Rolls-Royce plc
Annual Report 2016

Rolls-Royce

FOCUS
TRANSFORM
DELIVER

Rolls-Royce is a pre-eminent engineering company focused on world-class power and propulsion systems.

Financial highlights

ORDER BOOK
£79,810m
2015: £76,399m

FREE CASH FLOW
£120m
2015: £166m

UNDERLYING* REVENUE
£13,783m
2015: £13,354m

REPORTED REVENUE
£14,955m
2015: £13,725m

UNDERLYING* PROFIT BEFORE TAX
£813m
2015: £1,432m

REPORTED (LOSS)/PROFIT BEFORE TAX
£(4,636)m
2015: £160m

NET DEBT
£(225)m
2015: £(111)m

* All figures in the narrative of the Strategic Report are underlying unless otherwise stated. Underlying explanation is in note 2 on page 78.

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.

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Group at a glance

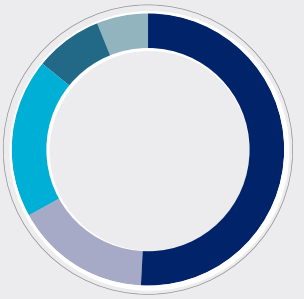
The Group is organised into five customer-facing businesses: Civil Aerospace, Defence Aerospace, Power Systems, Marine and Nuclear.

GROUP

UNDERLYING REVENUE
£13,783m

UNDERLYING PROFIT BEFORE FINANCING
£915m

UNDERLYING REVENUE MIX



Civil Aerospace	51%
Defence Aerospace	16%
Power Systems	19%
Marine	8%
Nuclear	6%

ORDER BOOK
£79.8bn

GROSS R&D EXPENDITURE
£1.3bn

PATENTS APPLIED FOR
672

COUNTRIES
50

ENGINEERS (YEAR END)
16,526

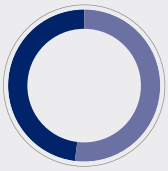
EMPLOYEES (YEAR AVERAGE)
49,900

CIVIL AEROSPACE

UNDERLYING REVENUE
£7,067m

UNDERLYING PROFIT BEFORE FINANCING
£367m

UNDERLYING REVENUE MIX



OE revenue	48%
Services revenue	52%

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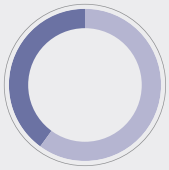
DEFENCE AEROSPACE

UNDERLYING REVENUE
£2,209m

UNDERLYING PROFIT BEFORE FINANCING
£384m

UNDERLYING REVENUE MIX



OE revenue	40%
Services revenue	60%

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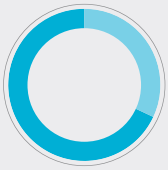
POWER SYSTEMS

UNDERLYING REVENUE
£2,655m

UNDERLYING PROFIT BEFORE FINANCING
£191m

UNDERLYING REVENUE MIX



OE revenue	68%
Services revenue	32%

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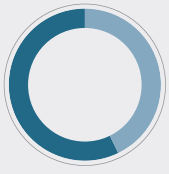
MARINE

UNDERLYING REVENUE
£1,114m

UNDERLYING LOSS BEFORE FINANCING
£(27)m

UNDERLYING REVENUE MIX



OE revenue	57%
Services revenue	43%

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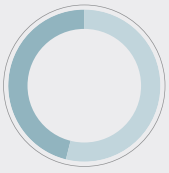
NUCLEAR

UNDERLYING REVENUE
£777m

UNDERLYING PROFIT BEFORE FINANCING
£45m

UNDERLYING REVENUE MIX



OE revenue	46%
Services revenue	54%

PAGES 31 TO 33 FOR MORE INFORMATION

Chief Executive's review

"2016 has been an important year as we accelerated the transformation of Rolls-Royce."

Warren East
Chief Executive

Introduction

Overall, we have performed ahead of our expectations for the year as a whole while delivering significant changes to our management and processes. We increased our large aero-engine production output by 25%, supported the needs of our customers, and made good technical progress in the final stages of the development of the three new large engines, due to enter service over the next twelve months. At the same time we have improved manufacturing lead times for our key Civil Aerospace programmes, an important goal as we ramp up production over the next few years. Progress with our transformation programme was also better than expected, delivering over £60m of in-year benefits compared to our initial target of between £30-50m. Overall, the performance improvements have helped offset a number of changing trading conditions and higher research & development (R&D) spend.

This Strategic report describes the business in depth and provides further information on our financial position and business performance.

5 Review of 2016
How the Group performed in a year of significant change.

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Our clear focus and priorities for developing the business.

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How we deliver value from our products and services.

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Summary of our 2016 financial performance.

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Reviewing each of our five customer-facing businesses; with analysis of their markets.

34 Financial review
Explaining our 2016 financial performance in more detail.

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Setting out the approach we take to ensure we are a sustainable business.

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How financial and non-financial indicators are used to measure the Group.

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Outlining our main risks together with our risk management process.

Review of 2016

Performance in 2016

In 2015, we identified a number of significant headwinds that would hold back performance in 2016, including mixed market conditions and the revenue and cost impacts of some key product transitions.

Looking first at our markets, demand for our large Civil Aerospace products and services remained robust, despite some specific weaknesses for service demand in respect of older engines. At the same time, demand for new corporate jets softened, as did the aftermarket for the regional jets powered by our AE 3007 engines. Defence Aerospace markets held up well with a steady demand for our aftermarket services in particular. Offshore oil & gas markets for our Marine business continued to suffer from the consequences of low oil prices. Alongside weaker industrial demand, this also impacted Power Systems.

Other known headwinds transpired broadly as expected, led by lower Trent 700 volumes and prices, legacy civil large engine aftermarket reductions and weakness in marine markets. At the same time, we have continued to invest in products and services to support our customers and reinforce the long-term strength of our order book, valued at the end of the year at around £80bn.

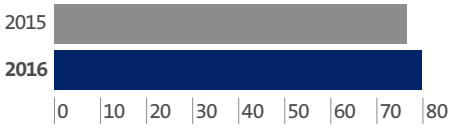
Against this backdrop, Group underlying revenue reduced by 2% on a constant currency basis with reductions in both original equipment and aftermarket revenues, led by the Marine business where revenues were down 24%. More details are included in the Financial summary on page 14 and the Business reviews on pages 16 to 33.

Compared to 2015, underlying profit before finance charges and tax was 45% lower at £915m. On this basis, Civil Aerospace delivered £367m (2015: £812m); Defence Aerospace delivered £384m (2015: £393m); Power Systems delivered £191m (2015: £194m); Marine generated a loss of £27m (2015: £15m profit) and Nuclear delivered £45m (2015: £51m excluding the £19m R&D credit benefits highlighted in 2015). More detail on each business is included in the Business review.

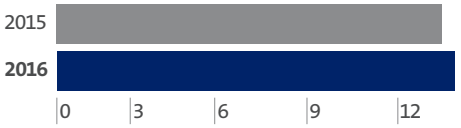
After underlying financing costs of £102m (2015: £60m including a £34m gain from hedging overseas dividends), underlying profit before tax was £813m (2015: £1,432m).

Since the EU referendum at the end of June, the value of sterling relative to the US dollar has fallen significantly. As a result, we have recognised a £4.4bn in-year non-cash mark-to-market valuation adjustment for our currency hedge book as part of our reported financing costs of £(4,677)m (2015: £(1,341)m). While reported revenue of £14,955m (2015: £13,725m) was unaffected by this adjustment, it impacted reported profit. In addition, our reported results also included a £671m charge for financial penalties from agreements with investigating authorities in connection with historic bribery and corruption involving

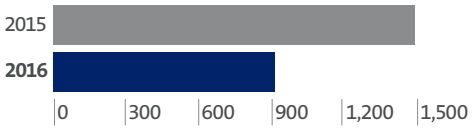
ORDER BOOK (£BN)



UNDERLYING REVENUE (£BN)



UNDERLYING PROFIT BEFORE FINANCING (£M)



FREE CASH FLOW (£M)

intermediaries in a number of overseas markets. Our reported loss before tax was £(4,636)m (2015: £160m profit).

After an underlying tax charge of £261m (2015: £351m), underlying profit after tax for the year was £552m (2015: £1,081m). With an average 1,832m shares in issue, underlying earnings per share were 30.1p (2015: 58.7p).

After a reported tax credit of £604m (2015: £76m charge), the reported loss for the year was £(4,032)m (2015: £84m profit).

A full reconciliation of underlying to reported profit can be found in note 2 on page 81.

Free cash inflow in the year was £120m (2015: inflow of £166m), better than expected, reflecting strong cash collections from a number of key customers at the very end of the period and an improvement in underlying working capital performance. While some of this positive variance is a timing impact and likely to reverse early in 2017, improved efficiencies should drive a level of sustainable benefit.

A more detailed review of financial performance is included in the Financial summary on page 14 and the Financial review on page 34.

Our focus on clear priorities for 2016 has helped deliver positive outcomes

Our 2016 priorities were threefold: to strengthen our focus on engineering, operational and aftermarket excellence to drive long-term profitable growth; to deliver a strong start to our transformation programme; and to start rebuilding trust and confidence in our long-term growth prospects.

Agreement reached with various investigating authorities

In mid-January 2017, we announced that we had entered into Deferred Prosecution Agreements (DPAs) with the UK's Serious Fraud Office (SFO) and the US Department of Justice (DoJ) and completed a Leniency Agreement with Brazil's Ministério Público Federal (MPF). These agreements relate to bribery and corruption involving intermediaries in a number of overseas markets, concerns about which we passed to the SFO from 2012 onwards following a request from the SFO.

The agreements are voluntary and result in the suspension of prosecution provided that the Company fulfils certain requirements, including the payment of financial penalties.

The agreements will result in the total payment of around £671m. This is recognised within our 2016 accounts.

Under the terms of the DPA with the SFO, we agreed to pay £497m plus interest under a schedule lasting up to five years, plus a £13m payment in respect of the SFO's costs. We also agreed to make payments to the DoJ totalling around US$170m and to the MPF totalling around US$26m. As a result, the total payment in 2017 is expected to be £293m (at prevailing exchange rates) with some elements having already been paid.

It is our intention that these financial penalties will be paid from existing facilities and an improved underlying cash flow performance in the longer term.

Payment schedule	SFO	DoJ	MPF	Total
2017	£119m* + £13m	US$170m	US$26m	£293m*
2019	£100m*			£100m*
2020	£130m*			£130m*
2021	£148m*			£148m*

* Plus interest.

PRIORITY 1

Strengthen focus to drive long-term profitable growth

Increased our focus on engineering, operational and aftermarket excellence

Over the last few years, we have invested significantly in new product development and manufacturing capabilities. In engineering, in 2016 we invested over £1.3bn in gross R&D. The net investment of £937m was higher than 2015 and our expectations for 2016. A large proportion of this was focused on Civil Aerospace to support delivery of three new engine programmes which will enter service over the next 12 months: the Trent 1000 TEN (Thrust, Efficiency, and New technology) the Trent XWB-97 and the Trent 7000. Supporting these investments was a Group-wide engineering efficiency programme, known internally as E³, which has formed part of our overarching transformation programme. Within the engineering team, this change programme has focused on delivering a lean, resilient, lower-cost engineering function through reducing complexity, improving work prioritisation and simplifying management structures.

In operations, over £1.4bn has been invested in new capital equipment since 2011 (£225m in 2016) in transforming our manufacturing footprint across the business.

In Civil Aerospace, these investments in state-of-the-art manufacturing facilities will enable us to meet the significant growth in engine deliveries required to match customer demand for our new Trent engines, particularly the Trent 1000, Trent XWB and Trent 7000. At the same time, the investments lower unit costs and reduce the net cash outflows related to engine production. In Defence Aerospace, the investments have focused on modernisation of facilities such as in Indianapolis to reduce costs and improve delivery performance of both original equipment and spares to support higher standards of customer service. In Marine, new facilities will contribute to a more efficient and scalable manufacturing capability that will address the demands of our customers today, while markets are weak, and tomorrow, when they have recovered.

The benefits of these investments are starting to be seen in improved delivery performance, lower assembly lead times, lower unit costs and increased capacity. For example, in Civil Aerospace, large engine deliveries increased by over 15% to over 355 and capacity is now in place to deliver around 500 engines in 2017; an increase of over a third.

The focus on improving aftermarket excellence has been driven business-by-business, by customer needs as well as through the broader transformation activities. In Civil Aerospace for example, this has resulted in a progressive change to the structure of our engine overhaul services, our commercial TotalCare® and time and materials product offerings, and management structures. These have enabled us to respond to a changing market and maturing installed engine portfolio by adapting our resources to focus on areas of greatest value to the Group and our customers – such as supporting airframe transitions and rolling out SelectCare™ and TotalCare Flex® offerings and preparing for the launch of LessorCare™. In Defence Aerospace, the focus has been driven by the customer need for more embedded support. This has included increasing our service presence at key customer facilities in the UK and overseas, improving response time and resolving a greater proportion of issues on-wing.

Engineering excellence

- Invested to support delivery of three new engine programmes to enter service in the next 12 months.
- New powered gearbox design successfully tested at new German facility.
- Launched a Group-wide engineering efficiency programme, known as E³ – part of our Group-wide transformation programme.

Operational excellence

- £225m invested in 2016 in transforming our manufacturing footprint across the business.
- Increased large aero-engine production output by 25%.
- Started modernisation of Defence Aerospace facility in Indianapolis to reduce costs and improve delivery performance.
- Invested to support delivery of the UK's new Astute and Dreadnought class nuclear-powered submarines.

Capturing aftermarket value

- Investment driven business-by-business, by customer needs.
- Restructured our engine overhaul services including an increased equity investment in our MRO JVs.
- Launched new commercial TotalCare product offerings to support maturing installed base.
- Embedded aftermarket support for key Defence Aerospace customers at key customer facilities in the UK and overseas.

PRIORITY 2

Deliver a strong start to our transformation programme

Transformation programme ahead of expectations

In November 2015, we announced a major transformation programme focused on simplifying the organisation, streamlining senior management, reducing fixed costs and adding greater pace and accountability to decision making. The initial target was to deliver incremental gross cost savings of between £150m-£200m per annum, with the full benefits accruing from the end of 2017 onwards.

Against these initial objectives, which included a target of delivering in-year savings of £30m-50m in 2016, we have made a better than expected start. In-year savings in 2016 were above target, at over £60m. During the year, we also identified significant opportunities to drive sustainable cost savings from the business. As a result, we expect the in-year savings that can be delivered in 2017 to be between £80m-£110m and we are on track to achieve the top end of the target for the programme as a whole, targeting a run rate of over £200m by the end 2017.

At the same time, other restructuring initiatives have delivered their expected benefits. These included programmes to improve operational efficiency in Civil Aerospace and Defence Aerospace (announced in 2014) and Marine (announced in May 2015), as well as a back office cost saving programme in Marine (announced in October 2015).
In December 2016, an additional reorganisation of the Marine business was announced to further rationalise manufacturing activities in Scandinavia, targeting incremental annualised savings of £50m from mid-2017. Reflecting our cautious near-term outlook for the Marine business, we have also taken an exceptional charge of around £200m for the impairment of goodwill, principally associated with the acquisition of Vickers in 1999.

In summary, expected ongoing benefits of all current restructuring programmes initiated since 2014 will reduce costs by around £400m by the end of 2018, compared to a 2014 baseline.

In aggregate, ongoing divisional restructuring programmes together with the new programme announced in November 2015 are expected to reduce costs by around £400m by the end of 2018, including the full benefit of the Marine restructuring announced in December 2016. The cost reduction breaks down into incremental legacy Civil Aerospace and Defence Aerospace restructuring savings of £80m, Marine savings of now around £110m and the transformation programme savings of around £200m.

2016 progress on our US transformation

In January 2016, construction began on a five-year, US$600m modernisation programme for our manufacturing and technology research plant in Indianapolis, Indiana, US. This is the largest investment by the Group in the US since we purchased the Allison Engine Company in 1995.

In September 2016, we achieved a major milestone by opening a new, dedicated pre-production facility. This enables us to digitally design, develop, test and perfect new manufacturing methods for the entire site as modern production comes online over the next four years.

When complete, the 1.5 million square feet manufacturing facility will leverage the latest technologies and production methods which, alongside a highly-skilled workforce, will establish our Indianapolis plant as one of the most competitive manufacturing facilities in the world. The site will also house new technology development capabilities which we will apply to our next-generation engines in the US.

We currently employ about 4,000 people in Indianapolis, where engines are designed, assembled and tested for US defence aircraft, civil helicopters, regional and business jets and power systems for US naval vessels.

Making transformation happen

Civil Aerospace | Defence Aerospace | Power Systems | Marine | Nuclear | Group

Simpler organisation

Simpler processes

Right behaviours and culture

Competitiveness: improved productivity and cost

£200m
cost savings
On track to deliver £200m of annual cost savings by the end of 2017.

25%
growth in large engines
Significant improvement in Trent 1000 and Trent XWB lead times enabling a 25% year-on-year increase in production output of large aero engines.

