Data Services (NZ) Limited	c/o Deloitte, 80 Queen Street, Auckland Central, Auckland 1010, New Zealand	Ordinary	100
Rolls-Royce Controls and Data Services (UK) Limited	Derby [1]	Ordinary	100
Rolls-Royce Controls and Data Services, Inc. [5]	Wilmington [2]	Common Stock	100
Rolls-Royce Controls and Data Services Limited*	Derby [1]	Ordinary	100
Rolls-Royce Corporation	Wilmington [2]	Common Stock	100
Rolls-Royce Crosspointe LLC	Wilmington [2]	Partnership (no equity)	100
Rolls-Royce Defense Products and Solutions, Inc.	Wilmington [2]	Common Stock	100
Rolls-Royce Defense Services, Inc.	Wilmington [2]	Common Stock	100
Rolls-Royce Deutschland Ltd & Co KG	Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany	Capital Stock	100
Rolls-Royce Electrical Norway AS	Jarleveien 8A, 7041, Trondheim 500, Norway	Ordinary	100
Rolls-Royce Energy Angola, Limitada *	Rua Rei Katyavala, Edificio Rei Katyavala, Entrada B, Piso 8, Luanda, Angola	Quota	100
Rolls-Royce Energy Systems Inc.	Wilmington [2]	Common Stock	100
Rolls-Royce Engine Services Holdings Co.	Wilmington [2]	Common Stock	100
Rolls-Royce Engine Services Limitada Inc. (in liquidation)	Bldg. 06 Berthaphil Compound, Jose Abad Santos Avenue, Clark Special Economic Zone, Clark, Pampanga, Philippines	Capital Stock	100
Rolls-Royce Erste Beteiligungs GmbH	Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany	Capital Stock	100
Rolls-Royce Finance Company Limited	Derby [1]	Deferred Ordinary	100 100
Rolls-Royce Finance Holdings Co.	Wilmington [2]	Common Stock	100
Rolls-Royce Fuel Cell Systems Limited	Derby [1]	Ordinary	100
Rolls-Royce General Partner Limited *	Derby [1]	Ordinary	100
Rolls-Royce General Partner (Ireland) Limited	29 Earlshot Terrace, Dublin 2, Ireland	Ordinary	100

* Dormant entity.
[1] Moor Lane, Derby, DE24 8BJ, England.
[2] Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.
[4] Sold to Westinghouse with effect from 31 January 2020 (see page 178).
[5] Sold to Valsoft Corporation Inc on 3 February 2020.

Company name	Address	Class of shares	% of class held
Rolls-Royce Group Limited [#]	Kings Place, 90 York Way, London, N1 9FX, England	Ordinary Ordinary A	100 100
Rolls-Royce High Temperature Composites, Inc.	Corporation Service Company, 2710 Gateway Oaks Drive, Suite 150N, Sacramento, California 95833, United States	Ordinary	100
Rolls-Royce Holdings Canada Inc.	9500 Côte de Liesse, Lachine, Québec H8T 1A2, Canada	Common C	100
Rolls-Royce Hungary Kft	Gizella U. 51–57, 1143 Budapest, Hungary	Cash shares	100
Rolls-Royce India Limited [*,3]	Derby [1]	Ordinary	100
Rolls-Royce India Private Limited [3]	Birla Tower West, 2nd Floor 25, Barakhamba Road, New Delhi, 110001, India	Equity	100
Rolls-Royce Industrial & Marine Power Limited *	Derby [1]	Ordinary	100
Rolls-Royce Industrial Power (India) Limited [*,3]	Derby [1]	Ordinary	100
Rolls-Royce Industrial Power Engineering (Overseas Projects) Limited	Derby [1]	Ordinary	100
Rolls-Royce Industries Limited *	Derby [1]	Ordinary	100
Rolls-Royce International Limited	Derby [1]	Ordinary	100
Rolls-Royce International s.r.o.	Pobřežní 620/3, Postal code 186 00, Karlin – Prague 8, Czech Republic	Ordinary	100
Rolls-Royce Japan Co., Limited	31st Floor, Kasumigaseki Building, 3-2-5 Kasumigaseki, Chiyoda-Ku, Tokyo, 100-6031, Japan	Ordinary	100
Rolls-Royce Leasing Limited	Derby [1]	Ordinary	100
Rolls-Royce Malaysia Sdn. Bhd.	C-2-3A TTDI Plaza, Jalan Wan Kadir 3, Taman Tun Dr Ismail, 6000 Kuala Lumpur, Malaysia	Ordinary	100
Rolls-Royce Marine North America, Inc.	Wilmington [2]	Common Stock	100
Rolls-Royce Mexico Administration S. de R.L. de C.V.	Boulevard Adolfo Ruiz Cortinez 3642-403, Fracc Costa de Oro, Verzcruz CP 94299 6, Mexico	Ordinary	100
Rolls-Royce Mexico S. de R.L. de C.V.	Boulevard Adolfo Ruiz Cortinez 3642-403, Fracc Costa de Oro, Verzcruz CP 94299 6, Mexico	Ordinary	100
Rolls-Royce Military Aero Engines Limited [*,3]	Derby [1]	Ordinary	100
Rolls-Royce New Zealand Limited	c/o Deloitte, 80 Queen Street, Auckland Central, Auckland 1010, New Zealand	Ordinary	100
Rolls-Royce North America (USA) Holdings Co.	Wilmington [2]	Common Stock	100
Rolls-Royce North America Holdings, Inc.	Wilmington [2]	Common Stock	100
Rolls-Royce North America, Inc.	Wilmington [2]	Common Stock	100
Rolls-Royce North America Ventures, Inc.	Wilmington [2]	Common Stock	100
Rolls-Royce North American Technologies, Inc.	Wilmington [2]	Common Stock	100
Rolls-Royce Nuclear Field Services France S.A.S. [4]	ZA Notre-Dame, 84430, Mondragon, France	Ordinary	100
Rolls-Royce Nuclear Field Services, Inc. [4]	Corporation Service Company, 80 State Street, Albany, New York 12207, United States	Common Stock	100
Rolls-Royce Oman LLC	Bait Al Reem, Business Office #131, Building No 81, Way No 3409, Block No 234, Al Thaqafa Street, Al Khuwair, PO Box 20, Postal Code 103, Oman	Ordinary	100
Rolls-Royce Operations (India) Private Limited	Birla Tower West, 2nd Floor, 25 Barakhamba Road, New Delhi, 110001, India	Ordinary	100
Rolls-Royce Overseas Holdings Limited	Derby [1]	Ordinary Ordinary A	100 100
Rolls-Royce Overseas Investments Limited	Derby [1]	Ordinary	100
Rolls-Royce Placements Limited	Derby [1]	Ordinary	100
Rolls-Royce plc	Kings Place, 90 York Way, London, N1 9FX, England	Ordinary	100
Rolls-Royce Power Engineering plc	Derby [1]	Ordinary	100
Rolls-Royce Power Systems AG	Maybachplatz 1, 88045, Friedrichshafen, Germany	Ordinary	100

Re-registered as a private company on 5 December 2019.
* Dormant entity.
1 Moor Lane, Derby, DE24 8BJ, England.
2 Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.
3 Reporting year end is 31 March.
4 Sold to Westinghouse with effect from 31 January 2020 (see page 178).

Company name	Address	Class of shares	% of class held
Rolls-Royce Saudi Arabia Limited	PO Box 88545, Riyadh, 11672, Saudi Arabia	Cash shares	100
Rolls-Royce Retirement Savings Trust Limited *,3	Derby 1	Ordinary	100
Rolls-Royce Singapore Pte. Limited	6 Shenton Way, #33-00 OUE, Downtown Singapore 068809, Singapore	Ordinary	100
Rolls-Royce Sp z.o.o.	Opolska 100 31-323, Krakow, Poland	Ordinary	100
Rolls-Royce Submarines Limited	Atlantic House, Raynesway, Derby, DE21 7BE, Derbyshire, England	Ordinary	100
Rolls-Royce Technical Support Sarl	Centreda I, Avenue Didier Daurat, 31700 Blagnac, Toulouse, France	Ordinary	100
Rolls-Royce Total Care Services Limited	Derby 1	Ordinary	100
Rolls-Royce Turkey Power Solutions Industry and Trade Limited	Levazim Mahellesi, Koru Sokagi, Zorlu Center, No. 2 Teras Evler T2 D:204, Zincirlikuyu, Besiktas, Istanbul 34340, Turkey	Cash shares	100
Rolls-Royce UK Pension Fund Trustees Limited *	Derby 1	Ordinary	100
Rolls-Royce Zweite Beteiligungs GmbH	Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany	Capital Stock	100
Ross Ceramics Limited	Derby 1	Ordinary	100
Sharing in Growth UK Limited **	Derby 1	Limited by guarantee	100
Spare IPG 20 Limited *	Derby 1	Ordinary	100
Spare IPG 21 Limited *	Derby 1	Ordinary	100
Spare IPG 24 Limited *	Derby 1	Ordinary	100
Spare IPG 32 Limited *	Derby 1	7.25% Cumulative Preference Ordinary	100 100
Spare IPG 4 Limited *	Derby 1	Ordinary	100
The Bushing Company Limited *	Derby 1	Ordinary	100
Timec 1487 Limited *	Derby 1	Ordinary	100
Trigno Energy S.R.L.	Zona Industriale, San Salvo, 66050, Italy	Ordinary	100
Turbine Surface Technologies Limited **	Derby 1	Ordinary A Ordinary B	Nil 100
Turborreactores S.A. de C.V.	Acceso IV, No.6C, Zona Industrial Benito Juárez, Querétaro, 76120, Mexico	Class A Class B	100 100
Vessel Lifter, Inc. *	Corporation Service Company, 1201 Hays Street, Tallahassee, Florida 32301, United States	Common Stock	100
Vinters Defence Systems Limited *	Derby 1	Ordinary	100
Vinters Engineering Limited	Derby 1	Ordinary	100
Vinters International Limited	Derby 1	Ordinary	100
Vinters Limited	Derby 1	Ordinary	100
Vinters-Armstrongs (Engineers) Limited *	Derby 1	Ordinary	100
Vinters-Armstrongs Limited *	Derby 1	Ordinary B	100

* Dormant entity.
**The entity is not included in the consolidation as Rolls-Royce plc does not have a beneficial interest in the net assets of the entity.
1 Moor Lane, Derby, DE24 8BJ, England.
3 Reporting year end is 31 March.