Continuous improvement: embedded change for ongoing results

30%
performance improvement
30% improvement in the lead time and cost of instrumentation and control products for civil nuclear reactors.

42,000
employees involved in improvement activities
42,000 employees involved in 2016 continuous improvement activities, supported by a network of over 700 facilitators and champions.

Pace and simplicity: the right tools to stay ahead of our competitors

20%
reduction in senior management positions
Five market-facing businesses have replaced a divisional structure with significant reduction in management layers and central bureaucracy.

20%
fewer engine variants
Power Systems has met its customers' needs while cutting engine variants by 20% as a result of its simplified portfolio of reciprocating engines.

Accountability: clear ownership and responsibility to deliver

Increased P&L accountability
Full accountability for legacy spares business has allowed service teams in Defence Aerospace to react faster to customer needs and increase revenues.

Efficiencies in Marine
Restructuring of the Marine business has placed full accountability under four market-facing businesses, while right-sizing the organisation to meet the challenges of the offshore marine market.

PRIORITY 3

Rebuild trust and confidence in our long-term growth prospects

Rebuilding trust and confidence; steady year with few major surprises

2016 out-turned ahead of expectations with only a few unexpected developments from an operational perspective, despite the challenges presented by a changing macro-environment and some known weaknesses in the business. The expected headwinds in Civil Aerospace and Marine transpired largely as forecast. In addition, the benefits of outperformance on transformation savings and foreign exchange hedging more than offset some additional programme costs in Civil Aerospace and a range of other smaller one-off items. As a result, external expectations remained largely unchanged throughout the year.

The introduction of the new revenue reporting standard, IFRS 15 *Revenue from Contracts with Customers*, will have a significant impact on how we present our revenues and profits, particularly for Civil Aerospace. As a result, a combination of significant in-house analysis and appropriate progressive communication was undertaken, culminating in a capital markets' event in November. This set out in some detail how we now expect the new standard to change the presentation of our financial results, illustrated through a re-presentation of 2015 performance. All the materials from this investor event were shared at the time and are available on the Company's website at www.rolls-royce.com.

Priorities for 2017 broadly unchanged; additional focus on developing our long-term vision and strategy

Overall, the priorities for 2017 are largely unchanged from those set out in 2016. We will continue to invest in strengthening our focus on engineering, operational and aftermarket excellence to drive long-term profitable growth. At the same time, 2017 will be an important year to drive incremental savings from our transformation programme.

At our capital markets' event in November 2016 we set out how our focus is turning towards the Group's long-term goals. Over the next few months, the senior leadership team will be concluding the review of our strengths and investment opportunities to define an appropriate vision for the business and the best way we can deliver sustainable shareholder value. Conclusions from this work will be shared during 2017.

Rebuilding trust and confidence in the Group and its long-term prospects remains a key priority for the management team. The focus remains on progressive, effective communication combined with strong operational delivery. While we have made a steady start, more remains to be done. The addition of new management and a renewed focus within the business leadership teams, with clear goals and stronger accountabilities, should provide a strong platform for further progress in 2017.

Acquisition of outstanding 53.1% stake in Industria de Turbo Propulsores SA (ITP)

We were notified in early July that SENER Grupo de Ingeniería SA (SENER) had decided to exercise the put option in respect of its 53.1% stake in ITP. This decision provides us with the opportunity to effectively consolidate several key large engine risk and revenue sharing arrangements (RRSAs) into the business, strengthen our position on a number of important defence aero engine platforms and will enable us to enjoy greater benefits from future aftermarket growth.

Under the shareholder agreement, the consideration of €720m will be settled over a two-year period following completion in eight equal, evenly-spaced instalments. The agreement allows flexibility to settle up to 100% of the consideration in the form of Rolls-Royce shares. Final consideration as to whether the payments will be settled in cash, shares or cash and shares will be determined by Rolls-Royce during the payment period. Completion remains subject to regulatory clearances and is expected in mid-2017.

The acquisition of ITP strengthens our position on Civil Aerospace large engine growth programmes by capturing significant additional value from its long-term aftermarket revenues, including the high volume Trent 1000 and Trent XWB engines, where ITP has played a key role as a participant in RRSAs. It also enhances the Group's own manufacturing and services capabilities and adds value to the Defence Aerospace business, particularly on the TP400 and EJ200 programmes.

Further details of its impact on the Group will be made available on completion of the acquisition.

New Trents to enter service

2017 will be a milestone year for our Civil Aerospace business and its Trent engine programmes, with three new engines approaching entry into service.

The Trent 1000 TEN will power all variants of the Boeing 787 Dreamliner family and draws on technologies from the Trent XWB and Advance engine programmes.

The Trent XWB-97 will be the sole powerplant for the Airbus A350-1000. Delivering an increased 97,000lbs of thrust, the new engine will allow Airbus to increase the aircraft's payload, range and maximum take-off weight.

The Trent 7000 builds on the success of its predecessor, the Trent 700, delivering a 10% improvement in specific fuel consumption while halving noise output. It will be the sole powerplant for the Airbus A330neo.

Taken together, these developments underline the scale of our commitment to research and technology and delivering on the needs of our customers.

Priorities For 2017

1 Strengthen our focus to drive long-term profitable growth

Engineering excellence

Investing in and developing the excellence of our engineering to produce high-performance power systems.

Operational excellence

Transforming our manufacturing and supply chain to embed a lean approach across our facilities and processes.

Capturing aftermarket value

Leveraging our installed base, product knowledge and capabilities to provide outstanding services to customers.

2 Sustain the strong start to our transformation programme.

3 Continue to rebuild trust and confidence in our long-term growth prospects.

4 Develop our long-term vision and strategy.

Underpinned by a commitment to developing our people and our culture in a safe and ethical environment.

Outlook for 2017

After a better than expected 2016, year-on-year incremental progress will be modest. Our medium-term trajectory for revenue, profit and free cash flow remains unchanged. On a constant currency basis, Group revenue for 2017 should be marginally higher than that achieved in 2016, despite expected further weakening in offshore oil & gas markets in Marine. Underlying improvements in performance should be driven largely by transformation savings and free cash flow should benefit from increased aftermarket cash revenues in Civil Aerospace, further improvements in working capital efficiency and cost savings. As a result, we expect a modest performance improvement overall and we are targeting free cash flow to be similar to that achieved in 2016. Individual outlooks are provided in the Business review starting on page 16.

Looking further ahead: long-term outlook remains strong

We continue to see value in the underlying strengths of our business: the underlying growth of our long-term markets; the quality of our mission-critical technology and services; and the strength of customer demand for these which is reflected in our strong order book. While we have near-term challenges and some core execution priorities, these constants provide us with confidence in a strong, profitable and cash-generative future.

The successful roll-out of new engines, led in particular by the Trent XWB, Trent 1000 and Trent 7000, together with a growing aftermarket, is expected to drive significant revenue growth over the coming ten years as we build towards a 50% plus share of the installed widebody passenger market. As a result, we remain confident that the important investments we are making to modernise our production will create a strong platform to drive customer service and strong cash flows, together with the current investments in new products and the streamlining of our existing product portfolios to ensure we are providing high-value, cost-competitive products into our target end markets.

Our business model

Our business model seeks to capture value from markets for high-performance power. We do this by developing advanced, integrated power and propulsion systems and providing long-term aftermarket support and delivery of outstanding customer services. We seek to recoup our investment through developing superior products, many of which are selected for use on major multi-year programmes.

Value creation

Our highly-skilled people create value through a combination of a deep research and product development capability, world-class technology and engineering expertise, and a substantial and experienced supply chain with many relationships and collaborations going back over 25 years.

We make significant investments in advanced technology and engineering programmes to deliver market-leading products together with the manufacturing capability to produce them.

Outputs

The outputs from the operation of this business model are: long-term value creation for our customers; a sustainable and competitive market position; and the generation of returns for our shareholders.

Our long-life products typically operate in challenging environments where they are expected to deliver sustained levels of performance, such as fuel efficiency and reliability. For our customers, they deliver value through enhancing the competitiveness of their own product or service, whether airframe or other transport or industrial application.

The product offering is often combined with flexible service options to best suit each customer's operating needs. In certain markets we further strengthen our customer relationships through long-term service agreements where we commit to deliver exceptional standards of service, including high levels of product operational availability. This provides significant value to customers and, in return, we achieve long-term predictable revenues.

Our long-term competitive position also relies on having a full lifecycle design, sourcing and manufacturing platform which is capable of developing products which incorporate advanced materials often operating close to the limits of their capabilities. Our operational focus is on ensuring we can deliver these on-time and in increasing scale. As production levels rise, we will benefit from increasingly cost-efficient manufacturing and lower unit costs.

By growing our installed base of power systems and leveraging our aftermarket service activities, we enhance our revenue, profit and cash flow. Cash flow is then invested to support future product development and technology programmes, driving growth while providing shareholder returns.

How we create value

Inputs

- People and expertise
- R&D capability
- Supply chain collaboration
- Advanced manufacturing
- Customer relationships
- Financial investment

Value creation

Customers:
Differentiated products aligned to their operating requirements

Corporate:
Strong market position

World-class development and production facilities

Shareholders:
Long-term cash flow generation

Invest in R&D and skilled people
Developing and protecting leading-edge technology and deploying it across our businesses allows us to compete on a global basis and creates high barriers to entry.

Design, make and service world-class products
We win and retain customers by developing and delivering products and services that provide more capability and offer better through-life value than those of our competitors.

Manufacturing capability
We manufacture cost-efficiently through a combination of economies of scale, developing a lean enterprise and integrated management of our supply chain.

1 Engineering excellence

- → Industry-leading R&D
- → Proven product reliability
- → Exceptional long-life products
- → Differentiated products and services

Develop technology that anticipates customer needs
Our deep understanding of customer needs drives the development of new technologies and products.

2 Operational excellence

- → Strong supply chain partnerships
- → Sustained cost reduction
- → Transforming to world-class production capability
- → Cost-focused lean enterprise
- → High performance culture

Grow market share and installed base
Our substantial order book for both original equipment and services provides good visibility of future revenues and provides a firm foundation to invest with confidence.

3 Capturing aftermarket value

- → Long-term relationships with civil and defence customers
- → Decades of in-service experience
- → Flexible range of service offerings
- → Growing installed base and global aftermarket footprint

Disciplined capital allocation
We allocate our capital to achieve a balance of financial strength and liquidity to deliver commercial advantage and sustainable long-term shareholder returns.

Secure and maximise aftermarket opportunity
Our equipment is in service for decades. Our deep design knowledge and in-service experience ensures that we are best placed to optimise product performance and availability.

Investment in future programme development
We make significant investment in development programmes which we believe will deliver cost-efficient and competitive next-generation products and services.

Financial summary

David Smith
Chief Financial Officer

Order book and order intake

During the year, our order book increased by £3.3bn to £79.8bn, led by Civil Aerospace, which, alongside strong order intake, also benefited from a £2.1bn uplift from a five cent decrease to our long-term US dollar planning rate. Order intake in our Marine business was poor, largely as a result of the continuing weak offshore market. Overall, orders were also lower in Defence Aerospace, Power Systems and Nuclear, although we view the prospects for these businesses as unchanged, reflecting long-term orders won in previous years.

Underlying trading

Underlying Group revenue declined 2% in 2016 compared to 2015 on a constant currency basis, reflecting declines in both original equipment revenue (down 2%) and services (down 3%) and driven almost entirely by Marine. By business on a constant currency basis, Civil Aerospace revenue was unchanged, Defence Aerospace revenue increased 1%, Power Systems revenue decreased 1%, Marine revenue decreased 24% and Nuclear revenue increased 11%.

Underlying profit before financing of £915m (2015: £1,492m) was 45% lower on a constant currency basis, led by a significant reduction in Civil Aerospace profit. This reflected the previously communicated volume and margin reductions on link-accounted Trent 700 engines, reduced business jet original equipment volumes, reduced large engine utilisation and increased technical costs for large engines. In addition, reported 2015 numbers included one-off benefits from a methodology change in respect of risk assessment and reversal of impairments and provisions in respect of a Trent 1000 launch customer, totalling £189m and £65m respectively. These were partially offset by strong lifecycle cost improvements on installed engines and some provision releases. Profit in Defence Aerospace at £384m was 8% lower on a constant currency basis largely reflecting additional costs related to the TP400 programme. Power Systems was down 14% year-on-year principally due to volume reduction and adverse changes to product mix.

Marine profit was sharply lower led by continuing weakness in the offshore markets. Nuclear profit was 37% lower than 2015 due to a lower margin mix in submarine projects.

Underlying gross margin was £2,823m, down 390 basis points to 20.5% largely reflecting the lower margins in Civil Aerospace, Defence Aerospace and Marine. Commercial and administrative costs include accruals for employee incentive schemes in line with our current policies. Given the good performance relative to original plan, these are higher than in the prior year. This contributed to commercial and administrative costs being £71m higher on a constant currency basis year-on-year.

The R&D charge increased by 6% over 2015 on a constant currency basis, reflecting increased charges in Civil Aerospace and the adverse year-on-year effect of the favourable R&D credit adjustment taken in 2015 in Nuclear.

Underlying restructuring charges reduced by £41m reflecting the lower level of underlying restructuring as most costs in 2016 were taken as exceptional due to the nature of the restructuring activities within the Group. The exceptional charge in relation to these programmes was £129m in 2016. This included £92m for the transformation programme launched in November 2015, which delivered in-year benefits of over £60m in 2016. The underlying tax rate for 2016 increased to 32.1% (2015: 24.5%). The primary reasons for the increase are the non-recognition of deferred tax assets on losses in Norway, which reflects the current uncertainty in the oil & gas markets, and a different profit mix with more profits arising in countries with higher tax rates.

GROUP TRADING SUMMARY

£m	2015*	Underlying change**	Foreign exchange***	2016
Order book	**76,399**	**3,329**	**82**	**79,810**
Underlying revenue	**13,354**	**(296)**	**725**	**13,783**
Change		*-2%*	*+5%*	*+3%*
Underlying OE revenue	6,724	(112)	415	7,027
Change		*-2%*	*+6%*	*+5%*
Underlying services revenue	6,630	(184)	310	6,756
Change		*-3%*	*+5%*	*+2%*
Underlying gross margin	**3,203**	**(577)**	**197**	**2,823**
Gross margin %	*24.0%*	*-390bps*		*20.5%*
Commercial and administrative costs	(1,025)	(71)	(67)	(1,163)
Restructuring costs	(39)	41	(2)	–
Research and development costs	(765)	(47)	(50)	(862)
Joint ventures and associates	118	(11)	10	117
Underlying profit before financing	**1,492**	**(665)**	**88**	**915**
Change		*-45%*	*+6%*	*-39%*
Underlying operating margin	**11.2%**	**-480bps**		**6.6%**

* 2015 figures have been restated as a result of £21m of costs previously reported in 'cost of sales', being reclassified as 'other commercial and administrative costs' to ensure consistent treatment with 2016.
** Order book underlying change includes £2.1bn increase from a change to our long-term US dollar planning rate.
*** Translational foreign exchange impact.

Reported results

Reported results are impacted by the mark-to-market adjustments driven by movements in USD:GBP and EUR:GBP exchange rates over the year. In addition, we recognised the £671m charge related to the agreements reached in respect of regulatory investigations, a goodwill impairment

charge of £219m largely reflecting a more cautious outlook for our Marine business and £129m of exceptional restructuring cost. As a result, the reported loss before tax was £(4,636)m (2015: a profit of £160m).

Free cash flow

Free cash inflow in the year was £120m (2015: £166m), better than expected, reflecting strong cash collections from a number of key customers at the very end of the period and an improvement in underlying working capital performance. This helped offset the lower profit before tax and higher expenditure on property, plant and equipment and intangibles. The latter reflects the increased capital investment in new manufacturing capacity, higher capitalised R&D, mainly related to the Trent 1000 TEN and higher certification costs on the Trent XWB-97. More details on the movement in trading and free cash are included in the Funds flow section of the Financial review.

While some of this positive variance is a timing impact and likely to reverse early in 2017, improved efficiencies should drive a level of sustainable benefit.

Net debt and foreign currency

The Group is committed to maintaining a robust balance sheet supporting a healthy, investment-grade credit rating for its parent company. We believe this is important when selling high-performance products and support packages which will be in operation for decades. Standard & Poor's updated its rating in January 2017 to BBB+ from A-/negative outlook and Moody's maintained a rating of A3/stable.

During 2016, the Group's net debt position increased from £111m to £225m, reflecting the £120m free cash inflow, £154m for the increased investment in our approved maintenance centre joint ventures following receipt of regulatory approval for the changes to the joint venture agreements in June 2016 and movements on the balances with the parent company. In April, we increased our revolving credit facilities by £500m to £2bn to provide additional liquidity.

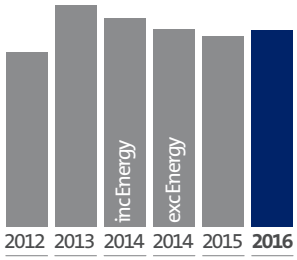
The Group hedges the transactional foreign exchange exposures to reduce volatility to revenues, costs and resulting margins. The hedging policy sets maximum and minimum cover ratios of hedging for net transactional foreign exchange exposure. It allows us to take advantage of attractive foreign exchange rates, whilst remaining within the cover ratios. A level of flexibility is built into the hedging instruments to manage changes in exposure from one period to the next and to reduce volatility by smoothing the achieved rates over time.