JOINT VENTURES AND ASSOCIATES

Company name	Address	Class of shares	% of class held	Group interest held %
Aero Gearbox International SAS **	18 Boulevard Louis Sequin, 92700 Colombes, France	Ordinary	50	50
Airtanker Holdings Limited	Airtanker Hub, RAF Brize Norton, Carterton, Oxfordshire, OX18 3LX, England	Ordinary	20	20
Airtanker Services Limited	Airtanker Hub, RAF Brize Norton, Carterton, Oxfordshire, OX18 3LX, England	Ordinary	22	22
Alpha Leasing (US) (No.2) LLC	Wilmington [2]	Partnership (no equity held)	–	50
Alpha Leasing (US) (No.4) LLC	Wilmington [2]	Partnership (no equity held)	–	50
Alpha Leasing (US) (No.5) LLC	Wilmington [2]	Partnership (no equity held)	–	50
Alpha Leasing (US) (No.6) LLC	Wilmington [2]	Partnership (no equity held)	–	50
Alpha Leasing (US) (No.7) LLC	Wilmington [2]	Partnership (no equity held)	–	50
Alpha Leasing (US) (No.8) LLC	Wilmington [2]	Partnership (no equity held)	–	50
Alpha Leasing (US) LLC	Wilmington [2]	Partnership (no equity held)	–	50
Alpha Partners Leasing Limited	1 Brewer's Green, London, SW1H 0RH, England	Ordinary A	100	50
CFMS Limited	43 Queen Street, Bristol, BS1 4QP, England	Limited by guarantee	–	50
Clarke Chapman Portia Port Services Limited	Maritime Centre, Port of Liverpool, Liverpool, L21 1LA, England	Ordinary A	100	50
Consorcio Español para el Desarrollo Industrial del Helicóptero de Ataque Tigre, A.I.E.	Avda. de Aragón 404, 28022 Madrid, Spain	Partnership (no equity held)	–	50
Consorcio Español para el Desarrollo Industrial del Programa Eurofighter, A.I.E.	Paseo de John Lennon, s/n, edificio T22, 2ª planta, Getafe, Madrid, Spain	Partnership (no equity held)	–	50
Egypt Aero Management Services (in liquidation)	EgyptAir Engine Workshop, Cairo International Airport, Cairo, Egypt	Ordinary	50	50
EPI Europrop International GmbH	Dachauer Strasse 655, 80995, Munich, Germany	Capital Stock	44	44
EPIX Power Systems, LLC	The Corporation Trust Company, 1209 Orange Street, Wilmington, Delaware 19801, United States	Partnership (no equity held)	–	50
Eurojet Turbo GmbH	Lilienthalstrasse 2b, 85399 Halbergmoos, Germany	Capital Stock	46	46
Force MTU Power Systems Private Limited	Mumbai Pune Road, Akurdi, Pune, Maharashtra 411035, India	Capital Stock	49	49
Genistics Holdings Limited	Derby [1]	Ordinary A	100	50
Global Aerospace Centre for Icing and Environmental Research Inc. **	1000 Marie-Victorin Boulevard, Longueuil Québec J4G 1A1, Canada	Ordinary	50	50
Hong Kong Aero Engine Services Limited	33rd Floor, One Pacific Place, 88 Queensway, Hong Kong	Ordinary	50	50
International Aerospace Manufacturing Private Limited **,3	Survey No. 3 Kempapura Village, Varthur Hobli, Bangalore, KA 560037, India	Ordinary	50	50
Light Helicopter Turbine Engine Company (unincorporated partnership)	Suite 119, 9238 Madison Boulevard, Madison, Alabama 35758, United States	Partnership (no equity held)	–	50
MEST Co., Limited	97 Bukjeonggongdan 2-gil, Yangsan-si, Gyeongsangnam-do, 50571, Republic of Korea	Normal	46.8	46.8
Metlase Limited	Unipart House, Garsington Road, Cowley, Oxford, OX4 2PG, England	Ordinary B	100	20
MTU Power Systems Sdn. Bhd.	Level 10 Menara LGB, 1 Jalan Wan Kadir Taman Tun Dr Ismail 6000 Kuala Lumpur, Malaysia	Ordinary A	100	49
MTU Turbomeca Rolls-Royce GmbH	Am Söldnermoos 17, 85399 Hallbergmoos, Germany	Capital Stock	33.3	33.3

** These entities are accounted for as joint operations (see note 1 accounting policies).
[1] Moor Lane, Derby, Derbyshire DE24 8BJ, England.
[2] Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.
[3] Reporting year end is 31 March.

Company name	Address	Class of shares	% of class held	Group interest held %
MTU Turbomeca Rolls-Royce ITP GmbH	Am Söldnermoos 17, 85399 Hallbergmoos, Germany	Capital Stock	50	50
MTU Yuchai Power Company Limited	No 7 Danan Road, Yuzhou, Yulin, Guangxi, China, 537005, China	Capital Stock	50	50
N3 Engine Overhaul Services GmbH & Co KG	Gerhard-Höltje-Strasse 1, D-99310, Arnstadt, Germany	Capital Stock	50	50
N3 Engine Overhaul Services Verwaltungsgesellschaft Mbh	Gerhard-Höltje-Strasse 1, D-99310, Arnstadt, Germany	Capital Stock	50	50
Qinous GmbH	Villa Rathenau, Wilhelminenhofstrasse 75, 12459 Berlin, Germany	Preference	22	22
Rolls Laval Heat Exchangers Limited *	Derby [1]	Ordinary	50	50
Rolls-Royce & Partners Finance (US) (No 2) LLC	Wilmington [2]	Partnership (no equity held)	–	50
Rolls-Royce & Partners Finance (US) LLC	Wilmington [2]	Partnership (no equity held)	–	50
SAFYRR Propulsion Limited	Derby [1]	B Shares	100	50
Shanxi North MTU Diesel Co. Limited	No.97 Daqing West Road, Datong City, Shanxi Province, China	Ordinary	49	49
Singapore Aero Engine Services Private Limited	11 Calshot Road, 509932, Singapore	Ordinary	50	50
Taec Ucak Motor Sanayi AS	Buyukdere Caddesi, Prof. Ahmet Kemal Aru, Sokagi Kaleseramik, Binasi Levent No. 4, Besiktas, Istanbul, Turkey	Cash Shares	49	49
Techjet Aerofoils Limited **	Tefen Industrial Zone, PO Box 16, 24959, Israel	Ordinary A Ordinary B	50 50	50
Texas Aero Engine Services LLC	The Corporation Trust Company, 1209, Orange Street, Wilmington, Delaware 19801, United States	Partnership (no equity held)	–	50
TRT Limited	Derby [1]	Ordinary B	100	49.9
Turbo-Union GmbH	Lilienthalstrasse 2b, 85399 Hallbergmoos, Munich, Germany	Capital Stock	40	40
UK Nuclear Restoration Limited *	Booths Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ, England	Ordinary	20	20
Xian XR Aero Components Co., Limited **	Xujiawan, Beijiao, Po Box 13, Xian 710021, Shaanxi, China	Ordinary	49	49

* Dormant company.
** These entities are accounted for as joint operations (see note 1 accounting policies).
[1] Moor Lane, Derby, DE24 8BJ, England.
[2] Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808, United States.

INDEPENDENT AUDITORS' REPORT

to the members of Rolls-Royce Holdings plc

Report on the audit of the financial statements

Opinion

In our opinion:

- **Rolls-Royce Holdings 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 2019 and of the Group's loss and cash flows for the year then ended;**
- **the Consolidated Financial Statements have been properly prepared in accordance with International Financial Reporting Standards (IFRSs) as adopted by the European Union;**
- **the Company Financial Statements have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 "Reduced Disclosure Framework", and applicable law); and**
- **the financial statements have been prepared in accordance with the requirements of the Companies Act 2006 and, as regards the Group financial statements, Article 4 of the IAS Regulation.**

We have audited the financial statements, included within the Annual Report, which comprise: the Consolidated and Company Balance Sheets at 31 December 2019; the Consolidated Income Statement and Consolidated Statement of Comprehensive Income; the Consolidated Cash Flow Statement for the year then ended; the Consolidated and Company Statements of Changes in Equity for the year then ended; and the notes to the Consolidated and Company Financial Statements, which include a description of the significant accounting policies.

Our opinion is consistent with our reporting to the Audit Committee.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) ("ISAs (UK)") and applicable law. Our responsibilities under ISAs (UK) are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We remained independent of the Group in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, which includes the FRC's Ethical Standard, as applicable to listed public interest entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

To the best of our knowledge and belief, we declare that non-audit services prohibited by the FRC's Ethical Standard were not provided to the Group or the Company.

Other than those disclosed in note 7 on page 145, we have provided no non-audit services to the Group or the Company in the period from 1 January 2019 to 31 December 2019.

Our audit approach

Overview

- Overall Group materiality: £75 million (2018: £56 million), based on 0.5% of total underlying revenue.
- Overall Company materiality: £126 million (2018: £128 million), based on 1.0% of total assets. This exceeds Group materiality as it is determined on a different basis given the nature of the Company's operations. For the purposes of the audit of the Consolidated Financial Statements, our procedures, including those on balances in the Company, are undertaken with reference to Group materiality.

- Following our assessment of the risks of material misstatement of the Consolidated Financial Statements we subjected 30 individual components (including three joint ventures) to full scope audits for Group purposes, which following an element of consolidation, equates to 14 Group reporting opinions. In addition seven 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 goodwill and intangible asset impairment assessments.
- The components on which full scope audits, targeted specified procedures and centralised work was performed accounted for 90% of revenue, 86% of loss before tax and 85% of total assets.
- Central audit testing was performed where appropriate for reporting components in Group audit scope supported by the Group's Finance Service Centres (FSCs).
- As part of the supervision process, the Group engagement team has visited 14 components as well as the FSCs. Interactions with component auditors also included formal written instructions, meetings and reviewing selected audit papers.

Our assessment of the risk of material misstatement also informed our views of the areas of particular focus of our work which are listed below:

- Long-term contract accounting and associated provisions (Group);
- The recognition of deferred tax assets (Group);
- The translation of foreign-currency denominated transactions and balances (Group);
- The presentation and accuracy of underlying results and disclosure of other one-off items (including exceptional items) (Group);
- Implementation of IFRS 16: Leases (Group);
- Response to deferred prosecution and leniency agreements in connection with alleged bribery and corruption in overseas markets (Group); and
- Recoverability of the Company's investment in subsidiary undertakings (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. In particular, we looked at where the Directors made subjective judgements, for example in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain.