The most significant exposure is the net US dollar income which is converted into GBP (currently approximately $5bn per year and forecast to increase significantly by 2021). Following the fall in the value of sterling, which resulted from the outcome of the EU referendum, additional cover has been taken out to benefit from the favourable rates. This has resulted in an increase in the nominal value of the hedge book to approximately $38bn at the end of 2016 (end 2015: $29bn) together with a reduction in the average rate in the hedge book to £/$1.55 (end 2015: £/$1.59). The movement in the average achieved rate year-on-year was around two and a half cents, providing a net underlying Group benefit, after balance sheet effects (the movement in achieved rate also affects creditor and debtor balances of hedged cash flows), of around £20m.

UNDERLYING REVENUE

£13,783m

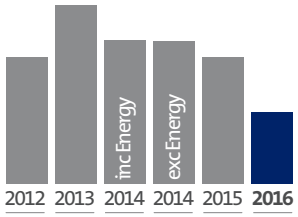
2015	£13,354m
2014 exc	£13,864m
2014 inc	£14,588m
2013	£15,505m
2012	£12,209m



UNDERLYING PROFIT BEFORE TAXATION

£813m

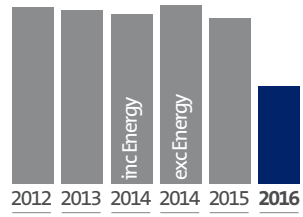
2015	£1,432m
2014 exc	£1,617m
2014 inc	£1,618m
2013	£2,019m
2012	£1,429m



UNDERLYING OPERATING MARGIN

6.6%

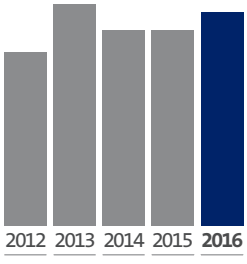
2015	11.2%
2014 exc	12.1%
2014 inc	11.5%
2013	11.8%
2012	12.0%



REPORTED REVENUE

£14,955m

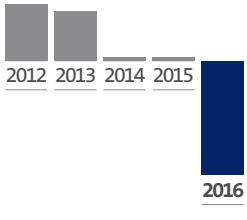
2015	£13,725m
2014	£13,736m
2013	£15,513m
2012	£12,161m



REPORTED (LOSS)/PROFIT BEFORE TAXATION

£(4,636)m

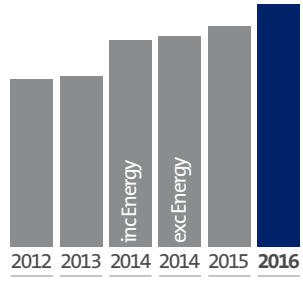
2015	£160m
2014	£146m
2013	£2,019m
2012	£2,295m



NET R&D AS A PROPORTION OF UNDERLYING REVENUE

6.8%

2015	6.2%
2014 exc	5.9%
2014 inc	5.8%
2013	4.8%
2012	4.7%



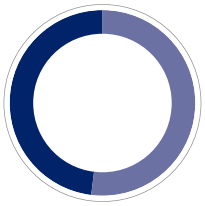
Business review

Summary
The Civil Aerospace business is a major manufacturer of aero engines for the large commercial aircraft and corporate jet markets. We power 35 types of commercial aircraft and have more than 13,000 engines in service around the world.

Key highlights

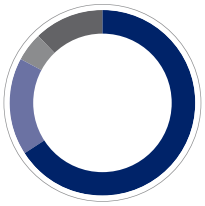
- Underlying revenue unchanged; gross margins lower:
  - Original equipment (OE): increased deliveries of newer Trent engines but lower link-accounted Trent 700 and business aviation sales reduced achieved margins.
  - Services: growth from in-production large engine fleet, but declining regional and older large engine fleet aftermarket revenues; increase in technical costs for large engines, including the Trent 700 and Trent 900, largely mitigated by foreign exchange benefits.
- £4.4bn order book growth; includes £2.1bn benefit from long-term US dollar planning rate change.
- New programmes: Trent 1000 TEN received EASA certification in July; first test run of new UltraFan® gearbox; first flight of the Airbus A350-1000 powered by the Trent XWB-97.
- Supply chain modernisation reducing costs and increasing capacity for Trent XWB ramp up.
- 2017 outlook: modest growth in revenue and profit; cost improvements offsetting OE and aftermarket mix effects.

UNDERLYING REVENUE MIX



OE revenue	**48%**
Services revenue	**52%**

UNDERLYING REVENUE BY SECTOR



Large engine	**66%**
Business aviation	**17%**
Regional	**5%**
V2500	**12%**

CIVIL AEROSPACE

Operational review

Financial overview

Overall, underlying revenue for Civil Aerospace was unchanged (up 2% at actual exchange rates). OE revenue was unchanged, with increases from higher volumes of large engines being offset by the decline in business jet engines and V2500 modules. Aftermarket revenue was down 1% despite strong growth from our in-production engines.

OE revenue from *Large engine: linked and other** was up 2% reflecting increased volumes of Trent 900s and a higher number of spare Trent XWB engines, partly offset by Trent 700 volume and price reductions, ahead of the introduction of the Trent 7000 for the Airbus A330neo. Sales of spare engines to joint ventures, included in *Large engine: linked and other**, generated revenue of £288m (2015: £189m).

OE revenue from *Large engine: unlinked installed** increased 47%, led by higher volumes of Trent XWBs.

* See table on page 18.

Large engine service revenue reflected double digit growth from our in-production engines which more than offset the reduction from older engines, including the expected lower year-on-year utilisation of Trent 500 and Trent 800 engines. Time and material revenue reduced, as a result of fewer overhauls of engines across the out-of-production fleet. Contract accounting effects within service revenue in 2016 were significantly lower than prior year. As a result, while there was a small foreign exchange improvement in 2016, underlying service revenue from large engines was down 4%. Adjusting for contract accounting effects, service revenue from large engines would have been up 2%.

Revenue from *business aviation** OE engine sales was, as expected, lower, particularly for the BR710 engines, reflecting general market weakness and a transition to newer non Rolls-Royce powered platforms. Volumes of our newer BR725 engine, which powers the Gulfstream G650 and G650ER, were stable. Overall, *business aviation** OE revenues declined 25% while aftermarket revenue was slightly down. Service revenue from our *regional** jet engines declined 14%, reflecting retirements and reduced utilisation of relevant fleets by North American operators in particular.

On the *V2500** programme, which powers aircraft including the Airbus A320, revenue from OE modules declined 10% reflecting the production slow-down as Airbus transitions to the A320neo, powered by another engine provider. However, *V2500** service revenues were 21% higher, reflecting price escalation on flying hour payments together with increased overhaul activity. Overall gross margins for Civil Aerospace were 16.8% (2015: 22.0%), declining £397m from 2015 on a constant currency basis. The main headwinds were as forecast at the start of the year: OE reductions to the Trent 700 programme; business aviation engines and V2500 modules; reduced utilisation and fewer overhauls of our out-of-production Trent 500 and Trent 800 and RB211 engines; and the declining regional aftermarket. In addition, we also incurred programme charges of around £30m for engines still in development. These were partially offset by the release, after accounting and legal review, of accruals related to the termination in prior years of intermediary services, totalling £53m (2015: £nil). Gross margin from spare engine sales to joint ventures contributed £97m (2015: £67m).

The in-year net benefit from long-term contract accounting adjustments totalled £90m (2015: total benefit of £222m, which included a £189m one-off benefit associated with the refinement of our methodology for risk assessment of future revenue). The £90m included a £217m benefit from lifecycle cost improvements (2015: benefit of £140m). We also recognised in this period a £35m benefit from a five cent change (2015: £nil) to our estimated long-term US dollar to sterling exchange rate to bring our own planning rate within updated external benchmark long-term forecast data. These benefits were offset by technical costs of £98m (2015: £24m) for large engines, including the Trent 900, relating to the need for increased shop visits in the short term, and the Trent 700, where we are upgrading the engine management system, together with a charge of £64m (2015: £83m), reflecting other operational changes.

ORDER BOOK

£71.4bn

The year-on-year change was also impacted by a one-off £65m write-back in 2015 of a previously recognised impairment of contractual aftermarket rights (CARs) for sales to a launch customer and the release of a related provision; in 2016 these sales were capitalised as CARs.

Costs below gross margin were £89m higher than the previous year at £818m on an underlying basis. Within this, R&D charges of £568m were £34m higher, reflecting higher spend on key programmes, particularly in respect of the Trent 7000 which are being expensed ahead of capitalisation and lower development cost contributions from risk and revenue sharing partners, partly offset by increased R&D capitalisation on the Trent 1000 TEN.

Underlying commercial and administrative costs were £43m higher than 2015 reflecting increased employee incentive charges. Underlying restructuring costs of £11m were £4m higher than 2015 and profits from joint ventures and associates were down £8m.

As a result, profit before financing and tax was 55% down, reflecting a combination of lower overall gross margins, higher commercial and administrative, R&D and restructuring costs and reduced joint venture and associate profits. Taking account of foreign exchange effects, underlying profit before financing and tax was £367m (2015: £812m).

CIVIL AEROSPACE | KEY FINANCIAL DATA

£m	2015	Underlying change*	Foreign exchange **	2016
Order book	**67,029**	**4,395**	**2**	**71,426**
Engine deliveries	**712**	**(63)**		**649**
Underlying revenue	**6,933**	**(27)**	**161**	**7,067**
Change		*–*	*+2%*	*+2%*
Underlying OE revenue	3,258	14	85	3,357
Change		*–*	*+3%*	*+3%*
Underlying services revenue	3,675	(41)	76	3,710
Change		*-1%*	*+2%*	*+1%*
Underlying gross margin	**1,526**	**(397)**	**56**	**1,185**
Gross margin %	*22.0%*	*-570bps*		*16.8%*
Commercial and administrative costs	(296)	(43)	(3)	(342)
Restructuring costs	(7)	(4)	–	(11)
Research and development costs	(515)	(34)	(19)	(568)
Joint ventures and associates	104	(8)	7	103
Underlying profit before financing	**812**	**(486)**	**41**	**367**
Change		*-60%*	*+5%*	*-55%*
Underlying operating margin	**11.7%**	**-700bps**		**5.2%**

* Order book underlying change includes £2.1bn increase from a change to our long-term US dollar planning rate.
** Translational foreign exchange impact.

Trading cash flow

Trading cash flow before working capital movements of £22m declined year-on-year by £462m, driven by a reduction in underlying profit before financing of £445m and increased property, plant and equipment additions. There were also increased certification costs driven by the Trent XWB-97 and higher R&D capitalisation of the Trent 1000 TEN development costs, offset in part by other timing differences including provision movements.

The overall trading cash flow improvement of £43m resulted largely from a significant year-on-year improvement in working capital, due mainly to differences in the timing of payments to suppliers and increased deposits, offset in part by an increase in inventory. In addition, reflecting the lower profits recorded on our linked engines such as the Trent 700, net long-term contract debtor additions were also lower.

TotalCare net assets and contractual aftermarket rights

TotalCare net assets increased in 2016 by £230m (2015: £406m) to £2.44bn reflecting accounting for new linked engines of £432m (2015: £521m), contract accounting adjustments taken in the year of £90m (2015: £222m) offset by the cash inflows and net other items of £(292)m (2015: £(337)m). It should be noted that the £230m net asset increase is different from the £246m used in the trading cash flow above because of foreign exchange effects on evaluating TotalCare net debtor balance movements.

The CARs balance increased by £169m (2015: increase of £156m) to £574m reflecting higher sales of unlinked Trent XWB engines partly offset by engine cost improvements.

Investment and business development

Order intake of £14.1bn in 2016 for Civil Aerospace was £1.3bn higher than the previous year. The order book closed at £71.4bn, up £4.4bn or 7% from 2015, which included a £2.1bn benefit from the change in the long-term planning foreign exchange rate discussed previously. Excluding this, the order book was up 3%.

Significant orders in 2016 included a US$2.7bn order from Norwegian for Trent 1000 engines, an order from Garuda Indonesia worth $1.2bn for Trent 7000 engines and a $900m order from Virgin Atlantic for Trent XWB. All of these include the provision of long-term TotalCare engine services.

Foundations for future growth are built from our investment in engineering excellence

During the year, we committed resources in order to ensure we made significant

CIVIL AEROSPACE | REVENUE SEGMENTATION

	2015					2016	
	£m	% of total	Underlying change	Underlying change %	Foreign exchange £m	% of total	£m
Original equipment	**3,258**	***48%***	**14**	**–**	**85**	***48%***	**3,357**
Large engine: linked and other	1,570	*23%*	32	*+2%*	2	*23%*	1,604
Large engine: unlinked installed	504	*7%*	237	*+47%*	1	*10%*	742
Business aviation	903	*14%*	(228)	*-25%*	82	*11%*	757
V2500	281	*4%*	(27)	*-10%*	–	*4%*	254
Service	**3,675**	***52%***	**(41)**	**-1%**	**76**	***52%***	**3,710**
Large engine	2,371	*34%*	(84)	*-4%*	2	*32%*	2,289
Business aviation	425	*6%*	(13)	*-3%*	40	*6%*	452
Regional	360	*5%*	(52)	*-14%*	34	*5%*	342
V2500	519	*7%*	108	*+21%*	–	*9%*	627

CIVIL AEROSPACE | TRADING CASH FLOW

£m	2016	2015	Change
Underlying profit before financing	**367**	**812**	**(445)**
Depreciation and amortisation	491	410	81
Sub-total	**858**	**1,222**	**(364)**
CARs additions	(208)	(161)	(47)
Property, plant, equipment and other intangibles	(739)	(502)	(237)
Other timing differences*	111	(75)	186
Trading cash flow pre-working capital movements	**22**	**484**	**(462)**
Net long-term contract debtor movements	(246)	(406)	160
Other working capital movements	267	(78)	345
Trading cash flow**	**43**	**–**	**43**

* Includes timing differences between underlying profit before financing and cash associated with: joint venture profits less dividends received; provision charges higher /(lower) than cash payments; non-underlying cash and profit timing differences (including restructuring); and financial assets and liabilities movements including the effect of foreign exchange movements on non-cash balances.

** Trading cash flow is cash flow before: deficit contributions to the pension fund; taxes; payments to shareholders; foreign exchange on cash balances; and acquisitions and disposals.

progress across all key engineering programmes in 2016. The Trent 1000 TEN engine undertook its first test flight in March and received its European Aviation Safety Agency (EASA) certification on 11 July. The Trent 1000 TEN will power all variants of the Boeing 787 Dreamliner family and will power the first flight of the 787-10 in 2017.

In November, the latest version of the Trent XWB, the higher thrust -97 engine, successfully powered the first flight of the Airbus A350-1000 in Toulouse. The Trent 7000 engine, which will exclusively power the Airbus A330neo, undertook ground testing for the first time and we started assembly of the first flight test engines.

In respect of future technologies, the Advance3 large engine demonstrator is proceeding well. The engine will test the new core architecture for future engine families and other key technologies such as lean burn combustion, ceramic matrix composites (CMC), CastBond (specialist turbine manufacturing) plus additive layer manufacturing (or 3D printing). It is currently in development at our Bristol, UK, facility with all core modules advancing well.

In September, we successfully ran the world's most powerful aerospace gearbox for the first time under the joint venture Aerospace Transmission Technologies (ATT). The gearbox is designed to reach up to 100,000 horsepower and is a significant step in the development of the new UltraFan engine technology.

Supporting our commitment to research and development, we also announced a US$30m expansion into a new facility in Cypress, California, that will be dedicated to research and development of ceramic matrix composite materials and processes for use in next generation aircraft engine components.

Investing in new aerospace supply chain capabilities to help drive operational excellence

In January 2016, we announced plans to invest more than £30m at our site in Washington, Tyne & Wear, UK, creating a new facility to manufacture a range of aerospace discs for in-service engines. The new facility is expected to be fully operational in 2018 and will have the capacity to manufacture well over 1,500 fan and turbine discs a year for use in a wide range of existing engines.

The construction of a £50m extension to our wide-chord fan blade facility in Barnoldswick, UK, started in December. The expanded facility will be able to manufacture 6,000 large Trent fan blades a year, almost twice its current capacity. We also announced the creation of a centre of excellence in structures & transmissions at the same site. The new centre, supported by £20m of investment, will manufacture many of the complex structures that feature in all Rolls-Royce aero engines.

Good progress strengthening our aerospace aftermarket service offering

We have continued to invest in our service capabilities to support our customers with state-of-the-art facilities and relevant products and services, particularly within our portfolio of TotalCare offerings.

During the year, we completed changes to three Approved Maintenance Centre (AMC) joint ventures. This included investing £154m to increase our stake in both Hong Kong Aero Engine Services Limited (HAESL) and Singapore Aero Engine Services Pte Limited (SAESL) to 50%. These AMCs support our strategy to offer a competitive, capable and flexible Trent service network to meet the changing needs of customers across the lifecycle of engines and to support the growing Trent engine fleet.

Additionally, we announced further details of a new AMC in Abu Dhabi with Mubadala Development Company, the emirate-based investment and development organisation. This purpose-built facility will carry out work on the Trent XWB.

We also announced that we are further expanding our global network of Authorised Service Centres (ASC) for business aviation aircraft under our CorporateCare® service provision for customers. Rolls-Royce now has 62 ASCs in place with key maintenance providers worldwide.

Following the launch of SelectCare in 2016, we secured our first agreement for Trent 800 engines as part of a wide-ranging deal with Delta Airlines.

Civil Aerospace outlook

On a constant currency basis, our Civil Aerospace business should deliver modest growth in revenue and profit in 2017, supported by large engine aftermarket growth, further lifecycle cost reductions and a higher level of R&D capitalisation. Business jet demand is expected to weaken further, as will the demand for aftermarket services to support Rolls-Royce powered regional aircraft. After a better year for trading cash flow in 2016, we now expect this to be broadly unchanged year-on-year reflecting higher volumes of cash-loss-making engines offsetting the positive effects of higher aftermarket cash revenues.

We expect the TotalCare net asset to peak in the next 12 months at between £2.5bn and £2.7bn, reflecting further targeted lifecycle cost improvements and other timing differences between cost and cash.

Positive market developments continue to drive long-term growth in Civil Aerospace

The long-term positive market trends for our leading power and propulsion systems remain unchanged despite some near-term uncertainties in Civil Aerospace that continue to impact business jet engine production volumes and service activity on older large engines. The long-term trends driving demand for growth in large passenger aircraft, business jets, power systems and maritime activity remain strong; in particular a growing aspirational and mobile middle-class, particularly in Asia, and globalisation in business, trade and tourism.

While recent political and economic developments have added some uncertainty to near-term utilisation, we continue to expect that strong widebody airframe demand – driven by the need for newer, more fuel-efficient aircraft – should provide resilience to manufacturing schedules over the next few years as the industry undergoes a strong replacement cycle.

New airframe growth and transitions are in line with expectations

Preparations for the transition of the Airbus A330ceo to A330neo models are also progressing well and once the transition is completed we will benefit from an exclusive position with the new Trent 7000 on the A330neo.

The roll-out of new engines, including the Trent XWB for the highly successful Airbus A350 family, will significantly grow our market share and the installed base of new engines that will deliver strong aftermarket revenues for decades to come.

Market review

Rolls-Royce is one of the world's leading civil aero-engine manufacturers with particular strengths in engines for civil widebody aircraft and large business jets, underpinned by our strength and continued investment in technology.

We have a strong market position on widebody aircraft produced by the world's two major aircraft manufacturers: Airbus and Boeing, who are broadly consistent in forecasting air traffic growth (revenue passenger kilometres) of approximately 5% compound annual growth rate over the next 20 years. In the engine market for narrowbody aircraft, we continue to supply some parts and services for the IAE V2500 engine family.

We are market leaders in the large business jet fleet market powering aircraft from most of the main aircraft manufacturers.

Key Rolls-Royce differentiators

- Barriers to entry are extremely high. We invest heavily to maintain market-leading technologies and system level integration capabilities to deliver the best engine performance for our customers. We offer a wide range of aftermarket services which provide flexible and cost-effective options to our customers and build long-term relationships.

Market dynamics

- Overall there has been a slowdown in all major geographical markets for new aircraft orders after a period of higher than normal order placement for new airframe products in recent years (principally Airbus A350 XWB and A330neo, and Boeing 787 and 777X).
- Long-term growth in the number of widebody aircraft in the global fleet has historically been strongly correlated to global GDP growth and disposable income.
- Historically, growth has recovered quickly following major economic shocks. The geographic spread of our installed base and wide customer base spreads our risk and reduces our exposure to any one shock.
- Our current share in the widebody engine market is at 32% of the installed passenger fleet and is expected to exceed 50% early in the next decade.
- Older widebody aircraft are experiencing reduced utilisation by certain airlines.
- Trent-powered aircraft are starting to transition from their original operators to other operators as the fleet matures. This year, 46 Trent-powered aircraft transitioned, 13 of which were Trent 800-powered Boeing 777 aircraft.
- Over 90% of the Rolls-Royce widebody engine fleet is covered by our TotalCare service agreements.
- Over 65% of Rolls-Royce business jet engines are covered by our CorporateCare service agreements.
- Long-term demand for large business jets is related to global economic growth and increases in the number of high net worth individuals; the sector has historically been fairly resilient to financial shocks.
- The business jet market is slowly recovering in the US (our largest market), but is currently going through a slowdown elsewhere due to political tensions and customer anticipation of new models about to enter into service.
- Aftermarket demand for engines on 50-70 seat aircraft is reducing in line with expectations.

Competition

- GE is the main competitor supplying engines in the widebody sector. In 2016, deliveries of engines for widebody passenger aircraft were split Rolls-Royce 38%, GE 54%, Engine Alliance 6% and Pratt & Whitney 2%.
- Rolls-Royce is well positioned on all Airbus widebody airliner programmes and competes with GE on the Boeing 787 family.
- Rolls-Royce is the sole engine provider on the Airbus A350 XWB family where 810 aircraft have been ordered so far.
- GE is the sole engine provider on the Boeing 777X aircraft, scheduled to enter into service in 2020 where 306 have been ordered so far.
- In large business jets, the main competition is GE, Pratt & Whitney and Safran.
- Rolls-Royce has 3,100 powered business jets flying, representing 55% market share of the large/very large business jet fleet.

Business risks

- If we experience a major product failure in service, then this could result in significant adverse financial and reputational consequences and potential litigation.
- If an external event or severe economic downturn significantly reduces air travel and thereby reduces engine flying hours and demand for aircraft, then our financial performance may be impacted.
- If our aircraft manufacturer customers significantly delay their production rates, then our financial performance may be impacted.
- If we fail to achieve cost reductions at the necessary pace, then our ability to invest in future programmes and technology may be reduced.
- If we experience significant pricing pressure from increased competitor challenge in our key markets, then our financial performance may be impacted.
- If we suffer a major disruption in our supply chain, then our delivery schedules may be delayed, damaging our financial performance and reputation.
- If there are significant changes to the regulatory environment for the airline industry, then our market position may be impacted.

Opportunities

- Our position and long-term prospects in the widebody sector are strong across our Trent family.
- We continue to invest in our technology demonstrator programmes which underpin our Advance and UltraFan engine programmes. We are well positioned for future aircraft requirements, while also delivering technologies to enhance our existing product portfolio.
- The Trent XWB has now been in service for two years, with 64 Airbus A350s delivered to ten airlines and one lessor. In November, the A350-1000 successfully completed its first flight.
- Rolls-Royce is the sole supplier of engines for the new Airbus A330neo. The Trent 7000 engine is in development, and the first flight is expected in 2017.
- The new Trent 1000 TEN for the Boeing 787 is scheduled to enter service in 2017, which will deliver significant fuel efficiency improvement and an opportunity for greater market capture.
- China's COMAC is also planning a joint programme with Russia's UAC to develop a widebody aircraft, targeting entry into service around 2025. We remain in close dialogue with COMAC and UAC to understand their plans and whether their widebody programme presents an opportunity for Rolls-Royce.
- Our business jet market share is likely to fall in the medium term with the success of new entrants into the large/very large sector, but the market remains attractive and we will continue to invest to improve our position and retain leadership.

Trent XWB

The latest version of the Rolls-Royce Trent XWB, the most efficient large aero engine flying in the world today, has powered the Airbus A350-1000 aircraft to the skies for the first time. The Trent XWB-97 is the sole powerplant for the longer range A350-1000, which will enter service in 2017.

The first test flight, which took place in November at Toulouse, France, marked another milestone for the Trent XWB, our largest Civil Aerospace programme.

The Trent XWB-84 has already delivered outstanding performance and reliability since it first went into service in January 2015, powering the A350-800 and A350-900. The Trent XWB, specifically designed for the A350 XWB, is the fastest-selling widebody engine ever, with more than 1,600 already sold or on order.

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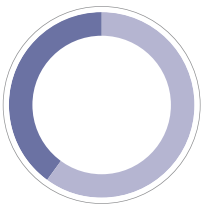
Summary
We are a leading engine maker for the military transport and patrol market and the second largest provider of defence aero-engine products and services globally. Rolls-Royce has 16,000 defence engines in service with 160 customers in over 100 countries.

Key highlights

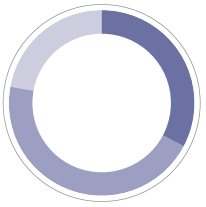
- Underlying revenue up slightly; modest growth in OE.
- Underlying profit before financing down 8%; reflecting adverse product mix and costs related to the TP400 programme, partially offset by through-life cost-savings on a major EJ200 contract.
- Investing to enhance manufacturing, aftermarket service and closer proximity to core customers.
- 2017 outlook: revenue steady; margin and profit expected to soften from recent levels.

UNDERLYING REVENUE MIX



OE revenue	**40%**
Services revenue	**60%**

UNDERLYING REVENUE BY SECTOR



Combat	**33%**
Transport and patrol	**45%**
Other	**22%**

DEFENCE AEROSPACE

Operational review

Financial overview

Underlying revenue of £2,209m was up slightly on the prior year. Higher volumes for TP400 production, together with increased Adour engine deliveries, helped original equipment (OE) revenues increase 3%. Service revenues were stable, with lower demand for spare parts offset by increased revenues from long-term Eurofighter Typhoon and C-130J service contracts.

Gross margin declined by £49m, reflecting lower sales of spare parts, an adverse change in OE product mix, additional expenditure of £31m on the TP400 programme and higher payroll costs. Retrospective contract margin improvements totalled £82m, £5m lower than prior year, but ahead of early expectations. Of this, around half relates to delivering significant cost saving benefits on the largest Eurofighter Typhoon contract, which triggered a cost-saving incentive award.

While overall R&D costs were slightly lower than the prior year, the business continued to invest in future programme development and the Indianapolis transformation.

Restructuring costs were lower due to reduced level of severance costs and reversal of a provision for the closure of the defence facility at Ansty, UK, through better cost recovery than expected. Underlying commercial and administrative costs and other costs were similar to prior year.

Profit before financing of £384m was 8% lower than the prior period, driven by the lower gross margin.

Investment and business development

Order intake for 2016 was £1.5bn (2015: £1.7bn), reflecting significant follow-on export orders being delayed to 2017.

Significant activities in 2016 included: winning orders for the F-35B LiftSystem™; increased MRTT engines for A330 aircraft; and contract renewals for services. Deliveries of engines were slightly higher in 2016, driven by increased units for TP400 and Adour export. Services revenues were steady, reflecting higher flying hours from newer EJ200, F405 Adour and AE 2100 powered aircraft in the UK, North America and the Middle East.

The first T56 Series 3.5 technology insertion kits delivered to the US Air Force (USAF) for its legacy Hercules C-130 fleet have validated the expected fuel saving and performance benefits, prompting growing interest in the upgrade.

The UK and French Governments also committed to the €2bn UK-France Unmanned Combat Air System (FCAS) unmanned combat air system programme in December, enabling progress through to the demonstrator phase of the programme in 2017. Our LibertyWorks development unit was selected to provide the vertical lift propulsion for the new DARPA VTOL X-Plane. The unit also launched an infrared footprint suppression module, reflecting our diverse and cutting-edge technology capability.

Within the Services portfolio, the support contract for the US C-130J transport fleet was renewed and we signed a memorandum of understanding with Pratt & Whitney to extend support for the UK's new F-35B Lightning fleet beyond the Rolls-Royce LiftSystem.

This strategy of strengthening our service offerings closer to our major customers saw the opening of new on-base Service Delivery Centres in the UK (at RAF Brize Norton) and in the US (at Kingsville, Texas), as well as a new joint engine support facility for the USAF Global Hawk fleet.

ORDER BOOK

£3.9bn

As part of the TP400 consortium, the focus was on delivering solutions to improve the on-wing reliability of the GE-Avio gearbox. This included an on-wing exchange procedure which has greatly helped to reduce the service time and backlog.

Transformation milestones were achieved as planned, including completion of the first production cell as part of the investment activity in Indianapolis. Further manufacturing changes are due to come on stream in the first half of 2017.

Defence Aerospace outlook

While revenues should remain steady, margins are expected to come under pressure from the essential investments in efficiency and long-term growth. These reflect important product development and manufacturing transformation initiatives as the business looks to capitalise on its strong positions, particularly in combat and transport & patrol, and the absence of significant incentive arrangements under remaining long-term service agreements. As a result, margins and profits are expected to soften from the recent levels.

DEFENCE AEROSPACE | KEY FINANCIAL DATA

£m	2015	Underlying change	Foreign exchange*	2016
Order book	**4,316**	**(391)**	**1**	**3,926**
Engine deliveries	**649**	**12**	**–**	**661**
Underlying revenue	**2,035**	**17**	**157**	**2,209**
Change		*+1%*	*+8%*	*+9%*
Underlying OE revenue	801	22	67	890
Change		*+3%*	*+8%*	*+11%*
Underlying services revenue	1,234	(5)	90	1,319
Change		*–*	*+7%*	*+7%*
Underlying gross margin	**579**	**(49)**	**34**	**564**
Gross margin %	*28.5%*	*-260bps*		*25.5%*
Commercial and administrative costs	(124)	(3)	(7)	(134)
Restructuring	(8)	18	–	10
Research and development costs	(73)	5	(3)	(71)
Joint ventures and associates	19	(4)	–	15
Underlying profit before financing	**393**	**(33)**	**24**	**384**
Change		*-8%*	*+6%*	*-2%*
Underlying operating margin	**19.3%**	**-180bps**		**17.4%**

* Translational foreign exchange impact.

Market review

Rolls-Royce is a market leader in defence aero engines for military transport and patrol aircraft and has strong positions in other sectors, including combat aircraft, trainer aircraft and helicopters. We are pursuing new opportunities emerging in Asia and the Middle East to mitigate flat defence budgets in the established North American and European markets.

Key Rolls-Royce differentiators

We are investing heavily in technology, integration capabilities and facility modernisation to deliver capable, affordable engines for our customers. Additionally, we leverage our large installed base and strong services capabilities to provide superior and affordable service solutions.

Market dynamics

- Defence budgets are expected to show modest growth, flat in real terms in the US and UK, partially offset by growth in other emerging markets.
- Western customers are seeking to reduce and minimise costs by delaying or deferring purchase, improving asset availability and extending lifecycles of aircraft/engines.
- Increasing levels of economic affluence and political tension in the Asia Pacific and Middle East regions are leading to increases in both OE and services spend.
- Revenue has historically been broadly balanced between OE sales and aftermarket services, biased towards the latter.

Business risks

- If we experience a major product failure in service, then this could result in loss of life and have a major, negative impact on our reputation.
- If global defence spending experiences a further downturn, then our financial performance may be impacted.
- If we do not continue to invest to improve the performance and cost of our products, then we may lose market share.
- If we suffer a major disruption in our supply chain, then our delivery schedules may be delayed, damaging our financial performance and reputation.
- If we do not secure new applications, then our capabilities may be eroded in the long term.

Competition

- GE, Pratt & Whitney, Honeywell, and Safran are our main competitors in our sectors.
- In Europe, large defence programmes tend to be addressed by consortia of two or more companies due to the political environment. Examples include our collaboration with ITP, MTU and Safran on the TP400 engine for the Airbus A400M and with GE Avio, ITP and MTU on the EJ200 engine for the Eurofighter Typhoon.
- We work with our EJ200 engine partners on campaigns for Eurofighter Typhoon export sales opportunities as well as new indigenous combat programmes.
- Barriers to entry are high and we do not envisage the competitive landscape changing significantly in the near future.

Opportunities

- The UK's commitment to the next phase of the FCAS programme presents a next-generation combat development opportunity for Rolls-Royce.
- Our LiftFan system for the F-35B is just entering service and we expect to deliver over 400 systems in the next 20 years.
- Developing markets, such as India and Turkey, are inviting bids on new combat aircraft. We estimate a potential of over 300 aircraft for these programmes.
- In transport, we believe the Airbus A400M transport aircraft and V-22 Osprey have overseas sales opportunities.
- We see strong growth potential for increased service provision to the military and we are well positioned with programmes such as MissionCare®.

Improving fuel efficiency

Technical advances for our T56 engines on legacy Lockheed Martin C-130 and P-3 aircraft have led to significant improvements in fuel economy. The US National Oceanic and Atmospheric Administration (NOAA) was the launch customer and installed T56 engine upgrade kits, known as the Series 3.5, on its two 'Hurricane Hunter' P-3 aircraft. The result: fuel economy improvement of 12% on average after more than 3,000 engine flight hours through and around hurricanes. The USAF completed a Series 3.5 installation on the first of its fleet of C-130H aircraft and early flights showed similar results. The USAF will roll out the upgrades into C-130s operated by USAF Reserve and Air National Guard units, leading the way for installation of the Series 3.5 kits into the global fleet of hundreds of transport aircraft flown by other customers around the world.