Capability of the audit in detecting irregularities, including fraud

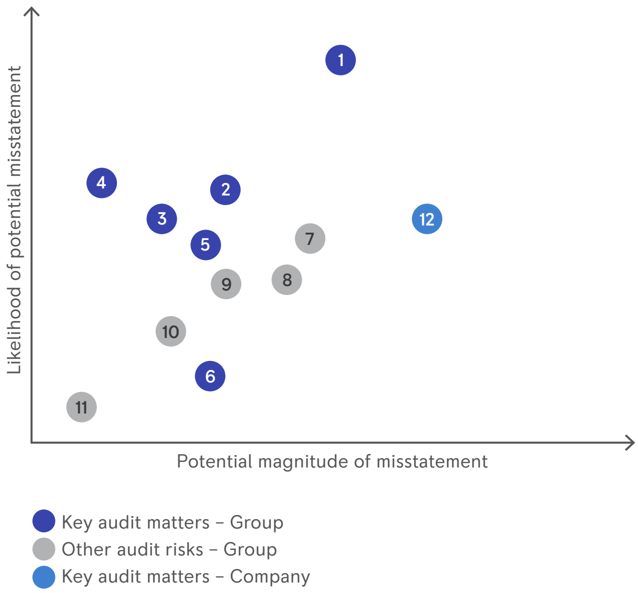
Based on our understanding of the Group and industries in which it operates, we identified that the principal risks of non-compliance with laws and regulations related to international tax legislation, Civil Aviation Authority regulations, import and export restrictions (including International Traffic in Arms Regulations), UK Bribery Act, US Foreign Corrupt Practices Act and the requirements of the deferred prosecution and leniency agreements the Group previously entered into and we considered the extent to which non-compliance might have a material effect on the financial statements. We also considered those laws and regulations that have a direct impact on the preparation of the financial statements such as the Companies Act 2006. We evaluated management's incentives and opportunities for fraudulent manipulation of the financial statements (including the risk of override of controls) and determined that the principal risks were related to posting journal entries to increase profits or reclassify costs, management bias in accounting estimates especially long-term contract accounting and associated provisions, sale of engines to joint ventures for no clear commercial purpose or above market prices and inappropriately including or excluding transactions from underlying or free cash flow 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 with management, internal audit and the Group's internal and external legal counsel, including consideration of known or suspected instances of non-compliance with laws and regulation and fraud;
- Assessment of matters reported on the Group's whistle-blowing helpline and the results of management's investigation of such matters;
- Challenging assumptions and judgements made by management in determining significant accounting estimates, in particular in relation to long-term contract accounting and associated provisions (see related key audit matters below);
- Identifying and testing journal entries, in particular journal entries posted with unusual account combinations; 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 and the further removed non-compliance with laws and regulations is from the events and transactions reflected in the financial statements, the less likely we would become aware of it. Also, the risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error, as fraud may involve deliberate concealment by, for example, forgery or intentional misrepresentations, or through collusion.

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. We have presented the key audit matters and the other risks subject to audit focus in the graph and table below. This is not a complete list of all risks identified by our audit.



	Risks	Change from prior year
Key audit matters – Group		
1	Long-term contract accounting and associated provisions	<>
2	The recognition of deferred tax assets	<>
3	Presentation of underlying results and disclosure of other one-off items (including exceptional items)	<>
4	Translation of foreign currency denominated transactions and balances	<>
5	Response of the Group to the deferred prosecution and leniency agreements in connection with alleged bribery and corruption in overseas markets	↓
6	Implementation of IFRS 16	new
Other audit risks – Group		
7	Accounting for complex treasury instruments	<>
8	Measurement of post-retirement benefits	<>
9	Recoverability of programme assets	↓
10	Consolidation process and joint venture accounting	<>
11	Uncertain tax positions	<>
Key audit matters – Company		
12	Recoverability of the Company's investments in subsidiary undertakings	new

Key changes in the assessment of audit risks for the current period compared to the prior period are:

- Capitalisation and amortisation of development costs is no longer considered a key audit matter after no material issues were identified in the 2018 audit following changes in methodology for starting and subsequently ceasing the capitalisation of development costs which became effective on 1 January 2018;
- Implementation of IFRS 15: Revenue from Contracts with Customers is no longer considered a key audit matter as 2019 is the second year that the accounting standard has been applied by the Group. A new key audit matter has been included for IFRS 16: Leases which was adopted on 1 January 2019 and resulted in material right-of-use assets and lease liabilities being recognised on the Consolidated Balance Sheet;
- The valuation of ITP Aero is no longer considered a key audit matter after the finalisation of the purchase price allocation in 2018; and
- A new key audit matter has been included for the recoverability of the Company's investments in subsidiary undertakings reflecting the decline in the market capitalisation of the Group and the net liability position of the Consolidated Balance Sheet, which represent potential indicators of impairment.

Key audit matter	How our audit addressed the key audit matter
Long-term contract accounting and associated provisions *(relevant to the Consolidated Financial Statements)* *Page 82 (Audit Committee report) and page 125 (note 1 to the Consolidated 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 level of revenue and profit that is recognised in each period. For Civil Aerospace aftermarket contracts, the profitability 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 the engine flying hours, time-on-wing, whether incremental costs should be treated as wastage or are part of the ongoing cost of servicing a contract, 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. Small adjustments can have a significant impact on the results of an individual financial year. In addition, changes to the operating condition of engines such as changes in route structure can result in different performance assumptions and hence cost profiles which impact the profitability of a contract. The Group continues to experience significant in-service issues on the Trent 1000 programme with an additional exceptional charge booked in the year. The assessment of the total cost of delivering this programme, the cost of the proposed engineering solutions, changes in the shop visit profile, speed of implementation of design, manufacture and installation of improved parts and the level of customer disruption which was not expected at the inception of the contract are all significant judgements which impact the value and timing of revenue and profit recognition. In addition, certain contracts may become onerous as a result and require immediate recognition of the loss. At the development stage of a programme, agreements are entered into with certain suppliers to share in the risk and rewards of the contracts (Risk and Revenue Sharing Partners – 'RRSP'). This can involve upfront participation fees from the RRSP that are amortised over the engine production phase. In addition, specified revenue and costs are recorded in the Consolidated Income Statement net of the RRSP's share. The nature of the Civil Aerospace business gives rise to a number of contractual guarantees, warranties and potential claims. The accounting for these can be complex and judgemental and may impact the Consolidated Income Statement immediately or over the life of the contract.	Our procedures over the long-term contract accounting applied in the Civil Aerospace and Defence businesses are largely substantive in nature and included: – We attended meetings with Civil Aerospace and Defence programme and contract managers in order to understand the operational matters impacting the performance of specific contracts and any amendments to contractual arrangements; required by changes to underlying expectations of the contract 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 re-performed the calculations used to determine the degree of completion for a sample of contracts and this was also used in assessing the magnitude of any catch-up adjustments; – We compared the previously forecast results of a sample of contracts with the actual results to assess the performance of the contract and the historical accuracy of forecasting; – We verified a sample of costs incurred to third party documentation in order to assess the validity of the forecast costs to complete; – We challenged management's judgement around whether incremental contract costs arising from in-service issues should be accounted for over the expected duration of the underlying contract or recognised immediately; – Where the disruption has resulted in payments to customers we have validated the settlement to contractual agreements, considered the terms of previous settlements, correspondence with customers, the forecast period of further aircraft being on the ground and the completeness of the liability; – We assessed the assumptions relating to life cycle cost reductions to determine the likelihood of realisation and where relevant the speed at which they would be achieved, including the impact on the number of shop visits, validating these assumptions directly with the senior programme engineers; – Where the revision of assumptions has resulted in catch-up adjustments we have understood the driver of the adjustments and validated the impact to appropriate source information; – We obtained support for the risk adjustments made in respect of future costs and challenged management's assumptions through assessment against historical performance, known technical issues and the stage of completion of the programme; – We challenged the assessment of provisions for loss making or onerous contracts to determine the completeness of the unavoidable costs to fulfil the contractual obligations; – 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;

Key audit matter	How our audit addressed the key audit matter
Long-term contract accounting and associated provisions continued The valuation of associated amounts may be highly judgemental and needs to be considered on a contract by contract basis.	– We reviewed a sample of RRSP contracts to assess whether revenue and costs had been appropriately reflected, net of the share attributable to the RRSP in the Consolidated Income Statement; – We considered whether there were any indicators of management override of controls or bias in arriving at their reported position; and – We also assessed the adequacy of disclosures in note 1 of the key judgements and estimates involved in long-term contract accounting. Overall we concluded that the key estimates and judgements used by management in the long-term contract accounting were supportable and the balances recorded in the financial statements to be materially correct.
The recognition of deferred tax assets *(relevant to the Consolidated Financial Statements)* *Page 82 (Audit Committee report), page 127 (note 1 to the Consolidated Financial Statements – Accounting policies – Taxation), and pages 141 to 144 (note 5 to the Consolidated Financial Statements – Taxation)* The recognition and recoverability of deferred tax assets is a significant judgement. The Group has recognised significant deferred tax assets on the basis of future levels of profitability in the relevant tax jurisdiction. The magnitude of the assets recognised necessitates the need for significant judgement in assessing the future levels of profitability over an extended period. The loss reported for 2019 in the UK presents a heightened risk that deferred tax assets are recognised inappropriately. Further there is an inherent increased level of uncertainty in the level of forecast profits over an extended period.	We evaluated management's assessment as to the availability of sufficient taxable profits in future periods to support the recognition of deferred tax assets, taking into account both business model and the tax jurisdiction. We assessed the future profit forecasts and the underpinning assumptions including management's risk weighting of particular profit streams in the UK where the largest deferred tax asset is recognised. The right of offset of certain deferred tax liabilities and deferred tax assets was also assessed. Where applicable we reconciled the forecasts used to justify the recognition of deferred tax assets to those used elsewhere in the business including for long-term contract accounting, impairment assessments, or for the Directors' viability and going concern statements. We also assessed the adequacy of disclosures over this area, particularly the impact of changes in key estimates of the asset recognised and this has been disclosed in note 1. We did not identify any material uncorrected exceptions from our audit work.
The translation of foreign-currency denominated transactions and balances *(relevant to the Consolidated Financial Statements)* *Page 128 (note 1 to the Consolidated Financial Statements – Accounting policies – Foreign currency translation)* Foreign exchange rate movements influence the reported Consolidated Income Statement, the Consolidated Cash Flow Statement and closing net funds balance. One of the Group's primary accounting systems translates transactions denominated in foreign currencies at a fixed rate. Foreign currency denominated transactions and balances are then re-translated to actual average and spot rates through manual adjustments. Due to the manual nature of the process and significance of the recurring adjustment there is a risk that transactions and balances denominated in foreign currencies are inappropriately translated in the Consolidated Financial Statements.	In addition to our testing in other areas of the various financial statement line items, we performed the following specific audit procedures over this area: – Obtained an understanding of the process employed by management to correctly report the translation of foreign currency balances and transactions; – Tested system reports identifying transactions and balances in source currency by agreeing these to general ledger balances; – Reperformed manual calculations of the adjustment needed to correctly report the translation of the foreign currency denominated transactions and balances; – We reconciled the balances and transactions requiring adjustment by source currency to source data and assessed the completeness of these balances and transactions; – For exchange rates used in management's calculations for the translation adjustments we agreed these 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. We did not identify any material uncorrected exceptions from our audit work.

Key audit matter	How our audit addressed the key audit matter
Presentation of underlying results and disclosure of other one-off items (including exceptional items) *(relevant to the Consolidated Financial Statements)* *Page 124 (note 1 to the Consolidated Financial Statements – Accounting policies – Presentation of underlying results), page 134 (Note 2 to the Consolidated Financial Statements – Segmental analysis) and page 179 (note 28 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 the results on an "underlying" basis, as the Directors believe this better reflects the performance of the Group during the year. The Group also presents a free cash flow metric which the Directors believe reflects the cash generated from underlying trading, which differs from the cash flows presented in the Consolidated Cash Flow Statement. A key adjustment between the statutory results and the underlying results relates to the foreign exchange rates used to translate foreign currency transactions. The underlying results reflect the achieved rate on foreign currency contracts settled in the period and retranslates assets and liabilities at the foreign currency rates expected to be achieved in the future. As the Group can influence which contracts are settled in each reporting period it has the ability to influence the achieved rate and hence the underlying result. The underlying results differ significantly from the reported statutory results and are used extensively to explain performance to the shareholders. Alternative performance measures can provide investors with a better understanding of the Group's performance if properly used and presented. However, when improperly used and presented, these kinds of measures can mislead investors by masking the real financial performance and position.	We considered the judgements taken by management to determine what should be treated as a one-off or exceptional item and the translation of foreign currency amounts and obtained corroborative evidence for these. We also considered whether there were items that were recorded within underlying profit that we consider 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. We tested management's calculation to translate foreign currency transactions to reflect the achieved foreign exchange rates based on foreign currency contracts settled in the year, and to translate year end assets and liabilities at foreign currency rates that are expected to be achieved in the future. We corroborated these rates to the Group's hedging contracts. We also assessed whether the discretion used by management over the date on which forward foreign exchange contracts are settled indicated any evidence of bias. We audited the reconciling items between the underlying profit before tax and free cash flow disclosed in note 28 including verifying that the items adjusted for are consistent with the prior period. We also considered whether free cash flow contains material one-off items which require further disclosure. We also assessed the appropriateness and completeness of the disclosures of the impact of one-off or non-underlying items in note 1 and note 2 and other related notes to the Consolidated Financial Statements and found them to be appropriate. 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 found no material exceptions from our testing.
Implementation of IFRS 16: Leases *(relevant to the Consolidated Financial Statements)* *Page 181 to 182 (note 29 to the Consolidated Financial Statements)* At 1 January 2019, the Group adopted IFRS 16: Leases. This accounting standard required operating leases to be brought onto the Consolidated Balance Sheet for the first time and resulted in right-of-use assets of £2,254 million and lease liabilities of £2,289 million being recognised on adoption. The right-of-use assets and lease liabilities are estimated based on the discounted future lease payments. There is judgement over the period that the balances are calculated where lease agreements contain options for the contract to be extended or terminated early. Furthermore, there is judgement over the discount rate applied to the forecast cash flows, determining the lease term and where lease agreements contain residual value guarantees, the refurbishment costs that will be required to settle these. There is also a risk that the lease liabilities or right-of-use asset balances do not include all of the lease arrangements that the Group is party to.	For a sample of leases, we recalculated the right-of-use asset and associated lease liability and validated the characteristics that determine these to the underlying lease agreements. Our internal experts compared the rate used to discount future lease payments against corporate bond yields, adjusted property yields and borrowing costs and found that the rate was a reasonable approximation of the incremental borrowing rate of the lessee. We tested management's reconciliation between the operating lease commitments at 31 December 2018 and the lease liability recognised on adoption disclosed in note 29 and compared lease expenses for the year ended 31 December 2018 to leases included in management's calculations for IFRS 16 adoption to validate that management's list of leases was complete. Where leases contained an option for early termination or extension, we considered how likely it was to be exercised, based on the nature of the assets and the terms including charges in the period under option. Certain engine leases also contain clauses that guarantee the value of the engine when it is returned to the lessor. This charge is included in lease liabilities. We validated management's estimate of this charge based on the flying hours and forecast shop visit costs, including comparing these costs to historical charges. We also considered the adequacy of the Group's disclosure of the impacting on the adoption of IFRS 16 as set out in notes 1 and 29 which we found to be appropriate. As a result of our work, we did not identify any material differences in the adjustments recorded on the implementation of IFRS 16.

Key audit matter	How our audit addressed the key audit matter
Response to deferred prosecution and leniency agreements in connection with alleged bribery and corruption in overseas markets *(relevant to the Consolidated Financial Statements)* *Page 176 (note 25 to the Consolidated Financial Statements – Contingent Liabilities)* In January 2017, the Group became party to deferred prosecution agreements with the UK Serious Fraud Office ("SFO") and the US Department of Justice ("DoJ"), and a leniency agreement with the Brazilian Federal Prosecution Service ("MPF") (collectively the "Agreements") as a consequence of allegations of fraudulent payments to overseas intermediaries. Prosecution was deferred provided that the Group fulfils certain requirements, including the settlement of a financial penalty. The Group operates in industries which are characterised by competition for individually significant contracts with customers which are often directly or indirectly associated with governments, and in a number of territories where the use of intermediaries is viewed as normal practice. This means the risk of future instances of corruption remains present. The possible implications of these high profile and sensitive Agreements on the future business if the terms are not met, including additional fines and prosecution, are significant. There is also the risk that historical activities could result in allegations and penalties in other territories not subject to the Agreements.	We planned and designed our audit approach to this area in conjunction with our in-house forensic specialists and after reading the Agreements and compliance reports made to the SFO and DoJ during the year. Where applicable we vouched the assertions made by management to objective evidence. We assessed the overall control environment and 'tone at the top', including understanding and assessing the Group's internal investigations processes which identify and assess possible non-compliance, such as whistle-blowing hotlines. We evaluated key controls over the appointment, monitoring and payments made to intermediaries. We independently circularised and spoke with the Group's external legal counsel to obtain their views about the status of the Agreements and to test management's assertions of the likely outcome. Together with our forensic specialists, we designed questionnaires to be performed in certain markets not otherwise included in Group audit scope to assess the risk of arrangements being in place in those markets which may require follow-up procedures to be performed. Taking into account the findings from our audit procedures, we assessed the appropriateness of the contingent liability disclosure in note 25 of the Consolidated Financial Statements and found it to be reasonable and consistent with the information we obtained during the course of our audit.
Recoverability of the Company's investments in subsidiary undertakings *(relevant to the Company Financial Statements)* *Page 184 to 186 (note 2 to the Company Financial Statements – Investments – Subsidiary Undertakings)* Investments in subsidiaries of £12,801 million (2018: £12,521 million) are accounted for at cost less provision for impairment in the Company Balance Sheet at 31 December 2019. Investments are tested for impairment if impairment indicators exist. If such indicators exist, the recoverable amounts of the investments in subsidiaries are estimated in order to determine the extent of the impairment loss, if any. Any such impairment loss is recognised in the income statement. At certain points following 31 December 2019, the market capitalisation of the Group fell to below the carrying value of the Company's investment in subsidiary undertakings. This and the consolidated net liability position of the Consolidated Balance Sheet represent potential indicators of impairment and necessitated an impairment review to be performed. Management judgement is required in the area of impairment testing, particularly in assessing: (1) whether an event has occurred that may indicate that the related asset values may not be recoverable; (2) whether the carrying value of an asset can be supported by the recoverable value, being the higher of fair value less cost of disposal or the net present value of future cash flows which are estimated based on the continued use of the asset in the business; and (3) key assumptions to be applied in preparing cash flow projections including whether these cash flow projections are discounted using an appropriate rate. Changing the assumptions selected by management to determine the level of any impairment, including the discount rates or the growth rate assumptions in the cash flow projections, could materially affect the recoverable value determined by the impairment test and as a result affect the Company's financial condition and results of operations.	We evaluated management's assessment whether any indicators of impairment existed by comparing the carrying value of investments in subsidiary undertakings to the market capitalisation of the Group at 31 December 2019 and post year-end. To determine the recoverable value, management prepared a valuation based on the discounted future cash flows of the Group. We have tested the reasonableness of key assumptions, including revenue, profit and cash flow growth rates, terminal growth rates and the discount rate management has applied. Deploying our valuations experts, we assessed the terminal growth rate and discount rate applied to the cash flow investment compared with third party information, past performance, the Group's cost of capital and relevant risk factors. We also compared the valuation implied by the discounted cash flow model to third party analyst reports. We performed our own independent sensitivity analysis to understand if reasonably possible changes in management's assumptions would result in an impairment. As a result of our work, we did not identify any material impairments and consider the carrying value of the investments in subsidiary undertakings to be supportable in the context of the Company Financial Statements taken as a whole.

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 437 reporting components, 30 individual components (including three joint ventures) were subject to full scope audits for Group purposes, which following an element of consolidation, equates to 14 Group reporting opinions; and seven components performed targeted specified procedures.

In order to achieve audit coverage over the financial statements, under our audit methodology, we test both the design and operation of relevant business process controls and perform substantive testing over each financial statement line item.

The Group operates Finance Service Centres (FSCs) to bulk process financial transactions in Derby (UK), Indianapolis (US) and Bangalore (India). Based on our assessment with management it is not possible to fully test revenue and profit centrally as certain key processes, such as long-term contracting, remain within the business due to their nature.

Our audit covered 90% of revenue, 86% of loss before tax and 85% of total assets. All entities that contribute in excess of 4% of the Group's revenue were included in full scope.

Further specific audit procedures over central functions, the Group consolidation and areas of significant judgement (including corporate costs, taxation, goodwill, intangible assets, treasury and post-retirement benefits) were directly led by the Group audit team.

Where work was performed by component auditors, we determined the level of involvement we needed to have in the audit work at those reporting units to be able to conclude whether sufficient appropriate audit evidence had been obtained as a basis for our opinion on the Consolidated Financial Statements.

We issued formal written instructions to all component auditors setting out the audit work to be performed by each of them and maintained regular communication with the component auditors throughout the audit cycle. These interactions included attending certain component clearance meetings and holding regular conference calls, as well as reviewing and assessing any matters reported. The Group engagement team also reviewed selected audit working papers for certain component teams.

In addition, senior members of the Group engagement team visited component teams across all group segments in the United Kingdom, United States of America, Germany, Spain, Hong Kong and Singapore. These visits included meetings with local management and with the component auditors.

Materiality

The scope of our audit was influenced by our application of materiality. We set certain quantitative thresholds for materiality. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and in evaluating the effect of misstatements, both individually and in aggregate on the financial statements as a whole.

Based on our professional judgement, we determined materiality for the financial statements as a whole as follows:

	Group Financial Statements	Company Financial Statements
Overall materiality	£75 million (2018: £56 million).	£126 million (2018: £128 million).
How we determined it	0.5% of total underlying revenue.	1% of total assets.
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 much less volatile than the profit metric.	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 Group. Where there were balances and transactions within the Company accounts that were within the scope of the audit of the Group financial statements, our procedures were undertaken using the lower materiality level applying to the Group audit.