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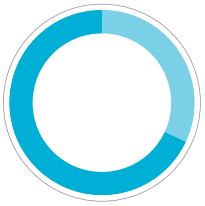
Summary
Power Systems is a leading provider of high-speed and medium-speed reciprocating engines, complete propulsion systems and distributed energy solutions as well as key engine components including fuel injection systems and turbochargers. The business serves the marine, defence, power generation and industrial markets through its core brands MTU, MTU Onsite Energy and L'Orange.

Key highlights

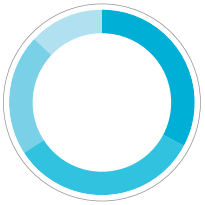
- Underlying revenue 1% lower; growth in power generation and industrial markets offset by reduction in commodity and oil price driven sales.
- Underlying profit before financing 14% lower; volume reduction and adverse product mix.
- Good start to transformation with new leadership in place to drive further performance improvement.
- 2017 outlook: steady, healthy order book in key segments offsetting some challenging markets.

UNDERLYING REVENUE MIX



OE revenue	68%
Services revenue	32%

UNDERLYING REVENUE BY SECTOR



Marine	33%
Energy	33%
Industrial	21%
Defence and other	13%

POWER SYSTEMS

Operational review

Financial overview

Underlying revenue of £2,655m was 1% lower at constant currency (11% higher including the impact of translational foreign exchange). Overall original equipment (OE) revenue declined 1%. Growth in sales of diesel and gas products to power generation and industrial customers offset reductions within markets where demand is linked to low oil and commodity prices, and reduced activity in naval markets.

Service revenues reduced 2%, largely reflecting weaker marine medium-speed markets, once again reflecting low oil prices.

Gross margin reduced by £28m in absolute terms and by 90 basis points, to 26.6% (2015: 27.5%) with good progress on cost reduction generated from transformation activity offsetting some of the impact of volume reduction, adverse changes in product mix and a reduction in the discount rate applied to the warranty provision.

Overall, underlying profit declined £27m or 14%, led by the reduction in gross margin. Costs below gross margin remained broadly unchanged on an underlying basis. The £9m increase in commercial and

administrative costs was offset by a £5m reduction in R&D reflecting a more focused approach to future product development activity together with reduced underlying restructuring costs. An exceptional charge of £45m has been taken for restructuring activity.

Investment and business development

Power Systems' customers span a range of markets from power generation and defence to marine, industrial and construction markets. This end-market diversity has enabled the business to mitigate some of the weak market environments and as a result, the order book ended the year at £1.8bn (2015: £1.9bn).

2016 order intake of £2.4bn (2015: £2.5bn) was 2% down at constant currency, with the year-on-year reduction being mainly in oil & gas and commodity-related markets including marine, together with lower government project orders. This was offset by improvements within power generation, agricultural and industrial markets.

Within power generation markets, we delivered 200 gensets (a package of engine and generator) to the Asian VPower Group, one of our strategic partners in the region. We have continued to strengthen our position in the growing market for back-up power for larger mission-critical applications.

Order intake later in the year was healthy for solutions to support data systems in both Europe and the US and also for independent power customers. We have also agreed to establish a 50/50 joint venture with Yuchai Machinery Company Ltd for the production under licence of MTU Series 4000 diesel engines in China, targeting the Chinese off-highway market.

Demand for our marine products remained good. Naval orders included gensets for the UK Royal Navy's Type 26 Global Combat Ship and a supply contract for the Italian Navy relating to a new multi-purpose ocean-going patrol vessel. Within the land defence markets, there was a follow-up order for use in a German armoured vehicle.

In other areas, we continued to attract new customers in new regional markets including Japanese high-tech crane producer Kato. We also made progress within the rail market in both Europe and Asia. This included a notable order from Hitachi Rail Europe for over 100 MTU PowerPacks® for use in the UK and an order to remanufacture (an in-house process, known as Reman, to refurbish and extend the life of existing systems) around 400 MTU PowerPacks for Transdev Group in Germany.

Innovation was again strong with some notable new products coming to market in the year. We launched new advanced diesel and gas propulsion systems which meet new IMO and EPA emissions standards.

ORDER BOOK

£1.8bn

At the same time, we launched advanced propulsion systems for the construction and industrial markets which satisfy new emission standards in those industries. Finally, we launched a hybrid power pack and energy pack battery system for the rail market.

Power Systems also made progress with the transformation programme, targeting reductions in product costs as well as strengthening sales and service resources and leveraging digital capabilities to develop value adding services.

Power Systems outlook

The outlook for Power Systems remains steady. The business finished the year with a strong order book for several of its key markets. Whilst some markets, particularly those impacted by oil and commodity prices, remain difficult, we expect the business to deliver modest growth in revenue and profit in 2017.

POWER SYSTEMS | KEY FINANCIAL DATA

£m	2015*	Underlying change	Foreign exchange**	2016
Order book	**1,928**	**(113)**	**–**	**1,815**
Underlying revenue	**2,385**	**(25)**	**295**	**2,655**
Change		*-1%*	*+12%*	*+11%*
Underlying OE revenue	1,618	(9)	201	1,810
Change		*-1%*	*+12%*	*+12%*
Underlying services revenue	767	(16)	94	845
Change		*-2%*	*+12%*	*+10%*
Underlying gross margin	**656**	**(28)**	**79**	**707**
Gross margin %	*27.5%*	*-90bps*		*26.6%*
Commercial and administrative costs	(296)	(9)	(35)	(340)
Restructuring	(4)	4	–	–
Research and development costs	(162)	5	(20)	(177)
Joint ventures and associates	–	1	–	1
Underlying profit before financing	**194**	**(27)**	**24**	**191**
Change		*-14%*	*+12%*	*-2%*
Underlying operating margin	**8.1%**	**-110bps**		**7.2%**

* 2015 figures have been restated as a result of costs previously reported in 'cost of sales', being reclassified as 'other commercial and administrative costs' to ensure consistent treatment with 2016.
** Translational foreign exchange impact.

Market review

The markets served by Power Systems are driven by long-term global trends such as increasing population growth, rising demand for energy, natural resources and food as well as stricter emissions legislation. Despite an unprecedented downturn in commodity prices in recent years, the utilisation rates in the exploration and production industry are showing some early signs of recovery. Demand for high-specification system solutions such as power for data centres and rail power packs has proved robust. We remain confident of long-term growth in our principal markets. Power Systems continues to invest in new technology, improved customer solutions and aftermarket services to address market developments and new requirements.

Key Rolls-Royce differentiators

- Technology leadership and reputation with market-leading performance and system solutions; new product innovation (eg. hybrid/e-drive and mobile gas solutions); and high level of customisation.

Market dynamics

- Population growth and increasing urbanisation are driving demand for clean, efficient power and infrastructure investments.
- Global GDP development with particular growth in Asia and Africa.
- Increasing global and regional trade and transport of goods.
- Geopolitics and migration are driving modest defence budget growth (1-2%) in NATO countries with higher growth in emerging markets and the Middle East.
- Increasing focus on renewable energy sources requires decentralised and clean energy solutions (eg. back-up power).
- Increasing environmental legislation and efficiency requirements help drive emission and efficiency technologies.
- Current weak environment in certain end markets (eg. oil & gas and mining), due to current low oil and commodity price levels.

Business risks

- Economic: some of our markets, especially oil & gas and mining, continue to be impacted by low commodity prices – this has been partially offset by a resilient performance in other sectors (eg. power generation and rail).
- Political: increasing political tensions and uncertainties, and remaining sanctions limit levels of global trade and customer access in certain regions.
- Competitive: increasing activities of Asian competitors and new market entrants in our core power range of MTU Series 4000 engines potentially influence volumes and margins.
- Technological: emerging new technologies with falling costs (eg. battery and solar) might influence existing solutions such as back-up power generators.

Competition

- Fragmented competitor landscape in off-highway engine markets which varies depending on specific market segments – multiple players although a few dominate.
- Continuing industry consolidation results in strong, large-scale and integrated players.
- Expansion of western competitors in our specific core engine markets.
- Competition from Asia increasingly focusing on higher power ranges where MTU operates.
- While traditional competition has been limited to engine suppliers, solution providers are becoming more relevant.

Opportunities

- Regional growth, especially in China, India and South East Asia.
- Leveraging partnerships to expand geographical reach and extend product scope in core market segments.
- Stricter global emission legislation strengthens demand for emission and efficiency technologies (eg. exhaust after treatment).
- Enhancement of system competence and solutions to create customer value through optimised total system functionality and performance.
- Growth in service and digital offerings to serve complete lifecycle solutions and improve customer operations.
- Growth through extended key engine component offering, including turbochargers.
- Leveraging trend towards increasing electrification through strengthening electric capabilities (eg. hybrid and diesel-electric propulsion systems).

MTU drives for key British railway projects

The Intercity Express Programme (IEP) is one of the biggest transport projects in the UK: 122 new high-speed trains built by Hitachi Rail Europe are scheduled to go into service on the East Coast Main Line and Great West Main Line routes from 2017.

Rolls-Royce is supplying more than 330 MTU PowerPacks each producing up to 700 kilowatts for these super express trains. At the heart of the drive system is the state-of-the-art, fuel efficient MTU 12V 1600 R80L engine, which meets the stringent EU Stage IIIB emission standard thanks to an integrated selective catalytic reduction system. MTU will maintain and guarantee the availability of the engines throughout the entire 27-year lifetime of Hitachi's contract for IEP.

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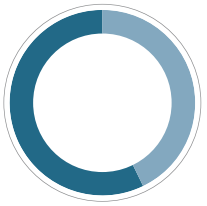
Summary
Marine is a leading provider of propulsion and handling solutions for the maritime offshore, merchant and naval markets. The offerings range from standalone products to complex integrated systems including ship design. The business has more than 4,000 customers, with 70 naval forces and over 30,000 commercial vessels using our equipment.

Key highlights

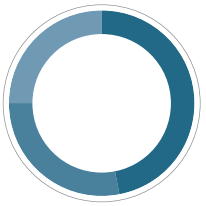
- → Underlying revenue down 24%; weak offshore markets impacting both OE and service revenues.
- → Underlying profit before financing negative; lower volumes and reduced overhead absorption.
- → Net restructuring benefits from current and legacy programmes starting to improve performance.
- → £200m impairment of goodwill reflecting a more cautious outlook; further weakness in offshore oil & gas markets offset by ongoing cost improvements as we refocus the business.

UNDERLYING REVENUE MIX



OE revenue	**57%**
Services revenue	**43%**

UNDERLYING REVENUE BY SECTOR



Offshore	**47%**
Merchant	**28%**
Naval	**25%**

MARINE

Operational review

Financial overview

Underlying revenue of £1,114m was 24% lower on a constant currency basis. Within this, original equipment (OE) and services revenues were 26% and 21% lower respectively. This reflected continued weakness in offshore and merchant, as ship owners deferred overhaul and maintenance on the back of reduced utilisation of their vessels.

Gross margin was £236m, an improvement of 170 basis points versus 2015, but £(44)m lower in absolute terms, as a result of the lower volume. The improved gross margin percentage partly resulted from cost reduction actions. Overall this resulted in a net loss of £27m.

The announcement in December 2016 of further organisational changes and headcount reduction in 2017 has led to an exceptional £5m restructuring charge. In addition, £200m of the Group impairment of goodwill was in Marine and mainly related to the acquisition of Vickers in 1999.

Investment and business development

Overall, the Marine order book declined 29% during the year at constant currency, reflecting adjustments for a number of postponed or cancelled orders and very weak offshore markets. Orders for new vessels, projects and services were all sharply lower than 2015 and, as a result, order intake was only £715m, 29% down on the previous year at constant currency.

The offshore market was extremely challenging, driven by a low oil price and reduced capital expenditure within the upstream oil exploration and related services sectors. Several merchant segments were also subdued, reflecting generally weak conditions in the global marine industry. The business focused on using its strengths as a system integrator to leverage across adjacencies, including designing and equipping the UK's new polar research ship, RSS Sir David Attenborough. It also landed a major deal to design and equip Hurtigruten's new explorer cruise ships, along with battery solutions to make full electric propulsion possible.

The business announced a contract to supply the world's first automatic crossing system to ferry operator, Fjord 1, and also launched our new Azipull Carbon thruster with yacht builder Benetti, reflecting the increasing importance of newer technologies. The fishing segment remained strong, with contracts won for a range of vessels. The naval business was focused on further development work and supporting customers across Asia, Europe and the US. These included supporting successful sea-trials for the US Navy's most advanced warship the USS Zumwalt, further MT30 orders for new Italian helicopter landing craft and selection by the New Zealand Navy for ship design of its MSC programme.

The Marine business continues to lower its cost base and build flexibility into the organisation, particularly across back-office and operational activities. The restructuring programmes announced in 2015 have led to a reduction of around 1,100 headcount with £65m of annual savings recognised from 2017.

Reflecting the ongoing subdued and increasingly cost-conscious market environment, in December further restructuring to take place in early 2017 was announced, targeting annualised savings of around £50m. This included a further headcount reduction of around 800 across operations and back-office functions as the business continues to shrink footprint, reduce indirect headcount, and consolidate manufacturing activity.

At the same time, investments were made in the strategic enablers of the future, including upgrading our azimuth thruster production facility in Rauma, Finland. The £44m project will create a state-of-the-art production facility for one of our most important product groups.

ORDER BOOK

£905m

The pace of technology change in the sector is accelerating, and we continue to invest in pioneering research into ship intelligence technologies focused on data-driven, value-added services that facilitate full ship automation in the long term.

Marine outlook

Overall, the outlook for Marine remains cautious. We expect that the market will continue to feel the impact of low oil prices, and the general overcapacity in several segments will take time to reach equilibrium. This will impact the demand for our products and services. We will sustain our active cost reduction programmes, focusing on manufacturing, supply chain and overhead costs, in order to drive a more competitive business adapted to the current market conditions.

MARINE | KEY FINANCIAL DATA

£m	2015	Underlying change	Foreign exchange*	2016
Order book	**1,164**	**(337)**	**78**	**905**
Underlying revenue	**1,324**	**(312)**	**102**	**1,114**
Change		*-24%*	*+8%*	*-16%*
Underlying OE revenue	773	(198)	56	631
Change		*-26%*	*+7%*	*-18%*
Underlying services revenue	551	(114)	46	483
Change		*-21%*	*+8%*	*-12%*
Underlying gross margin	**260**	**(44)**	**20**	**236**
Gross margin %	*19.6%*	*+170bps*		*21.2%*
Commercial and administrative costs	(201)	(6)	(17)	(224)
Restructuring	(16)	19	(1)	2
Research and development costs	(28)	(11)	(2)	(41)
Underlying profit before financing	**15**	**(42)**	**–**	**(27)**
Change		*-280%*		*-280%*
Underlying operating margin	**1.1%**	**-380bps**		**-2.4%**

* Translational foreign exchange impact.

Market review

We forecast long-term growth opportunities across our commercial and naval market segments. Short-term performance will continue to be impacted by the weakness in offshore oil & gas exploration.

Key Rolls-Royce differentiators

- Unique domain knowledge, portfolio of products with overlaying levels of systems integration; joint value proposition within naval markets with Power Systems; continuous maritime innovation and technology leadership, and leadership in emerging digital marine markets.

Stealth power

The commissioning of the world's most advanced naval ship, USS Zumwalt, took place in October. Powered by two Rolls-Royce MT30 main gas turbine generators and two auxiliary turbine generators, and driven by two fixed pitch Rolls-Royce propellers, the USS Zumwalt is an all-electric ship at the cutting edge of naval technology.

Rolls-Royce technicians joined the ship throughout an extensive period of sea trials to ensure a successful entry into service.

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Market dynamics

- We operate in three key markets – offshore, merchant and naval – with growth fundamentally driven by GDP, trade, oil price and defence spending.
- Population growth, urbanisation and industrialisation support growth in demand for energy and trade, in turn driving demand for offshore and merchant vessels.
- Exploration and production spending cuts result in the offshore segment experiencing very low fleet utilisation, declining charter rates, lay up of vessels (impacting services revenue) and increased scrapping.
- We expect exploration activity to return to growth over time to compensate for the depletion rate of current wells. However, there is unlikely to be a positive impact in 2017.
- Merchant segment facing overcapacity and weak earnings in most cargo segments; however, good opportunities in cruise and passenger vessels, and a stable tug and workboat market.
- Expect strong efficiency and cost focus when merchant and offshore markets rebound.
- Naval market is forecast to remain stable as defence expenditure remains consistent.
- Overcapacity in shipbuilding and vessel fleets leading to consolidation at customer level.
- Asian yards are expected to continue playing a major role in shipbuilding with further increased regional vessel ownership, particularly in China.
- Continuing trend of supply chain moving east to where the majority of ships are built.

Business risks

- Markets: continuing low oil price results in sustained pressure in the offshore market with customer groups reducing costs and capital commitments, thereby delaying market recovery.
- Competition: competitors react to a depressed market by cutting costs, pricing aggressively and partnering with other players.
- Contracting: order delays and cancellations impact our revenue, cash and profit but also put our supply chain under financial stress.
- Customer and supply chain financial pressure: continuing market downturn leaves some customers and suppliers exposed to consolidation and/or market exit.
- Technology: failure to invest in the right technologies to meet customer future demand.
- Product failure: risk of failure in the field resulting in the need for intervention to rectify the issue with financial and/or reputational consequences.