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 £5 million and £67.5 million. Certain components were audited to a local statutory audit materiality that was also less than our overall Group materiality.

We agreed with the Audit Committee that we would report to them misstatements identified during our audit above £3 million (Group audit) (2018: £2 million) and £6 million (Company audit) (2018: £2 million) as well as misstatements below those amounts that, in our view, warranted reporting for qualitative reasons.

Going concern

In accordance with ISAs (UK) we report as follows:

Reporting obligation	Outcome
We are required to report if we have anything material to add or draw attention to in respect of the Directors' statement in the financial statements about whether the Directors considered it appropriate to adopt the going concern basis of accounting in preparing the financial statements and the Directors' identification of any material uncertainties to the Group's and the Company's ability to continue as a going concern over a period of at least twelve months from the date of approval of the financial statements.	We have nothing material to add or to draw attention to. However, because not all future events or conditions can be predicted, this statement is not a guarantee as to the Group's and Company's ability to continue as a going concern. For example, the terms of the United Kingdom's withdrawal from the European Union are not clear, and it is difficult to evaluate all of the potential implications on the Group's and Company's trade, customers, suppliers and the wider economy.
We are required to report if the Directors' statement relating to Going Concern in accordance with Listing Rule 9.8.6R(3) is materially inconsistent with our knowledge obtained in the audit.	We have nothing to report.

Reporting on other information

The other information comprises all of the information in the Annual Report other than the financial statements and our auditors' report thereon. The Directors are responsible for the other information. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except to the extent otherwise explicitly stated in this report, any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If we identify an apparent material inconsistency or material misstatement, we are required to perform procedures to conclude whether there is a material misstatement of the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report based on these responsibilities.

With respect to the Strategic Report and Directors' Report, we also considered whether the disclosures required by the UK Companies Act 2006 have been included.

Based on the responsibilities described above and our work undertaken in the course of the audit, the Companies Act 2006 (CA06), ISAs (UK) and the Listing Rules of the Financial Conduct Authority (FCA) require us also to report certain opinions and matters as described below (required by ISAs (UK) unless otherwise stated).

Strategic Report and Directors' Report

In our opinion, based on the work undertaken in the course of the audit, the information given in the Strategic Report and Directors' Report for the year ended 31 December 2019 is consistent with the financial statements and has been prepared in accordance with applicable legal requirements. (CA06)

In light of the knowledge and understanding of the Group and Company and their environment obtained in the course of the audit, we did not identify any material misstatements in the Strategic Report and Directors' Report. *(CA06)*

The Directors' assessment of the prospects of the Group and of the principal risks that would threaten the solvency or liquidity of the Group

We have nothing material to add or draw attention to regarding:

- The Directors' confirmation on page 68 of the Annual Report that they have carried out a robust assessment of the principal risks facing the Group, including those that would threaten its business model, future performance, solvency or liquidity.
- The disclosures in the Annual Report that describe those risks and explain how they are being managed or mitigated.
- The Directors' explanation on page 55 of the Annual Report as to how they have assessed the prospects of the Group, over what period they have done so and why they consider that period to be appropriate, and their statement as to whether they have a reasonable expectation that the Group will be able to continue in operation and meet its liabilities as they fall due over the period of their assessment, including any related disclosures drawing attention to any necessary qualifications or assumptions.

We have nothing to report having performed a review of the Directors' statement that they have carried out a robust assessment of the principal risks facing the Group and statement in relation to the longer-term viability of the Group. Our review was substantially less in scope than an audit and only consisted of making inquiries and considering the Directors' process supporting their statements; checking that the statements are in alignment with the relevant provisions of the UK Corporate Governance Code (the "Code"); and considering whether the statements are consistent with the knowledge and understanding of the Group and Company and their environment obtained in the course of the audit. *(Listing Rules)*

Other Code Provisions

We have nothing to report in respect of our responsibility to report when:

- The statement given by the Directors, on page 114, that they consider the Annual Report taken as a whole to be fair, balanced and understandable, and provides the information necessary for the members to assess the Group's and Company's position and performance, business model and strategy is materially inconsistent with our knowledge of the Group and Company obtained in the course of performing our audit.
- The section of the Annual Report on pages 79 to 84 describing the work of the Audit Committee does not appropriately address matters communicated by us to the Audit Committee.
- The Directors' statement relating to the Company's compliance with the Code does not properly disclose a departure from a relevant provision of the Code specified, under the Listing Rules, for review by the auditors.

Directors' Remuneration

In our opinion, the part of the Directors' Remuneration Report to be audited has been properly prepared in accordance with the Companies Act 2006. *(CA06)*

Responsibilities for the financial statements and the audit

Responsibilities of the directors for the financial statements

As explained more fully in the Statement of Directors' responsibilities set out on page 114, 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.

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 received all the information and explanations we require for our audit; or
- adequate accounting records have not been kept by the Company, or returns adequate for our audit have not been received from branches not visited by us; or
- certain disclosures of Directors' remuneration specified by law are not made; or
- the Company financial statements and the part of the Directors' Remuneration Report to be audited are not in agreement with the accounting records and returns.

We have no exceptions to report arising from this responsibility.

Appointment

Following the recommendation of the Audit Committee, we were appointed by the 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 two years, covering the years ended 31 December 2018 to 31 December 2019.

Ian Chambers (Senior Statutory Auditor)
for and on behalf of PricewaterhouseCoopers LLP
Chartered Accountants and Statutory Auditors
London
28 February 2020

SUSTAINABILITY ASSURANCE STATEMENT

To the stakeholders of Rolls-Royce Holdings plc

Independent limited assurance statement

Introduction and objectives of work

Bureau Veritas UK Limited (Bureau Veritas) has been engaged by Rolls-Royce Holdings plc (Rolls-Royce) to provide limited assurance over selected sustainability performance indicators for inclusion in its 2019 Annual Report and website. This assurance statement applies to the related information included within the scope of work described below.

Scope of work

The scope of our work was limited to assurance over the following information included within Rolls-Royce's 2019 Annual Report (the Report) for the period 1 January to the 31 December 2019 (the Selected Information):

- energy consumption;
- scope 1 & 2 greenhouse gases (GHG) emissions;
- total solid and liquid waste;
- total reportable injury; and
- the number of people reached through the science, technology, engineering and mathematics (STEM) education outreach programmes.

Reporting criteria

The Selected Information is reported according to the Rolls-Royce 'Basis of Reporting', a copy of which is available from www.rolls-royce.com/sustainability.

Limitations and exclusions

Excluded from the scope of our work is verification of any information relating to:

- activities outside the defined verification period; and
- other information included in the Report.

This limited assurance engagement relies on a risk-based selected sample of sustainability data and the associated limitations that this entails. This independent statement should not be relied upon to detect all errors, omissions or misstatements that may exist.

Responsibilities

This preparation and presentation of the Selected Information in the Report are the sole responsibility of the management of Rolls-Royce.

Bureau Veritas was not involved in the drafting of the Report or of the reporting criteria. Our responsibilities were to:

- obtain limited assurance about whether the Selected Information has been prepared in accordance with the reporting criteria;
- form an independent conclusion based on the assurance procedures performed and evidence obtained; and
- report our conclusions to the management of Rolls-Royce.

Assessment standard

We performed our work to a limited level of assurance in accordance with the International Standard on Assurance Engagements (ISAE) 3000 Revised, Assurance Engagements Other than Audits or Reviews of Historical Financial Information (effective for assurance reports dated on or after 15 December 2015), and in accordance with the main requirements of ISO 14064:2006 Part 3 – Specification with Guidance for the Validation and Verification of Greenhouse Gas Assertions.

Summary of work performed

As part of its independent verification, Bureau Veritas undertook the following activities:

- assessed the appropriateness of the reporting criteria for the Selected Information;
- conducted interviews with relevant personnel of Rolls-Royce;
- carried out nine site visits, selected employing a risk-based approach, in the UK, US, Canada, France, Germany and Spain;
- reviewed the data collection and consolidation processes used to compile the Selected Information, including assessing assumptions made, the data scope and reporting boundaries;
- reviewed documentary evidence produced by Rolls-Royce;
- agreed a sample of the Selected Information to the corresponding source documentation; and
- re-performed aggregation calculations of the Selected Information.

Conclusion

On the basis of our methodology and the activities described above, nothing has come to our attention to indicate that the Selected Information has not been properly prepared, in all material respects, in accordance with the reporting criteria.

Further detailed recommendations are provided in the form of an internal management report to be issued to Rolls-Royce.

Statement of independence, integrity and competence

Bureau Veritas is an independent professional services company that specialises in quality, environmental, health, safety and social accountability with over 185 years of history. Its assurance team has extensive experience in conducting verification over environmental, social, ethical and health and safety information, systems and processes.

Bureau Veritas operates a certified [1] quality management system which complies with the requirements of ISO 9001:2015, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Bureau Veritas has implemented and applies a code of ethics, which meets the requirements of the International Federation of Inspections Agencies (IFIA) [2] across the business to ensure that its employees maintain integrity, objectivity, professional competence and due care, confidentiality, professional behaviour and high ethical standards in their day-to-day business activities.

The assurance team for this work does not have any involvement in any other Bureau Veritas projects with Rolls-Royce.

Bureau Veritas UK Limited
London
26 February 2020

BUREAU VERITAS

[1] Certificate of registration can be provided on request.
[2] International Federation of Inspection Agencies – compliance code – third edition.

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:

		2019	2018	Change
USD per GBP	Year-end spot rate	1.32	1.28	+3%
	Average spot rate	1.28	1.33	-4%
EUR per GBP	Year-end spot rate	1.18	1.12	+5%
	Average spot rate	1.14	1.13	+1%

The Group's global corporate income tax contribution

The Group's total corporation tax payments in 2019 were £175m. Around 85% of this was paid in the US, Germany, UK and Singapore which reflects the fact that the majority of the Group's business is undertaken, and employees are based, in these countries. The balance was paid in around 40 other countries.

In common with most multinational groups, the total of all profits in respect of which corporate income tax is paid is not the same as the consolidated loss before tax reported on page 116. The main reasons for this are:

(i) the consolidated income statement is prepared under Adopted IFRS, whereas tax is paid on the profits of each Group company, which are determined by local accounting rules;

(ii) accounting rules require certain income and costs relating to our commercial activities to be eliminated from, or added to, the aggregate of all the profits of the Group companies when preparing the consolidated income statement (consolidation adjustments); and

(iii) specific tax rules including exemptions or incentives as determined by the tax laws in each country.