Competition

- Array of competitors is diverse but falls generally into two main groups: systems integrators with broad portfolios and specialists in narrow product categories.
- Competitors reacting to current market dynamics with cost reduction programmes.
- Cross-industry electrical specialists increasingly active in several vessel segments to capitalise on marine vessel electrification trend.
- Key competitors looking to grow into digital offerings with investment and niche acquisitions.
- Increased pricing pressure with competition for fewer orders in challenging market.

Opportunities

- Continue growth in merchant segments (eg. ferries, tugs and short-sea cargo) and adjacent offshore markets (eg. special purpose and offshore wind) with more advanced offerings.
- Continue to leverage the joint value proposition in naval markets together with Power Systems.
- Leverage local partnerships to generate regional growth in Asia, especially China.
- Owners are increasingly interested in solutions to improve efficiency and environmental impact as well as safety in more diverse and complex operations.
- Increasing role of data and analytics in optimising asset operations and reducing costs.
- Growth in intelligent shipping with greater integration of propulsion and electric systems.
- Increased modularisation and standardisation as well as advanced manufacturing methods.
- Increased uptake of long-term service agreements to create greater value within the market.

Summary

Nuclear is a leader in propulsion system design and development for the Royal Navy's nuclear submarine fleet and is the sole provider and technical authority, managing all aspects of plant design, safety, manufacture, performance and through-life support.

In civil nuclear we provide nuclear reactor vendors and utility operators with integrated, long-term support services and solutions spanning the whole reactor lifecycle, from concept design through to obsolescence management and plant-life extension. Safety-critical systems have been supplied to around 50% of the global nuclear power plants in service. We have been a key player in the nuclear industry for more than 50 years.

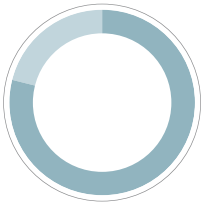
Key highlights

- Underlying revenue 11% higher; strong revenues led by increased submarine work.
- Underlying profit before financing 37% lower; adverse margin mix in submarine projects, lower R&D credit than 2015 and R&D spend on small modular reactor concept development.
- 2017 outlook: focus on further delivery improvements and investing to address future opportunities.

UNDERLYING REVENUE MIX

OE revenue	**46%**
Services revenue	**54%**

UNDERLYING REVENUE BY SECTOR



Submarines	**79%**
Civil nuclear	**21%**

NUCLEAR

Operational review

Financial overview

Underlying revenue increased by 11% to £777m, led by growth in several key programmes in the submarines business, including support for the next generation Dreadnought class submarines (the successor to the Vanguard class), various refuelling projects and decommissioning activities. Volumes on key civil instrumentation and control programmes in both France and Finland were also good.

Gross margin was lower at 15.6%, reflecting the revenue mix favouring lower margin government-led submarine projects. Below gross margin, the change in treatment of R&D credits, which significantly impacted the full year in 2015, produced an R&D credit of £7m in 2016. This was offset by additional costs to support the higher volumes and to improve delivery performance. In addition, there were extra payroll costs, as well as additional R&D to support the initial design phase for small modular reactors (SMRs).

As a result, underlying profit before financing excluding the R&D credit was £37m at constant currency, 27% below the prior year (2015: £51m adjusted for the R&D credit). After the R&D credit and including a £1m foreign exchange benefit, underlying profit was £45m.

Investment and business developments

Order intake of £385m was 8% higher than 2015. Notwithstanding, the closing order book of £1.8bn was 17% below 2015, reflecting the business working through the large multi-year orders, particularly in submarines, received in prior years.

Submarine activities focused on continuing our support to the Royal Navy's current operational fleet of nuclear-powered submarines, as well as delivery of propulsion systems for the remaining Astute class submarines and for the Dreadnought programme. As well as implementing a range of performance improvement initiatives during the year, we also completed delivery of the nuclear propulsion system for the fourth (of seven) Astute class submarine and have made good progress both in the preparation for the refuelling programme of HMS Vanguard and for decommissioning the Naval Reactor Test Establishment in Scotland. In conjunction with the UK's Ministry of Defence and BAE Systems, we have also advanced discussions around a long-term alliance framework for the Dreadnought programme. Once concluded, this new framework should ensure that the delivery structure and commercial benefits are clarified for all key partners in this £31bn investment programme.

The civil nuclear business successfully concluded the first phase of its major instrumentation and control modernisation programme at Fortum's Loviisa plant in Finland, using our Spinline® technology. It also continued with its upgrade programme across the French civil nuclear fleet as part of a multi-year contract.

The UK government announced final approval for the Hinkley Point C nuclear power station in September, where our Nuclear business was awarded preferred bidder status for contracts covering waste treatment systems, heat exchangers and diesel generators.

The business also announced the strengthening of the strategic collaboration, started in 2014, with the China National Nuclear Corporation, including engineering and training services. The Chinese market is expected to sustain strong growth and we are well positioned with relevant technology.

During the year we started an R&D programme, together with a number of partners, to scope out the initial design phase for SMRs. These smaller, more flexible nuclear power generation units offer the potential for a more flexible power generation in future decades and directly build on the knowledge and specialist skills of our Nuclear business. Any significant further development work will be dependent on government support for this technology.

ORDER BOOK

£1.8bn

Nuclear outlook

The long-term outlook for Nuclear remains positive, supported by confirmation from the UK Government of the ongoing investment in the Dreadnought class submarines. Together with renewed activities in the civil market, particularly in the UK and China, these provide encouraging growth opportunities.

Performance in 2017 will be impacted by the loss of R&D credits on investments and further modest increases in the investment in SMR technology. As a result, profit is expected to be around half that achieved in 2016.

NUCLEAR | KEY FINANCIAL DATA

£m	2015	Underlying change	Foreign exchange*	2016
Order book	**2,168**	**(379)**	**1**	**1,790**
Underlying revenue	**687**	**74**	**16**	**777**
Change		*+11%*	*+2%*	*+13%*
Underlying OE revenue	251	95	8	354
Change		*+38%*	*+3%*	*+41%*
Underlying services revenue	436	(21)	8	423
Change		*-5%*	*+2%*	*-3%*
Underlying gross margin	**111**	**6**	**4**	**121**
Gross margin %	*16.2%*	*-80bps*		*15.6%*
Commercial and administrative costs	(53)	(14)	(3)	(70)
Restructuring	(2)	2	–	–
Research and development costs	14	(20)	–	(6)
Underlying profit before financing	**70**	**(26)**	**1**	**45**
Change		*-37%*	*+1%*	*-36%*
Underlying operating margin	**10.2%**	**-440bps**		**5.8%**

* Translational foreign exchange impact.

Market review

Respected global energy forecasts continue to predict that nuclear power will play a significant role in providing low-carbon, continuous, secure power. More than 80% of today's civil nuclear capacity is in the Organisation for Economic Co-operation and Development (OECD) member countries; however non-OECD countries, including some new to nuclear, will account for the bulk of growth whilst mature markets will focus on current operations and life extension.

Key Rolls-Royce differentiators

⊕ Unique key technology capability in defence and civil nuclear with substantial credibility (more than 50 years' experience); broad mix of offerings over the whole lifecycle; reactor independent portfolio; capable of global reach.

Market dynamics

- Population growth and improved living standards in emerging markets are driving a rise in demand for electricity.
- Within the future energy mix, low-carbon energy is expected to increase, with nuclear energy accounting for a significant share.
- In the US, lower energy prices are putting nuclear operating costs under pressure.
- Market conditions have changed, notably the slowdown in western new build programmes. China and Russia dominate large reactor new build projects.

Business risks

- If we experience a major product failure in service, then this could result in loss of life and significant damage to our reputation.
- Delivery: failure to meet customer expectations or regulatory requirements.
- Markets: if civil nuclear markets do not grow as anticipated due to political or other external events then business will be diminished.
- Customer strategy: if programmes are cancelled as a result of strategic decisions, or vertical integration by reactor vendors, then future revenues will be diminished.
- If we suffer a major disruption in our supply chain, then our delivery schedules may be delayed, damaging our financial performance and reputation.

Competition

- In civil nuclear the competitor landscape is fragmented and comprises reactor vendors, original equipment manufacturers, diversified industrial companies and nuclear operators in service.
- Plant operators increasingly outsource service activities.
- Key competitors and independent data service providers are investing and acquiring capabilities to further enhance their digital offerings.

Opportunities

- Increasing the pace of growth of the civil nuclear business.
- Focusing on growth regions beyond current core markets.
- Strengthening our position with the rapidly growing importance of China in the civil nuclear market.
- Capturing a higher share of the nuclear service market through extension of our geographic reach.
- Exploiting our historical data acquisition coupled with digital investment to launch a digital service portfolio that enables growth into asset management.
- Our capabilities in nuclear can be applied to the development of SMRs for civil power stations.

Small modular reactors

SMRs can provide safe, reliable and affordable low-carbon electricity. An SMR programme presents the opportunity to create a UK nuclear plant through the design phase, to construction and delivery; establishing a sustainable skills base and supply chain capability that demonstrates the UK's overall nuclear excellence to international export markets. Compared with current large-scale reactors, SMRs can deliver significant programme risk reduction through controlled offsite modular manufacturing, compact passive safety systems and easier financing.

With our unique position and over 50 years' experience in developing nuclear technologies, Rolls-Royce has the capability to develop proprietary SMR nuclear reactor technology and bring together its UK industrial and academic partners to deliver an SMR plant solution which will offer lower build, through-life and decommissioning costs, as well as increased regulatory and programme certainty.

A Rolls-Royce led UK consortium offers a significant opportunity to position the UK as a global leader in innovative nuclear technologies.

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Financial review

UNDERLYING INCOME STATEMENT

Year to 31 December £m	2016	2015*	Change
Revenue – 2015 exchange rates	**13,058**	13,354	-296
Translation to 2016 exchange rates	**725**		
Revenue	**13,783**	13,354	+429
Gross profit	**2,626**	3,203	-577
Commercial and administrative costs	**(1,096)**	(1,025)	-71
Restructuring	**2**	(39)	+41
Research and development costs	**(812)**	(765)	-47
Share of results of joint ventures and associates	**107**	118	-11
Profit before financing at 2015 exchange rates	**827**	1,492	-665
Translation to 2016 exchange rates	**88**		
Profit before financing	**915**	1,492	-577
Net financing	**(102)**	(60)	-42
Profit before tax	**813**	1,432	-619
Tax	**(261)**	(351)	+90
Profit for the year	**552**	1,081	-529
Gross R&D expenditure	**(1,331)**	(1,240)	-91
Net R&D charge	**(862)**	(765)	-97

SEGMENTAL ANALYSIS

Year to 31 December £m	Revenue			Gross profit			Profit before financing		
	2016	2015	Change	**2016**	2015	Change	**2016**	2015	Change
Civil Aerospace	**6,906**	6,933	-27	**1,129**	1,526	-397	**326**	812	-486
Defence Aerospace	**2,052**	2,035	+17	**530**	579	-49	**360**	393	-33
Power Systems	**2,360**	2,385	-25	**628**	656	-28	**167**	194	-27
Marine	**1,012**	1,324	-312	**216**	260	-44	**(27)**	15	-42
Nuclear	**761**	687	+74	**117**	111	+6	**44**	70	-26
Other	**35**	96	-61	**6**	64	-58	**1**	52	-51
Intra-segment	**(68)**	(106)	+38	**–**	7	-7	**–**	7	-7
Central costs							**(44)**	(51)	+7
Group at 2015 exchange rates	**13,058**	13,354	-296	**2,626**	3,203	-577	**827**	1,492	-665
Translation to 2016 exchange rates	**725**			**422**			**88**		
Group	**13,783**	13,354	+429	**3,048**	3,203	-155	**915**	1,492	-577

* 2015 figures have been restated as a result of £21m of costs previously reported in 'cost of sales', being reclassified as 'other commercial and administrative costs' to ensure consistent treatment with 2016.

Underlying revenue and **underlying profit before financing** are discussed in the Review of 2016 (page 5), the Financial summary (page 14) and the Business reviews (pages 16 to 33).

Underlying financing costs increased by £42m to £102m. Net interest payable increased by £4m to £63m. Other underlying financing costs increased by £38m to £39m, principally due to the non-recurrence of an underlying foreign exchange gain recognised in 2015, which arose from the realised gains on foreign exchange contracts settled to translate overseas dividends into sterling.

Underlying taxation was £261m (2015: £351m), an underlying rate of 32.1% compared with 24.5% in 2015. The primary reasons for the increase are the non-recognition of deferred tax assets on losses in Norway, which reflects the current uncertainty in the oil & gas market, and a different profit mix with more profits arising in countries with higher tax rates.

No dividend is proposed.

Reported results

The changes in 2016 resulting from underlying trading are described in the previous sections.

Consistent with past practice and IFRS, we provide both reported and underlying figures. As the Group does not hedge account in accordance with IAS 39 *Financial Instruments*, we believe underlying figures are more representative of the trading performance, by excluding the impact of year-end mark-to-market adjustments, principally the USD:GBP hedge book, which has had a significant impact on the reported results in 2016 as the USD:GBP rate has fallen from 1.48 to 1.23 and the EUR:GBP has fallen from 1.36 to 1.17. 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.

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

Profit before financing

The impact of measuring revenues and costs at spot rates rather than rates achieved on hedging transactions. This increased revenues by £1,172m (2015: £371m) and increased profit before financing by £570m (2015: £265m).

The effects of acquisition accounting £115m (2015: £124m), principally relating to the amortisation of intangible assets arising on the acquisition of Power Systems in 2013.

The impairment of goodwill of £219m (2015: £75m), principally relating to the Marine business as a result of the continued weakness in the oil & gas market (see note 8).

Exceptional restructuring costs of £129m (2015: £49m). These are costs associated with the substantial closure or exit of a site, facility or activity and increased as a result of the ongoing transformation programme.

Financial penalties of £671m from agreements with investigating bodies (see page 6).

Costs of restructuring the UK pension schemes in 2016 of £306m, principally a settlement charge on the transfer of the

REPORTED INCOME STATEMENT

Year to 31 December £m	2016	2015[1]
Revenue	**14,955**	13,725
Gross profit	**3,048**	3,277
Other operating income	**5**	10
Commercial and administrative costs[2]	**(2,208)**	(1,070)
Research and development costs	**(918)**	(818)
Share of results of joint ventures and associates	**117**	100
Operating profit	**44**	1,499
(Loss)/profit on disposal of businesses	**(3)**	2
Profit before financing	**41**	1,501
Net financing	**(4,677)**	(1,341)
(Loss)/profit before tax	**(4,636)**	160
Tax	**604**	(76)
(Loss)/profit for the year	**(4,032)**	84

[1] 2015 figures have been restated as a result of £11m costs previously reported in 'cost of sales', being reclassified as 'commercial and administrative costs' to ensure consistent treatment with 2016.
[2] In 2016, 'commercial and administrative costs' include £671m for financial penalties from agreements with investigating bodies and £306m for the restructuring of the UK pension schemes.

RECONCILIATION BETWEEN UNDERLYING AND REPORTED RESULTS

Year to 31 December	Revenue		Profit before financing		Financing		(Loss)/profit before tax	
£m	2016	2015	2016	2015	2016	2015	2016	2015
Underlying	**13,783**	13,354	**915**	1,492	**(102)**	(60)	**813**	1,432
Revenue recognised at exchange rate on date of transaction	**1,172**	371	**–**	–	**–**	–	**–**	–
Mark-to-market adjustments on derivatives	**–**	–	**–**	(9)	**(4,420)**	(1,306)	**(4,420)**	(1,315)
Related foreign exchange adjustments	**–**	–	**570**	265	**(151)**	(15)	**419**	250
Movements on other financial instruments	**–**	–	**–**	–	**(8)**	8	**(8)**	8
Effects of acquisition accounting	**–**	–	**(115)**	(124)	**–**	–	**(115)**	(124)
Impairment of goodwill	**–**	–	**(219)**	(75)	**–**	–	**(219)**	(75)
Exceptional restructuring	**–**	–	**(129)**	(49)	**–**	–	**(129)**	(49)
Acquisitions and disposals	**–**	–	**(3)**	2	**–**	–	**(3)**	2
Financial penalties	**–**	–	**(671)**	–	**–**	–	**(671)**	–
Post-retirement schemes	**–**	–	**(306)**	–	**3**	32	**(303)**	32
Other	**–**	–	**(1)**	(1)	**1**	–	**–**	(1)
Reported	**14,955**	13,725	**41**	1,501	**(4,677)**	(1,341)	**(4,636)**	160

SUMMARY BALANCE SHEET

At 31 December £m	2016	2015
Intangible assets	**5,080**	4,645
Property, plant and equipment	**4,114**	3,490
Joint ventures and associates	**844**	576
Net working capital[1]	**(1,553)**	(501)
Net funds[2]	**(225)**	(111)
Balances with parent company	**1,565**	1,244
Provisions	**(759)**	(640)
Net post-retirement scheme deficits	**(29)**	(77)
Net financial assets and liabilities[2]	**(5,723)**	(1,854)
Other net assets and liabilities[3]	**143**	(483)
Net assets	**3,457**	6,289
Other items		
US$ hedge book (US$bn)	**37.8**	28.8
TotalCare assets	**3,348**	2,994
TotalCare liabilities	**(907)**	(783)
Net TotalCare assets	**2,441**	2,211
Gross customer finance commitments	**238**	269
Net customer finance commitments	**61**	54

[1] Net working capital includes inventories, trade and other receivables, trade and other payables and current tax assets and liabilities.
[2] Net funds includes £358m (2015 £13m) of the fair value of financial instruments which are held to hedge the fair value of borrowings.
[3] Other includes other investments and deferred tax assets and liabilities.