The level of tax paid in each country is impacted by the above. In most cases, (i) and (ii) are only a matter of timing and therefore tax will be paid in an earlier or later year. As a result they only have a negligible impact on the Group's underlying tax rate. The core underlying tax rate can be found on page 19. This is due to deferred tax accounting, details of which can be found in note 5 to the Consolidated Financial Statements. The impact of (iii) will often be permanent depending on the relevant tax law.

Further information on the tax position of the Group can be found as follows:

- Audit Committee Report (page 81) – The group tax director gave a presentation to the Audit Committee during the year which covered various matters including tax risks and how they are managed and key sources of estimation uncertainty (in particular the recognition of deferred tax assets);
- note 1 to the Consolidated Financial Statements (page 127) – Details of key areas of uncertainty and accounting policies for tax; and
- note 5 to the Consolidated Financial Statements (pages 141 to 144) – Details of the tax balances in the Consolidated Financial Statements together with a tax reconciliation. This explains the main drivers of the tax rate and the impact of our assessment on the recovery of UK deferred tax assets.

At this stage we expect these items to continue to influence the underlying tax rate. The reported tax rate is more difficult to forecast due to the impact of significant adjustments to reported profits, in particular the net unrealised fair value changes to derivative contracts and the recognition of losses and advance corporation tax.

Information on the Group's approach to managing its tax affairs can be found at www.rolls-royce.com.

Investments and capital expenditure

The Group subjects all major investments and capital expenditure to a rigorous examination of risks and future cash flows to ensure that they create shareholder value. All major investments, including the launch of major programmes, require Board approval.

The Group has a portfolio of projects at different stages of their lifecycles. All of our major investments and projects are assessed using a range of financial metrics, including discounted cash flow and return on investment.

Financial risk management

The Board has established a structured approach to financial risk management. The Financial risk committee (Frc) is accountable for managing, reporting and mitigating the Group's financial risks and exposures. These risks include the Group's principal counterparty, currency, interest rate, commodity price, liquidity and credit rating risks outlined in more depth in note 19. The Frc is chaired by the Chief Financial Officer or group controller. The Group has a comprehensive financial risk policy that advocates the use of financial instruments to manage and hedge business operations risks that arise from movements in financial, commodities, credit or money markets. The Group's policy is not to engage in speculative financial transactions. The Frc sits quarterly to review and assess the key risks and agree any mitigating actions required.

Capital structure

£m	2019	2018
Total equity	(3,354)	(1,052)
Cash flow hedges	96	106
Group capital	(3,258)	(946)
Net funds (excluding lease liabilities)	1,361	840

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 extended the maturity of the £2,500m committed bank borrowing facility from 2023 to 2024. This facility was undrawn at the period end. The Group also repaid £1.1bn of borrowings during the year. At the year end, the Group retained aggregate liquidity of £6.9bn, including cash and cash equivalents of £4.4bn and undrawn borrowing facilities of £2.5bn.

Circa £435m of drawn borrowings mature in 2020 (£775m including lease liabilities).

The maturity profile of the borrowing facilities is regularly reviewed to ensure that refinancing levels are manageable in the context of the business and market conditions. There are no rating triggers in any borrowing facility that would require the facility to be accelerated or repaid due to an adverse movement in the Group's credit rating. The Group conducts some of its business through a number of joint ventures. A major proportion of the debt of these joint ventures is secured on the assets of the respective companies and is non-recourse to the Group. This debt is further outlined in note 12.

Credit rating

	Rating	Outlook	Grade
Moody's Investors Service	Baa2	Negative	Investment
Standard & Poor's	BBB-	Stable	Investment
Fitch	BBB+	Stable	Investment

The Group subscribes to Moody's, Standard & Poor's and Fitch for independent long-term credit ratings. At the date of this report, the Group maintained investment-grade rating from all three agencies.

As a capital-intensive business making long-term commitments to its customers, the Group attaches significant importance to maintaining or improving the current investment-grade credit ratings.

Accounting

The Consolidated Financial Statements have been prepared in accordance with International Financial Reporting Standards (IFRS), as adopted by the EU.

IFRS 16 *Leases* was adopted from 1 January 2019 and the impact is described in notes 1 and 29 of the Consolidated Financial Statements. The adoption of IFRS 16 has resulted in the recognition of additional lease liabilities in relation to leases which had previously been classified as operating leases under the principles of IAS 17 *Leases*, with the associated right-of-use assets recognised in non-current assets. The net impact on adoption of IFRS 16 was a £40m reduction in total equity.

Additional commentary on key performance indicators

Order backlog, also known as unrecognised revenue, is the amount of revenue on current contracts that is expected to be recognised in future periods. Civil Aerospace OE orders where the customer has retained the right to cancel (for deliveries in the next 7-12 months) are excluded. Further details are included in note 2 on page 138.

Underlying revenue is used as it reflects the impact of our foreign exchange (FX) hedging policy by valuing foreign currency revenue at the actual exchange rates achieved as a result of settling FX contracts in the year. This provides a clearer measure of our year-on-year performance. Further details and reconciliation to reported revenue are included in note 2 on page 139.

Self-funded R&D as a proportion of underlying revenue – We expect to spend approximately 5% of underlying revenue on R&D although this proportion will fluctuate depending on the stage of development of current programmes. We expect this proportion will reduce modestly over the medium term. Further details are included in note 3 on page 140.

Capital expenditure as a proportion of underlying revenue – All proposed investments are subject to rigorous review to ensure that they are consistent with forecast activity and will provide value for money. We measure annual capital expenditure as the cash purchases of property, plant and equipment acquired during the period; over the medium-term we expect a proportion of around 4%. Further details are included in note 10 on page 149.

Underlying operating profit includes: (a) revenue and costs denominated in US dollars and euros on the basis of the exchange rates achieved based on our FX hedge book; (b) similar adjustments in respect of commodity derivatives; (c) consequential adjustments to reflect the impact of exchange rates on trading assets and liabilities, and long-term contracts, on a consistent basis; and (d) items of a one-off nature. Further details and reconciliation to reported operating profit are included in note 2 on page 139.

Free cash flow is the movement in net funds excluding lease liabilities during the year, before movements arising from payments to shareholders, acquisitions and disposals, and FX. It excludes the cash cost of the restructuring plan and SFO payments. Further details and reconciliation to reported cash flow are included in note 28 on page 179.

Cash flow per share is calculated using free cash flow (as defined above) and the average number of shares in issue during the year, consistent with the EPS calculations in note 6 on page 144.

Cash return on invested capital (CROIC) is calculated as cash flow divided by invested capital. Cash flow is the free cash flow (as defined above), adjusted to remove R&D, PPE and software capital expenditure, certification costs, other intangibles, and working capital (excluding change in the net LTSA balance in Civil Aerospace). Invested capital is defined as the sum of 15 years net R&D investment, PPE and software at cost, certification costs, other intangibles (excluding M&A and goodwill), and working capital (excluding net LTSA balance in Civil Aerospace) and ten times current year lease payments.

OTHER STATUTORY INFORMATION

Share price

During the year, the share price reduced by 18% from 830p to 683p, compared to a 14% increase in the FTSE aerospace and defence sector and a 12% increase in the FTSE 100. The Company's share price ranged from 680p in December 2019 to 1004p in February 2019.

Share capital

On 31 December 2019, the Company's issued share capital comprised of:

1,930,995,313	Ordinary shares	20p each
30,607,559,470	C Shares	0.1p each
1	Special Share	£1

The ordinary shares are listed on the London Stock Exchange.

Payment to shareholders

The Company issues non-cumulative redeemable preference shares (C Shares) as an alternative to paying a cash dividend.

Shareholders can choose to:

- redeem all C Shares for cash;
- redeem all C Shares for cash and reinvest the proceeds in the C Share Reinvestment Plan (CRIP); or
- keep the C Shares.

The CRIP is operated by Computershare Investor Services PLC (the Registrar). The Registrar will purchase ordinary shares in the market for shareholders electing to reinvest their C Share proceeds. Shareholders wishing to participate in the CRIP or redeem their C Shares in July 2020 must ensure that their instructions are lodged with the Registrar no later than 5.00pm on 1 June 2020 (CREST holders must submit their election in CREST in sufficient time for it to settle before 2.55pm on 1 June 2020). Redemption will take place on 3 July 2020.

At the 2020 AGM, the Directors will recommend an issue of 71 C Shares with a total nominal value of 7.1p for each ordinary share. The C Shares will be issued on 1 July 2020 to shareholders on the register on 24 April 2020 and the final day of trading with entitlement to C Shares is 23 April 2020. Together with the interim issue on 3 January 2020 of 46 C Shares for each ordinary share with a total nominal value of 4.6p, this is the equivalent of a total annual payment to ordinary shareholders of 11.7p for each ordinary share.

Further information for shareholders is on pages 210 and 211.

Share class rights

The full share class rights are set out in the Company's Article, which are available at www.rolls-royce.com. The rights are summarised below.

Ordinary shares

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; appoint one or more proxies or, if they are corporations, corporate representatives; and exercise voting rights. Holders of ordinary shares may receive a bonus issue of C Shares or a dividend and on liquidation may share in the assets of the Company.

C Shares

C Shares have limited voting rights and attract a preferential dividend of 75% of LIBOR on the 0.1p nominal value of each share, paid on a twice-yearly basis. The Company has the option to redeem the C Shares compulsorily, at any time if: the aggregate number of C Shares in issue is less than 10% of the aggregate number of all C Shares issued on or prior to that time or the event of a capital restructuring of the Company; the introduction of a new holding company; the acquisition of the Company by another company; or a demerger from the Group.

On a return of capital on a winding-up, the holders of C Shares shall be entitled, in priority to any payment to the holders of ordinary shares, to the repayment of the nominal capital paid-up or credited as paid-up on the C Shares held by them, together with a sum equal to the outstanding preferential dividend which will have been accrued but not paid until the date of return of capital.

The holders of C Shares are only entitled to attend, speak and vote at a general meeting if a resolution to wind up the Company is to be considered, in which case they may vote only on that resolution.

Special Share

Certain rights attach to the special rights non-voting share (Special Share) issued to the UK Secretary of State for Business, Energy & Industrial Strategy (Special Shareholder). These rights are set out in the Articles. Subject to the provisions of the Companies Act 2006 (the Act), the Treasury Solicitor may redeem the Special Share at par value at any time. The Special Share confers no rights to dividends but in the event of a winding-up it shall be repaid at its nominal value in priority to any other shares.

Certain provisions of the Articles (in particular those relating to the foreign shareholding limit, disposals and the nationality of the Company's Directors) that relate to the rights attached to the Special Share may only be altered with the consent of the Special Shareholder. The Special Shareholder is not entitled to vote at any general meeting or any other meeting of any class of shareholders.