Vickers Group Pension Scheme to an insurance company (see note 18).

Financing and taxation

The mark-to-market adjustments on the Group's hedge book of £4,420m (2015: £1,306m). These reflect: the large hedge book held by the Group (eg. US$38bn); and the weakening of sterling, particularly against the US dollar and the euro, as noted above. At each year 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.

Appropriate tax rates are applied to these additional items included in the reported results, leading to an additional tax credit of £865m (2015: £275m), largely as a result of the mark-to-market adjustments.

Balance sheet

Intangible assets (note 8) increased by £435m mainly due to exchange differences of £438m. Additions of £631m (including £154m of certification and participation fees, £100m of development costs and £208m of contractual aftermarket rights) were largely offset by amortisation of £406m and impairment of £222m (including £200m on Marine goodwill).

The carrying values of the intangible assets are assessed for impairment against the present value of forecast cash flows generated by the intangible asset. The principal risks remain: reductions in assumed market share; programme timings; increases in unit cost assumptions; and adverse movements in discount rates.

Property, plant and equipment (note 9) increased by £624m, around half of which was caused by exchange differences of £330m. Additions of £701m (including £75m of TotalCare Flex engines) were offset by depreciation of £424m and £41m was added from the reclassification of joint ventures to joint operations.

Investments in joint ventures and associates (note 10) increased by £268m, including an increase of £154m in the Group's share of authorised maintenance centre joint ventures. The other main movements were: exchange gains of £107m; and the Group's share of retained profit of £43m; offset by a £57m reclassification of certain joint ventures to joint operations.

Movements in **net funds** are shown opposite.

Net working capital reduced by £1,052m, including a £671m accrual for financial penalties, £134m increased deposits and £265m of foreign exchange movements. This was partially offset by higher inventory of £194m.

Provisions (note 17) largely relate to warranties and guarantees provided to secure the sale of OE and services. The increase of £119m includes reclassifications from accruals of £92m, following a review of accounting consistency during the period. The remaining increase of £27m includes net additional charges of £271m (including £147m for warranties and guarantees), and foreign exchange movements of £75m, offset by utilisation of £227m.

Net post-retirement scheme deficits (note 18) have reduced by £48m.

In the UK (increase in surplus of £293m), changes in actuarial estimates increased the value of the obligations £1.8bn, largely due to the discount rate reducing from 3.6% to 2.7%. This was more than offset by returns (in excess of those assumed) on the scheme assets of £2.3bn. This return is largely due to the liability-driven investment policy of the assets being invested to match changes in value of the obligations (on a proxy solvency basis, which is more onerous than the accounting valuation). The net increase in surplus was reduced by the recognition of a settlement charge of £301m on the insurance buy-out of the Vickers Group Pension Scheme.

The principal movements in overseas schemes (increase in deficit of £245m) were exchange differences of £208m.

Net financial assets and liabilities (note 16) principally relate to the fair value of foreign exchange, commodity and interest rate contracts. All contracts continue to be held for hedging purposes. The fair value of foreign exchange derivatives is a net financial liability of £5.6bn, an increase of £3.9bn in the period, mainly a result of the weakening of sterling against the US dollar and euro.

The US$ hedge book increased by 31% to US$37.8bn. This represents around 5½ years of net exposure and has an average book rate of £1 to US$1.55.

Net TotalCare assets relate to long-term service agreement (LTSA) contracts in the Civil Aerospace business, including the flagship services product TotalCare. These assets represent the timing difference between the recognition of income and costs in the income statement and cash receipts and payments.

Customer financing facilitates the sale of OE and services by providing financing support to certain customers. Where such support is provided by the Group, it is generally to customers of the Civil Aerospace business and takes the form of various types of credit and asset value guarantees. These exposures produce contingent liabilities that are outlined in note 22. The contingent liabilities represent the maximum aggregate discounted gross and net exposure in respect of delivered aircraft, regardless of the point in time at which such exposures may arise. The reduction in gross exposures is a result of guarantees expiring.

Funds flow

Movement in working capital – the £55m increase in working capital includes an increase in inventory, partially offset by a net reduction in financial working capital. These movements are largely driven by the increased sales volumes during 2016.

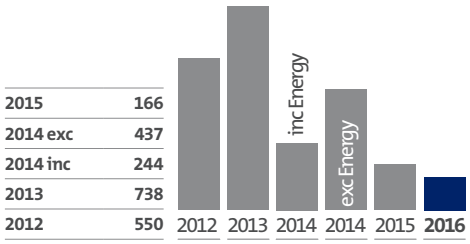
Expenditure on property, plant and equipment and intangibles – the major increases are: £98m higher PPE expenditure as we build the supply chain; £37m software costs relating to systems development; £81m certification costs driven by the Trent XWB-97 programme; £45m capitalised development costs largely relating to the Trent 1000 TEN; and £46m higher contractual aftermarket rights, mainly on Trent XWB sales.

Pensions – the increase in pension contributions in excess of the underlying income statement largely reflects changes in net past service costs of £13m.

Acquisitions and disposals include the £154m increase in stake in joint ventures described on the opposite page.

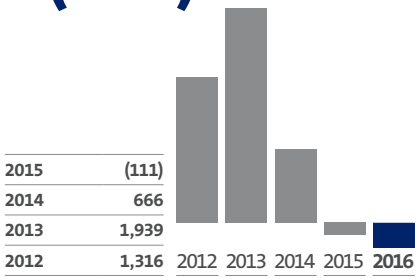
FREE CASH FLOW

£120m



NET (DEBT)/FUNDS

£(225)m



SUMMARY FUNDS FLOW STATEMENT[1]

Year to 31 December £m	2016	2015	Change
Opening net (debt)/funds	(111)	666	
Closing net debt	(225)	(111)	
Change in net (debt)/funds	(114)	(777)	
Underlying profit before tax	813	1,432	-619
Depreciation and amortisation	720	613	+107
Movement in net working capital	(55)	(546)	+491
Expenditure on property, plant and equipment and intangible assets	(1,201)	(887)	-314
Other	67	(229)	+276
Trading cash flow	344	372	-28
Contributions to defined benefit pensions in excess of underlying PBT charge	(67)	(46)	-21
Taxation paid	(157)	(160)	+3
Free cash flow	120	166	-46
Movement on balances with parent company	(321)	(822)	+501
Acquisitions and disposals	(153)	(3)	-150
Discontinued operations	–	(121)	+121
Foreign exchange	240	3	+237
Change in net debt	(114)	(777)	

[1] The derivation of the summary funds flow statement above from the reported cash flow statement is included in note 25 of the condensed consolidated financial statements.

A sustainable business

We continue to invest in the resources and capabilities which underpin our future success as we transform the business.

THROUGH ENGINEERING AND INNOVATION

Our investments in world-class technology, research and engineers are essential for sustaining our competitive advantages and creating new growth opportunities. Ultimately, our innovations deliver the differentiated high-technology products and services that attract our customers.

In 2016, we spent over £1.3bn on gross R&D to develop the technology we embed in our products and deliver to market. As a result, we applied for 672 patents in the year, a Rolls-Royce record.

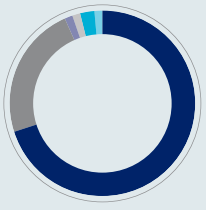
PATENTS FILED

672

Over two-thirds of our R&D expenditure is dedicated to improving the environmental performance of our products, helping our customers do more using less and minimising the environmental impact of our engines.

2016 GROSS R&D EXPENDITURE

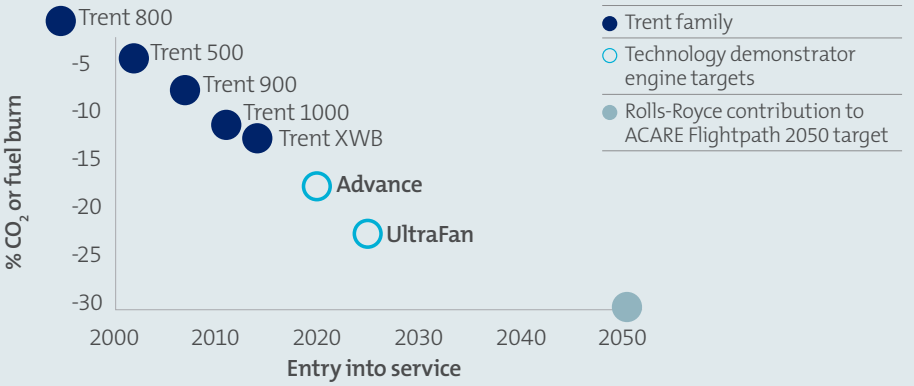
£1.3bn



Rolls-Royce	**£936m**
UK government	**£309m**
EU funding	**£20m**
US government	**£18m**
German government	**£31m**
Other sources	**£18m**

ACARE flightpath 2050 goals

We continue to meet the environmental performance targets for 2050 set by the Advisory Council for Aviation Research and Innovation in Europe (ACARE).



RSS Sir David Attenborough

Rolls-Royce has designed the UK's future polar research ship, the RSS Sir David Attenborough, one of the most advanced scientific maritime vessels ever constructed. It will be equipped with highly efficient Bergen B33:45 engines, running on low sulphur fuel, and a supporting electrical system that will reduce the vessel's fuel consumption, emissions, noise and vibration, minimising the impact in the sensitive polar environment.

READ MORE AT WWW.ROLLS-ROYCE.COM

Research partnerships

For over 25 years, Rolls-Royce has been co-ordinating research with leading academic institutions and industry partners to harness the knowledge of renowned experts and gain the best value from our investments.

University Technology Centres (UTCs)
This global network of university research partners advances our understanding of specialist science and technologies which are core to our next-generation products.

Advanced Manufacturing Research Centres (AMRCs)
These collaborative public/private partnerships help us to bridge the gap between early research and industrial application, with a focus on developing new manufacturing processes and technologies.

Engineering expertise

We seek to attract the best and brightest engineers by providing them with world-class projects, tools and processes.

We have a culture of developing our people within the Group through opportunities such as our Specialist Academy and the Rolls-Royce Fellowship programmes. We value professional development and work closely with a number of institutes and external organisations to encourage our engineers to earn professional recognition.

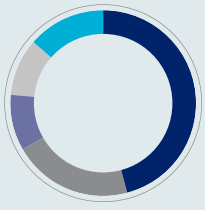
In 2016, we invested £21m to enhance our digital engineering toolset across all our businesses. These developments include:

- **DaVinci**
  This new software enables our engineers to create and test whole engine models virtually. This reduces costs, improves our designs and removes expensive physical hardware tests as we develop new products.
- **High performance computing**
  We have continued investing in upgrades to our high performance computing infrastructure to enable our engineers to make the most of the software tools we have available.

We are also growing our in-house capabilities to capitalise on emerging opportunities. In 2016, we established our digital business to leverage decades of data-driven in-service product knowledge to develop new customer services, and we are leading the way in the development of intelligent ships.

NUMBER OF ENGINEERS (YEAR END)

16,526[1]



Design	7,611
Manufacturing	3,435
Services	1,623
Electrical	1,622
Other	2,235
Total	**16,526**

Inspiring future generations of engineers

We aim to reach six million people through our science, technology, engineering and mathematics (STEM) education outreach programmes by 2020. Our activities are designed to demonstrate the life-long opportunities that STEM careers can offer, helping to secure a future talent pipeline for ourselves and the wider industry. In 2016, we reached 1.2 million people, 68% of whom were actively engaged in our programmes. Since launching in 2014, we are now 47% towards our 2020 target.

[1] Our total number of engineers rose slightly from 15,564 in 2015. This is primarily due to reclassification of 517 roles in Power Systems, and the recruitment of around 270 roles at the new engineering campus in Bangalore, India.

THROUGH OUR PEOPLE

We continue to develop our employee base, ensuring we have the right skills for our business today and the right capabilities for the future.

The skills, knowledge and passion of our workforce are key enablers to our transformation programme. We are embedding a high performance culture across the organisation that encourages pace and simplicity.

As part of our people transformation we have simplified the organisation through management restructuring and leadership change. This has included a reduction of around 700 management positions in 2016 to drive accountability, simplicity and pace through the organisation and improve decision making. In addition, we have continued to make changes to our headcount mix to align with our markets and associated challenges. This has affected our Marine business in particular.

Our transformation is underpinned by our ongoing commitment to maintain the highest standards of ethics, safety and human rights.

In 2016, 97% of Rolls-Royce employees completed annual ethics training, focused on dealing with ethical dilemmas. We are committed to having an environment where anyone can ask questions or raise concerns without fear of retaliation, anonymously if required.

During the year, all of our management population completed Global Code of Conduct certification. We also introduced an ethics e-learning module for new employees to help familarise them with our approach and expectations. In 2016, 99% of new employees who joined us during the year completed this course within the first three months of their employment.

We regard the health and safety of our employees and those working on our premises, or on our behalf, as paramount.

In 2016, there were no fatalities in the Group, and our Total Reportable Injury (TRI) rate was 0.60 per 100 employees. This represents a 6% improvement since 2014.

We continue to concentrate on global improvement programmes aligned to our risk profile. Electrical safety and process safety programmes concluded this year and have now transitioned to form part of our ongoing Group assurance activity.

We remain committed to protecting and preserving the human rights of our employees, those working in our global supply chain and those who may be impacted by our operations. Our Global Code of Conduct and global human rights policy set out this commitment. More information on our approach can be found in our 2016 anti-human trafficking and modern slavery statement, available at www.rolls-royce.com.

PERCENTAGE OF EMPLOYEES WHO COMPLETED ANNUAL ETHICS TRAINING

97%

TOTAL REPORTABLE INJURY RATE (PER 100 EMPLOYEES)

0.60

Headcount by business unit[1,2,3]

	2015	2016
Civil Aerospace	23,100	**23,800**
Defence Aerospace	6,300	**6,000**
Power Systems	10,600	**10,300**
Marine	6,000	**5,300**
Nuclear	4,100	**4,300**
Other businesses and corporate	400	**200**
Total	50,500	**49,900**

Headcount by location[1,3]

	2015	2016
UK	23,200	**22,300**
US	6,400	**6,300**
Canada	1,100	**1,000**
Germany	10,700	**10,700**
Nordic countries	3,800	**3,400**
Rest of world	5,300	**6,200**
Total	50,500	**49,900**

[1] Headcount data is calculated in terms of average full-time employees.
[2] Other businesses and corporate includes Energy businesses not sold into Siemens in 2014 and corporate employees who do not provide a shared service to the segments. Where corporate functions provide such a service, employees have been allocated on an appropriate basis. 2015 figures have been restated on this basis.
[3] Certain joint ventures have been reclassified as joint operations from 1 January 2016. This has increased the Group reported headcount by 800 employees.

Our early career development programmes continue to attract large numbers of high-quality graduates and apprentices, providing a pipeline of talent into finance, HS&E, operations, HR and engineering.

Our programmes include technical and practical engineering, specialist sciences and corporate function programmes including accountancy, supply chain management and project management.

GRADUATES RECRUITED IN 2016

274

PERCENTAGE OF OUR GRADUATES WHO ENTERED ENGINEERING DEVELOPMENT PROGRAMMES

60%

APPRENTICES RECRUITED IN 2016

327

PERCENTAGE OF OUR APPRENTICES WHO JOINED HIGHER APPRENTICESHIP PROGRAMMES

33%

OUR APPRENTICE SCHEME HAS BEEN RUNNING FOR OVER

100 years

Our training programmes have helped employees to embrace and drive change. In 2016, we invested over £32m in employee learning and development, delivering over one million hours of employee training.

- **High Performance Culture (HPC)**
  HPC is our flagship cultural change programme. It is designed to provide insights and tools to help our people operate and collaborate with pace, simplicity and accountability. More than 80% of employees have been engaged in the programme to date.
- **Columbus Academy**
  The Columbus Academy is our principal executive development programme, run in partnership with Oxford Said Business School. It challenges our leadership teams to consider larger, strategic issues as we continue to transform our business. All our senior leaders have attended the course.

As part of our cultural change programme, we have introduced assessments of individuals' alignment to our values and behaviours into our performance management approach for all employees.

Maintaining employee engagement is critical during times of change and transformation. More than 30,000 employees took part in our employee opinion survey this year, our highest participation rate to date.

Our sustainable employee engagement index score declined slightly from 81 in 2015 to 75 in 2016, six points below the high performance norm.

We consider a subset of the results of our employee opinion survey when calculating our non-financial KPIs, recognising that an engaged workforce is a key measure of success. For more information see page 45.