Restrictions on transfer of shares and limitations on holdings

There are no restrictions on transfer or limitations on the holding of the ordinary shares or C Shares other than under the Articles (as described here), under restrictions imposed by law or regulation (for example, insider trading laws) or pursuant to the Company's share dealing code. The Articles provide that the Company should be and remain under UK control. As such, an individual foreign shareholding limit is set at 15% of the aggregate votes attaching to the share capital of all classes (taken as a whole) and capable of being cast on a poll and to all other shares that the Directors determine are to be included in the calculation of that holding. The Special Share may only be issued to, held by and transferred to the Special Shareholder or his successor or nominee.

Shareholder agreements and consent requirements

No disposal may be made to a non-Group member which, alone or when aggregated with the same or a connected transaction, constitutes a disposal of the whole or a material part of either the nuclear propulsion business or the assets of the Group as a whole, without the consent of the Special Shareholder.

Changes to the Articles of Association

The Articles may be altered or added to or new articles may be adopted by a special resolution of the shareholders of the Company, subject to the provisions of the Act.

Authority to issue shares

At the 2019 AGM, authority was given to the Directors to allot new C Shares up to a nominal value of £500m as an alternative to a cash dividend.

In addition, an ordinary resolution was passed authorising the Directors to allot new ordinary shares up to a nominal value of £126,387,015 equivalent to one-third of the issued share capital of the Company. This resolution also authorised the Directors to allot up to two-thirds of the total issued share capital of the Company, but only in the case of a rights issue.

A further special resolution was passed to effect a disapplication of pre-emption rights for a maximum of 5% of the issued share capital of the Company.

These authorities are valid until the 2020 AGM or 30 June 2020, whichever is earlier, and the Directors propose to renew each of them at the 2020 AGM. The Board believes that these authorities will allow the Company to retain flexibility to respond to circumstances and opportunities as they arise.

ITP Aero

Following approval from the relevant authorities in Spain, on 19 December 2017 the Group acquired a 53.1% shareholding in ITP Aero from SENER resulting in ITP Aero becoming a wholly-owned subsidiary of the Company. The consideration of €718m was settled over a two-year payment period, payable in eight equal instalments, and the agreement with SENER allowed the Company flexibility to settle up to 100% of the consideration in the form of ordinary shares. Three payments were settled in 2019 all in the form of ordinary shares, as follows:

Instalment	No. of ordinary shares	Date
6th	8,681,110	19 March 2019
7th	9,301,958	19 June 2019
8th	10,990,194	19 September 2019

Authority to purchase own shares

At the 2019 AGM, the Company was authorised by shareholders to purchase up to 189,580,523 of its own ordinary shares representing 10% of its issued ordinary share capital.

The authority for the Company to purchase its own shares expires at the conclusion of the 2020 AGM or 30 June 2020, whichever is the earlier. A resolution to renew the authority will be proposed at the 2020 meeting.

The Company did not purchase any of its own ordinary shares during 2019.

Deadlines for exercising voting rights

Electronic and paper proxy appointments, and voting instructions, must be received by the Registrar not less than 48 hours before a general meeting.

Voting rights for employee share plan shares

Shares are held in an employee benefit trust for the purpose of satisfying awards made under the various employee share plans. For shares held in a nominee capacity or if plan/trust rules provide the participant with the right to vote in respect of specifically allocated shares, the trustee votes in line with the participants' instructions. For shares that are not held absolutely on behalf of specific individuals, the general policy of the trustees, in accordance with investor protection guidelines, is to abstain from voting in respect of those shares.

Change of control

Contracts and joint venture agreements

There are a number of contracts and joint venture agreements which would allow the counterparties to terminate or alter those arrangements in the event of a change of control of the Company. These arrangements are commercially confidential and their disclosure could be seriously prejudicial to the Company.

Borrowings and other financial instruments

The Group has a number of borrowing facilities provided by various banks. These facilities generally include provisions which may require any outstanding borrowings to be repaid or the alteration or termination of the facility upon the occurrence of a change of control of the Company. At 31 December 2019, these facilities were less than 2% drawn (2018: 19%).

The Group has entered into a series of financial instruments to hedge its currency, interest rate and commodity exposures. These contracts provide for termination or alteration in the event that a change of control of the Company materially weakens the creditworthiness of the Group.

Employee share plans

In the event of a change of control of the Company, the effect on the employee share plans would be as follows:

- Deferred share bonus – the shares would be released from trust immediately.
- ShareSave – options would become exercisable immediately. The new controlling company might offer an equivalent option in exchange for cancellation of the existing option.
- Share Incentive Plan (SIP) – consideration received as shares would be held within the SIP, if possible, otherwise the consideration would be treated as a disposal from the SIP.
- LTIP – awards would vest on the change of control, subject to the Remuneration Committee's judgement of performance and may be reduced pro rata to service in the vesting period. Any applicable holding period will cease in the event of a change in control.

Accounting policies, financial instruments and risk

Details of the Group's accounting policies, together with details of financial instruments and risk, are provided in notes 1 and 19 to the Consolidated Financial Statements on pages 123 and 157.

Major shareholdings

At 31 December 2019, the following shareholders had notified an interest in the issued ordinary share capital of the Company in accordance with section 5.1.2 of the Disclosure and Transparency Rules:

Shareholder	Date notified	% of issued ordinary share capital*
Blackrock, Inc.	5 November 2019	below 5
Harris Associates L.P.	21 October 2019	5.01
ValueAct Indirect Holdings	22 March 2019	9.48
The Capital Group Companies, Inc	12 October 2017	5.07

* Percentages are shown as a percentage of the Company's issued share capital when the Company was notified of the change in holding.

As at 27 February 2020, no further changes had been notified.

Directors

The names of the Directors who held office during the year are set out on pages 62 to 64. In addition, Brad Singer and Ruth Cairnie were directors during the year. They stepped down on 9 December and 31 December respectively.

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 itself and for its Directors and Officers.

Disclosures in the Strategic Report

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

- employee involvement;
- the employment of disabled people;
- information about charitable donations;
- the future development, performance and position of the Group;
- the financial position of the Group;
- R&D activities;
- the principal risks and uncertainties; and
- particulars of important events affecting the Company since the financial year end.

Political donations

The Company's policy is that it does not, directly or through any subsidiary, make what are commonly regarded as donations to any political party. However, the Act defines political donations very broadly and so it is possible that normal business activities, such as sponsorship, subscriptions, payment of expenses, paid leave for employees fulfilling certain public duties and support for bodies representing the business community in policy review or reform, which might not be thought of as political expenditure in the usual sense, could be captured. Activities of this nature would not be thought of as political donations in the ordinary sense of those words. The resolution to be proposed at the 2020 AGM, authorising political donations and expenditure, is to ensure that the Group does not commit any technical breach of the Act.

During the year, expenses incurred by Rolls-Royce North America, Inc. in providing administrative support for the Rolls-Royce North America political action committee (PAC) was US$81,866 (2018: US$111,961). PACs are a common feature of the US political system and are governed by the Federal Election Campaign Act.

The PAC is independent of the Group and independent of any political party. The PAC funds are contributed voluntarily by employees and the Group cannot affect how they are applied, although under US law, the business expenses are paid by the employee's company. Such contributions do not count towards the limits for political donations and expenditure for which shareholder approval will be sought at this year's AGM to renew the authority given at the 2019 AGM.

Branches

Rolls-Royce is a global company and our activities and interests are operated through subsidiaries, branches of subsidiaries, joint ventures and associates which are subject to the laws and regulations of many different jurisdictions. Our subsidiaries, joint ventures and associates are listed on pages 187 to 193.

Financial instruments

Details of the Group's financial instruments are set out in note 19 to the Consolidated Financial Statements.

Related party transactions

Related party transactions are set out in note 26 to the Consolidated Financial Statements.

Information required by UK Listing Rule (LR) 9.8.4

There are no disclosures to be made under LR 9.8.4.

Management report

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

Disclosure of information to auditors

Each of the persons who is a Director at the date of approval of this report confirms that so far as the Director is aware, there is no relevant audit information of which the Company's auditor is unaware. The Director has taken all steps that he or she ought to have taken as a director in order to make himself or herself aware of any relevant audit information and to establish that the Company's auditor is aware of that information.

This confirmation is given, and should be interpreted, in accordance with the provisions of section 418 of the Act.

Greenhouse gas emissions

In 2019, our total net greenhouse gas (GHG) emissions were 586 kilotonnes carbon dioxide equivalent ($ktCO_2e$). This represents a decrease of 3% compared with 602 $ktCO_2e$ in 2018.

Aspect	Tonnes CO_2e	2015	2016	2017	2018	2019
Emissions from activities for which the Company owns or controls including the combustion of fuel and operation of facilities. Direct GHG emissions (Scope 1)	Global (excluding UK)	209,302	229,691	254,032	250,237	**247,159**
	UK	108,325	103,581	99,918	85,120	**91,396**
Emissions from the purchase of electricity, heat, steam and cooling purchased for our use. Indirect GHG Emissions (Scope 2) location-based	Global (excluding UK)	170,276	168,849	161,115	166,199	**161,035**
	UK	173,535	144,334	122,657	100,827	**86,548**
Total gross GHG emissions	Global (excluding UK)	379,578	398,540	415,147	416,436	**408,193**
	UK	281,861	247,915	222,575	185,947	**177,944**
Energy consumption used to calculate above emissions – kWh	Global (excluding UK)	1,538,198,000	1,639,939,000	1,694,823,000	1,707,642,000	**1,648,572,000**
	UK	885,952,000	832,549,000	811,948,000	762,917,000	**767,701,000**
Intensity Ratio (total GHG emissions per £m revenue)	Total	0.054	0.047	0.046	0.040	**0.038**
Emissions from the purchase of electricity, heat, steam and cooling purchased for our use. Indirect GHG emissions (Scope 2) market-based]	Global (excluding UK)	–	–	–	–	**–**
	UK	–	–	–	–	**874**
Outside of Scopes	Global (excluding UK)	–	–	–	–	**–**
	UK	–	–	–	–	**19,336**

The above figures include 230,972,000 kWh of renewable energy purchased via a long-term Power Purchase Agreement (PPA) for use by our facilities based in the UK, supplied through a third party. The source includes a proportion of electricity that was generated by the combustion of biofuel. The associated emissions are included above under the location-based Scope 2 emissions (using grid average emission factors). They are also reported separately as market-based Scope 2 emissions (covering the emissions of nitrous oxide and methane) and Outside of Scopes (covering the emissions of carbon dioxide). This has resulted in a net reduction of 39 kilotonnes from our total GHG emissions.

In addition, the above figures include 7,354,000 kWh of electricity generated on-site from renewable energy sources.

The figures for 2015 through to 2018 inclusive have been restated to remove emissions associated with the Commercial Marine business sold on 1 April 2019. Figures for 2015 exclude emissions associated with ITP Aero (which became a wholly owned subsidiary on 19 December 2017). We have included the reporting of fugitive emissions of hydrofluorocarbons (HFCs), associated with air conditioning equipment, into our GHG emissions figures from 2016. These include emissions from our facilities in the UK, US, Canada and France only. We do not anticipate that emissions from other facilities will have a material impact.

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

We have used the GHG Protocol Corporate Accounting and Reporting Standard (revised edition) as of 31 December 2014 utilising the operational control approach and emission factors from the UK Government's GHG Conversion Factors for Company Reporting 2019. We report our emissions of: carbon dioxide; methane; nitrous oxide; hydrofluorocarbons; and perfluorocarbons on a carbon dioxide equivalent basis. We have no emissions of sulphur hexafluoride or nitrogen trifluoride.

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

SHAREHOLDER INFORMATION

Financial calendar 2020–2021

7 MAY 11.00AM
AGM
Kings Place
90 York Way
London
N1 9FX

1 JULY
Allotment of C Shares

2 JULY
Payment of cash dividend on C Shares

3 JULY
Payment of C Share redemption monies

22 JULY
New share certificates issued (at the latest)

6 AUGUST
Announcement of half-year results

1 DECEMBER
Record date for cash dividend on C Shares

5 JANUARY
Allotment of C Shares

5 JANUARY
Payment of cash dividend on C Shares

6 JANUARY
Payment of C Share redemption monies

20 JANUARY
New share certificates issued (at the latest)

APR 2020	MAY 2020	JUN 2020	JUL 2020	AUG 2020	SEP 2020	OCT 2020	NOV 2020	DEC 2020	JAN 2021	FEB 2021	MAR 2021

23 APRIL
Ex-entitlement to C Shares

24 APRIL
Record date for entitlement to C Shares

1 JUNE 5.00PM
Deadline for receipt by Registrar of C Share instructions (2:55pm for CREST holders)

3 JUNE
Record date for cash dividend on C Shares

29 OCTOBER
Ex-entitlement to C Shares

30 OCTOBER
Record date for entitlement to C Shares

1 DECEMBER 5.00PM
Deadline for receipt by Registrar of C Share instructions (2:55pm for CREST holders)

31 DECEMBER
Financial year end

FEBRUARY/ MARCH
Announcement of full-year results and Annual Report published

Managing your shareholding

Your shareholding is managed by Computershare Investor Services PLC (the Registrar). When making contact with the Registrar please quote your Shareholder Reference Number (SRN). This is a 10-digit number prefixed with the letter 'C' that can be found on the right-hand side of your share certificate or in any other shareholder correspondence.

You can manage your shareholding at www.investorcentre.co.uk, speak to the Registrar on +44 (0)370 703 0162 (8.30am to 5.30pm Monday to Friday) or you can write to the Registrar at Computershare Investor Services PLC, The Pavilions, Bridgwater Road, Bristol BS13 8AE.

If you hold your shares in a share dealing account (sometimes referred to as a nominee account) then you must contact your account provider with any questions about your shareholding.

Payments to shareholders

The Company makes payments to shareholders by issuing redeemable C Shares of 0.1p each. You can redeem C Shares for cash and either take the cash or reinvest the cash to purchase additional ordinary shares providing you complete a payment instruction form, which is available from the Registrar. Once you have submitted your payment instruction form, you will receive cash or additional ordinary shares each time the Company issues C Shares. If you choose to receive cash we strongly recommend that you include your bank details on the payment instruction form and have payments credited directly to your bank account. This removes the risk of a cheque going astray and means that cleared payments will be credited to your bank account on the payment date.

Share dealing

The Registrar offers shareholders an internet dealing service at www.computershare.co.uk and a telephone dealing service (+44 (0)370 703 0084). Real-time dealing is available during market hours, 8.00am to 4.30pm, Monday to Friday excluding bank holidays. Orders can still be placed outside of market hours. The fee for internet dealing is 1% of the transaction value subject to a minimum fee of £30. The fee for telephone dealing is 1% of the transaction value plus £50. Stamp duty of 0.5% is payable on all purchases. This service is only available to shareholders resident in certain jurisdictions. Before you can trade you must register to use the service. Other share dealing facilities are available but you should always use a firm regulated by the FCA (see www.fca.org.uk/register).

Your share certificate

Your share certificate is an important document. If you sell or transfer your shares you must make sure that you have a valid share certificate in the name of Rolls-Royce Holdings plc. If you place an instruction to sell your shares and cannot provide a valid share certificate, the transaction cannot be completed and you may be liable for any costs incurred by the broker. If you are unable to find your share certificate please inform the Registrar immediately.

American Depositary Receipts (ADR)

ADR holders should contact the depositary, JP Morgan, by calling +1 (800) 990 1135 (toll free within the US) or +1 (651) 453 2128 (outside the US) or emailing adr@jpmorgan.com.

Warning to shareholders – investment scams

We are aware that some of our shareholders have received unsolicited telephone calls or correspondence, offering to buy or sell their shares at very favourable terms. The callers can be very persuasive and extremely persistent and often have professional websites and telephone numbers to support their activities. These callers will sometimes imply a connection to Rolls-Royce and provide incorrect or misleading information. This type of call should be treated as an investment scam – the safest thing to do is hang up.

You should always check that any firm contacting you about potential investment opportunities is properly authorised by the FCA. If you deal with an unauthorised firm you will not be eligible for compensation under the Financial Services Compensation Scheme. You can find out more about protecting yourself from investment scams by visiting the FCA's website at www.fca.org.uk/consumers, or by calling the FCA's consumer helpline on 0800 111 6768 (overseas callers dial +44 20 7066 1000). If you have already paid money to share fraudsters contact Action Fraud immediately on 0300 123 2040, whose website is www.actionfraud.police.uk.

Remember: if it sounds too good to be true it probably is.

Visit Rolls-Royce online

Visit www.rolls-royce.com to find out more about the latest financial results, the share price, payments to shareholders, the financial calendar and shareholder services.

Keeping up to date

You can sign up to receive the latest news updates to your phone or email address by visiting www.rolls-royce.com and registering for our alert service.

Dividends paid on C Shares held

C Share calculation period	C Share dividend rate (%)	Record date for C Share dividend	Payment date
1 July 2019 – 31 December 2019	0.32	15 November 2019	6 January 2020
1 January 2019 – 30 June 2019	0.39	3 June 2019	2 July 2019

Previous C Share issues

	Apportionment values					CGT apportionment				
Issue date	No. of C Shares issued per ordinary share	Record date for entitlement to C Shares	Latest date for receipt of payment instruction forms by Registrar	Price of ordinary shares on first day of trading (p)	Value of C Share issues per ordinary shares (p)	Ordinary shares (%)	C Shares (%)	Date of redemption of C Shares	CRIP purchase date	CRIP purchase price (p)
3 January 2020	46	25 October 2019	2 December 2019	677.80	4.6	99.33	0.67	6 January 2020	6 January 2020	673.203
1 July 2019	71	26 April 2019	3 June 2019	857.40	7.1	99.18	0.82	4 July 2019	4 July 2019	871.5668

For information on earlier C Share issues, please refer to www.rolls-royce.com.

Analysis of ordinary shareholders at 31 December 2019

Type of holder	Number of shareholders	% of total shareholders	Number of shares	% of total shares
Individuals	167,391	97.90	85,147,751	4.41
Institutional and other investors	3,592	2.10	1,845,807,562	95.59
Total	170,983	100.00	1,930,955,313	100.00
Size of holding (number of ordinary shares)				
1 – 150	55,622	32.53	5,034,073	0.26
151 – 500	82,144	48.04	23,191,006	1.20
501 – 10,000	31,642	18.51	48,086,670	2.49
10,001 – 100,000	1,078	0.63	29,912,513	1.55
100,001 – 1,000,000	320	0.19	105,498,096	5.46
1,000,001 and over	177	0.10	1,719,272,955	89.04
Total	170,983	100.00	1,930,995,313	100.00

GLOSSARY

ABC	anti-bribery and corruption
ACARE	Advisory Council for Aviation Research and Innovation in Europe
AGM	annual general meeting
ALPS	Advanced Low Pressure System
AMRCs	Advanced Manufacturing Research Centres
AOG	aircraft on ground
APM	alternative performance measure
Articles	Articles of Association of Rolls-Royce Holdings plc
bps	basis points
Brexit	UK exit from the European Union
C Shares	non-cumulative redeemable preference shares
C&A	commercial and administrative
CARs	contractual aftermarket rights
CEO	chief executive officer
CFO	chief financial officer
CGT	capital gains tax
Our Code	Global Code of Conduct
the Code	UK Corporate Governance Code 2018
Company	Rolls-Royce Holdings plc
CPS	cash flow per share
CRIP	C Share reinvestment plan
CROIC	cash return on invested capital
D&I	diversity & inclusion
DJSI	Dow Jones Sustainability Index
DoJ	US Department of Justice
DPAs	deferred prosecution agreements
DTR	the FCA's Disclosure Guidance and Transparency Rules
EASA	European Aviation Safety Agency
EIS	entry into service
ELG	Enterprise Leadership Group
EPS	earnings per share
ERG	employee resource group
ESG	environment, social and governance
EU	European Union
EUR	euro
EVTOL	electric vertical take-off and landing
FCA	Financial Conduct Authority
FCF	free cash flow
FRC	Financial Reporting Council
FTE	full time equivalent
FX	foreign exchange
GBP	Great British pound or pound sterling
GHG	greenhouse gas
Group	Rolls-Royce Holdings plc and its subsidiaries
HPT	high pressure turbine
HSE	health, safety and environment
IASB	International Accounting Standards Board
IFRS	International financial reporting standards
KPIs	key performance indicators
ktCO$_2$e	kilotonnes carbon dioxide equivalent
kW	kilowatts
LGBT+	lesbian, gay, bisexual and transgender
LIBOR	London inter-bank offered rate
LRIP	low rate initial production
LTIP	long-term incentive plan
LTPR	long-term planning exchange rate
LTSA	long-term service agreement
M&A	mergers & acquisitions
MoU	memorandum of understanding
MRO	maintenance repair and overhaul
MW	megawatts
NCI	non-controlling interest
NOx	nitrogen oxide
OCI	other comprehensive income
OE	original equipment
OECD	Organisation for Economic Co-operation and Development
OEM	original equipment manufacturer
P&L	profit and loss
PBT	profit before tax
PPE	property, plant and equipment
PSMS	product safety management system
PSP	performance share plan
R&D	research and development
R&T	research and technology
REACH	registration, evaluation, authorisation and restriction of chemicals
Registrar	Computershare Investor Services PLC
RMS	risk management system
RRMS	Rolls-Royce management system
RRSAs	risk and revenue sharing arrangements
SFO	UK Serious Fraud Office
SMR	small modular reactors
STEM	science, technology, engineering and mathematics
TCFD	Taskforce on Climate-related Financial Disclosures
TRI	total reportable injuries
TSR	total shareholder return
USAF	United States Air Force
USD/US$	United States dollar
UTCs	University Technology Centres

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