We provide a variety of channels to communicate with employees and encourage participation and engagement. Our community investment and education outreach programmes are a key component of our employee involvement activities. We invested £9.5m in supporting communities in 2016, including £5.6m in cash contributions and £3.9m in employee time equivalent.

We are committed to creating an environment where every employee can reach his or her full potential, by encouraging diversity, wellbeing and development. We have employee resource groups in our UK, US and Germany operations. These bring together employees who share similar characteristics or experiences.

THROUGH OUR OPERATIONS AND FACILITIES

We continue to develop world-class production capabilities while optimising our operational footprint.

Derby Campus, UK

As part of our commitment to retain manufacturing and engineering capability in the UK, we launched a five-year investment programme to redevelop our Derby Campus.

- Over 10,000 employees, including 7,500 engineers
- Future product development programmes
- Final assembly of our Trent XWB and Trent 1000 engines
- Our corporate functions

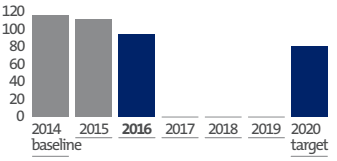
INVESTMENT IN ENERGY EFFICIENCY IMPROVEMENT PROJECTS

£10m

In 2016, we invested £50m in improvements to existing facilities and £184m in the development of new facilities, while at the same time reducing our global operational footprint by 2%.

Our investments in state-of-the-art facilities also enable us to reduce the environmental impacts of our operations.

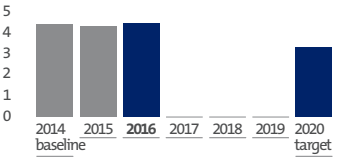
ENERGY USE (MWH/£M)



Target: reduce energy use in our operations and facilities by 30%, normalised by revenue, by 2020.
(excluding product test and development)

Our total energy consumption for 2016, excluding product test, was 95 MWH/£m, which represents a 17% reduction since 2014. This has been driven by continued investment in energy efficiency improvement projects, including upgrading lighting and heating systems, and building management systems. Our expenditure for 2016 totalled £10m, our highest annual investment to date.

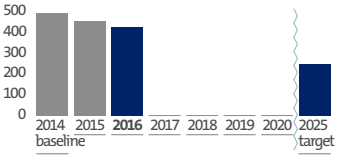
TOTAL SOLID AND LIQUID WASTE (T/£M)§



Target: reduce total solid and liquid waste in our operations and facilities by 25%, normalised by revenue, by 2020.

Our total solid and liquid waste production in 2016 was 4.48 t/£m, a 2% increase from 2014. This is largely driven by improved data collection and validation, particularly in Power Systems.
We continue to focus on opportunities to prevent and reduce the amount of waste we generate. We expect waste reduction activity to be accelerated in 2017 through a global waste action programme.

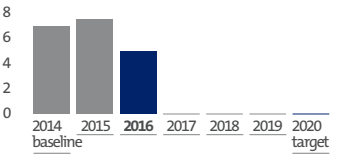
ABSOLUTE GHG EMISSIONS ($KTCO_2E$)†



Target: reduce greenhouse gas (GHG) emissions in our operations and facilities by 50%, absolute, by 2025.
(excluding product test and development)

Our total GHG emissions for 2016, excluding product test, was 424 $ktCO_2e$. This represents a 13% reduction since 2014. This has been achieved by investing in a number of low carbon and renewable energy projects across our global facilities, including completing two large solar power installations at our Singapore and Bristol, UK manufacturing sites.

WASTE TO LANDFILL (000 TONNES)§



Target: zero waste to landfill in our operations and facilities, by 2020.
(excluding hazardous waste)

The amount of waste sent to landfill has decreased by 28% from 6,700 tonnes in 2014 to 4,800 tonnes in 2016, with particularly good progress in our Defence Aerospace and Power Systems businesses. This has been accelerated in 2016 by a reduction in output from our two major foundries. We continue to work closely with our waste management partners to identify recycling and recovery alternatives to landfill across a variety of waste streams.

† Regulatory greenhouse gas (GHG) emissions data details on page 58.
§ Waste data for 2016 is calculated in accordance with our basis of reporting, as set out on www.rolls-royce.com/sustainability. Whilst we were able to determine the total waste production and waste to landfill for 2016, we maintain a limited degree of uncertainty in the waste categorisation and quantities which may impact our reported numbers. We will continue to review historical and source data and if a material impact is identified will restate in accordance with our basis of reporting.

THROUGH OUR SUPPLIER AND CUSTOMER RELATIONSHIPS

We pride ourselves on being trusted partners to suppliers and customers in more than 150 countries worldwide. Our long-term relationships provide insights and capabilities which enable us to deliver world-class products and services.

Our external suppliers

Rolls-Royce spends over £7bn annually with suppliers. We invest significant resources to ensure this complex supply chain is resilient, efficient and able to consistently deliver to Rolls-Royce standards. Our supply chain is built on long-term relationships, frequently based on shared investments and capability.

We also invest in developing new supplier relationships as we move into new technologies, new customer markets and geographies, particularly in the Asia Pacific region.

At the same time, we are rationalising our supply base as we continue to streamline our product portfolio and operational footprint, particularly in our Marine business where we have reduced the number of OE suppliers by 40% since 2013.

We engage collaboratively with key suppliers to drive out cost and enhance value, underpinned by full transparency and agreed joint improvement plans. Over 65% of our spend is managed through mature and collaborative supplier engagement programmes.

We remain committed to maintaining the highest levels of ethical behaviour across our supply chain. At the end of 2016, 99% of our suppliers had contractually agreed to adhere to our Global Supplier Code of Conduct. We have also introduced risk-based compliance monitoring; 22% of our prioritised suppliers have completed this assessment, covering business ethics, labour practices, anti-bribery and human rights.

ANNUAL SPEND WITH OUR SUPPLIERS

>£7bn

SUPPLIERS CONTRACTUALLY AGREED TO ADHERE TO OUR GLOBAL SUPPLIER CODE OF CONDUCT

99%

Our customers

Our customers expect outstanding product performance and reliability. They operate our products for decades, frequently in combination with aftermarket services. This leads to a deep understanding of their needs which we apply to the development of new technologies and products.

The quality of our customer relationships is based on mutual trust, as well as our engineering expertise. As a steering committee member of the International Forum on Business Ethical Conduct for the Aerospace and Defence Industry (IFBEC), we strive to implement best practice ethical business standards and continue to apply a zero tolerance approach to bribery and corruption.

In addition, we have introduced a customer delivery metric into our remuneration policy to ensure continued focus on the delivery of our commitments to customers. For more information see page 45.

50-year partnership with the Royal Navy

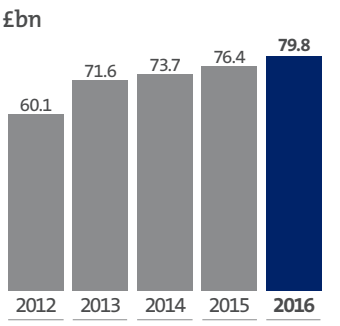
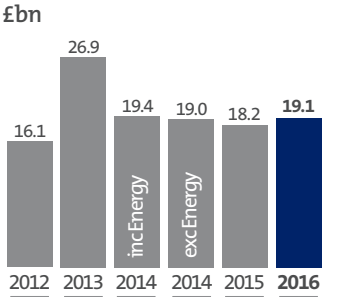
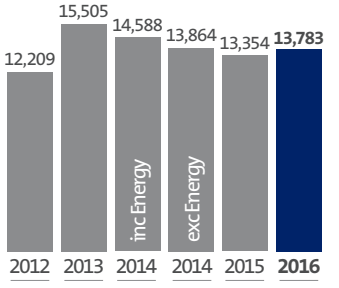
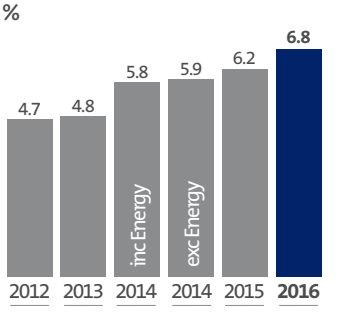
Rolls-Royce is a world-leader in nuclear submarine systems and support services incorporating design, procurement and operation. For the past 50 years, we have been the Technical Authority for the UK Nuclear Steam Raising Plant, responsible for powering the UK's Royal Navy submarine fleet.

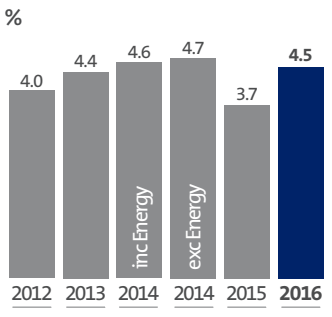
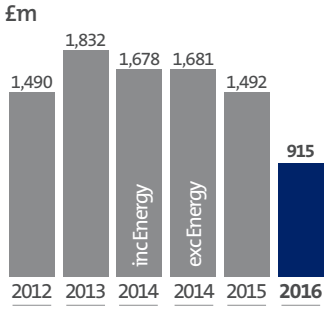
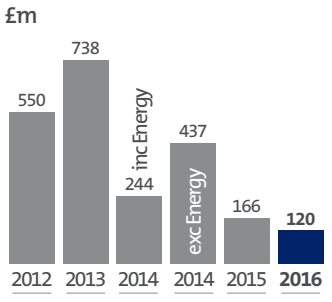
A superior supplier to the US Air Force

In September 2016, the USAF recognised Rolls-Royce as a Superior Supplier. We are the only engine manufacturer to be recognised by the USAF as a Tier 1 Superior Supplier three years in a row.

Key performance indicators

Our key financial and non-financial performance indicators are shown below.

Description	Why we measure it	How we have performed	
Order book **£79.8bn**	We measure our order book in line with industry practice and believe it is an indicator of future business; however, its value may not be reflective of future revenue. We measure it at our long-term planning exchange rate (LTPR) and list prices and include both firm and announced orders. In Civil Aerospace, it is common for a customer to take options for future orders in addition to firm orders placed. Such options are excluded from the order book. In Defence Aerospace, long-term programmes are often ordered for only one year at a time. In such circumstances, even though there may be no alternative engine choice available to the customer, only the contracted business is included in the order book. Conservatively, we only include the first seven years' revenue of long-term aftermarket contracts.	The order book grew by £3.4bn. An increase of £4.4bn in Civil Aerospace (including £2.1bn from a five cent improvement in the LTPR) was offset by a reductions in the other segments, reflecting the current weak market conditions, particularly in oil & gas markets.	
Order intake **£19.1bn**	Order intake is a measure of new business secured during the year and represents new firm orders, adjusted for the movement in the announced order book between the start and end of the period. Any orders which were recorded in previous periods and which are subsequently cancelled, reducing the order book, are included as a reduction to intake. We measure order intake at constant exchange rates and list prices and, consistent with the order book policy of recording the first seven years' revenue of long-term aftermarket contracts, include the addition of the following year of revenue on long-term aftermarket contracts.	An increase of £1.3bn in Civil Aerospace order intake was offset by weaker intake in Defence Aerospace and Marine.	
Underlying revenue **£13,783m**	Monitoring of revenue provides a measure of business growth. Underlying revenue is used as it reflects the impact of our FX hedging policy by valuing foreign currency revenue at the actual exchange rates achieved as a result of settling foreign exchange (FX) contracts in the year. This provides a clearer measure of the year-on-year trend.	At constant exchange rates, revenue was broadly stable except in Marine where it fell by 24%. Improved achieved rates on currency hedging increased underlying revenues by £0.7bn.	
Net R&D expenditure as a proportion of underlying revenue **6.8%**	This measure reflects the need to generate current returns as well as to invest for the future. We measure R&D as the self-funded expenditure before both amounts capitalised in the year and amortisation of previously-capitalised balances. 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.	The increase is largely due to increased expenditure on three large engine programmes, Trent 1000 TEN, Trent XWB-97 and Trent 7000, as they approach entry into service.	

Description	Why we measure it	How we have performed	
Capital expenditure as a proportion of underlying revenue **4.5%**	To deliver on its commitments to customers, the Group invests significant amounts in its infrastructure. 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 cost of property, plant and equipment acquired during the period and, over the medium term, expect a proportion of around 4%. (Capital expenditure excludes additions arising from TotalCare Flex arrangements.)	Expenditure increased to £626m (2015: £494m) principally reflecting the major investment in aerospace footprint and capacity.	
Underlying profit before financing **£915m**	We measure underlying profit before financing on a basis that shows the economic substance of the Group's hedging strategies in respect of the transactional exchange rate and commodity price movements. In particular: (a) revenues and costs denominated in US dollars and euros are presented on the basis of the exchange rates achieved during the year; (b) similar adjustments are made in respect of commodity derivatives; and (c) consequential adjustments are made to reflect the impact of exchange rates on trading assets and liabilities, and long-term contracts, on a consistent basis.	The reduction is predominantly in Civil Aerospace reflecting reductions in: volume and margin on link accounted Trent 700 engines; business jet original equipment volumes; large engine aftermarket utilisation; and increased technical costs for large engines. In addition, 2015 benefited from changes in risk assessments, partially offset by strong lifecycle cost improvements and provision releases.	
Free cash flow **£120m**	In a business requiring significant investment, we monitor cash flow to ensure that profitability is converted into cash generation, both for future investment and as a return to shareholders. We measure free cash flow as the movement in net debt/funds during the year, before movements arising from payments to shareholders, acquisitions and disposals, and FX.	The reduction reflects lower profits and increased capital expenditure offset by improvements in net working capital.	

Non-financial key performance indicators*

Description	Why we measure it	How we have performed
Customer delivery **88%**	To deliver on our commitments to our customers we measure the percentage of 'on-time to purchase order' including new equipment, spare parts, equipment repair and overhaul. This is tracked Group-wide in our scheduling and order fulfilment system.	As we continue to ramp up our delivery of Trent Engines, the challenge to improve on-time delivery remains a priority. The 2016 score of 88% fell slightly short of our target of 90%.
Employee engagement **75**	This is measured through our long-standing employee opinion survey which produces a composite engagement score. The targets are based on absolute scores for six key questions within the overall survey.	Our employee engagement score achieved our target of 75 in 2016. This was the same score as in 2015 and the target reflected the significant impact of the transformation programme on our employees in 2016.

* 2016 is the first year that we have included these non-financial performance indicators in our remuneration structure.

Principal risks

Risk management

Risk management is built into our daily activities and is an integral part of how we work: from our engineering design, through to engine production, servicing and how we run our operations.

The Board is responsible for the Group's risk management and internal control systems and reviews their effectiveness. These systems are 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.

More information about our internal control system can be found on pages 56 to 57. References to committees in the principal risks section are to committees of the Rolls-Royce Holdings plc board.

Our risk management system

Our risk management system (RMS) helps us make better decisions and to deal with problems if they occur. It is implemented through a Group-wide framework mandated in the Group risk management policy and a network of trained risk management facilitators. It is supported through the use of risk software.

Businesses and functions are accountable for identifying and managing risks in line with the Group risk management policy. Business continuity plans are in place to mitigate continuity risks and this year there has been more regular testing of the adequacy of these plans through exercises with the businesses.

The Group's enterprise risk team, led by the Director of Risk, is responsible for disseminating the risk policy and processes and co-ordinating the effective operation of the RMS. Progress of actions to mitigate risks and the adequacy of risk controls are regularly reviewed by the sector audit committees.

Joint ventures constitute a large part of the Group's activities. Responsibility for risk and internal control in joint ventures lies with the managers of those operations. We seek to exert influence over such joint ventures through board representation. Management and internal audit regularly review the activities of these joint ventures.

In 2016, we continued to embed enhancements to our RMS throughout the Group, including strengthening risk governance and building improvements to our risk operating model, reporting, infrastructure and assurance processes.

Examples of enhancements implemented in 2016 include:

- Launching a new risk policy which was mandated as part of the governance framework and supported by improved risk management training, which is mandatory for new employees.
- Adopting a risk visualisation tool for use at the Board, Executive Leadership Team (ELT) and in the businesses to bring risk discussions to life and enable better interrogation of risk information.
- Holding more regular ELT risk committee meetings (quarterly) to conduct deep dives into specific risks, in particular their mitigation plans and controls, and to consider systemic issues and common root causes.
- Building much closer links to strategic and business financial planning and forecasting processes to develop risk scenarios used to support our viability statement.
- Updating the way we monitor and measure the effectiveness of the RMS, including the use of incident information to drive learning and continuous improvement of our risk mitigation activities.

The Board is aware that the effectiveness of risk management is highly dependent on behaviours, as a good process does not automatically lead to a good outcome. The roll-out of the Group's High Performance Culture programme will continue to strengthen risk management as part of our culture. In addition, the emphasis in our ethics and compliance programme of providing a culture of speaking up, reinforces the values and behaviours required for an effective RMS.

In 2017, we will continue to look for opportunities to strengthen our RMS and our corporate culture by focusing on embedding risk content in leadership training programmes, discussing our principal risks in employee communications and regularly evaluating the effectiveness of our risk management activities.

Management of principal risks

Our risk framework ensures that risks are identified, managed and communicated throughout the Group.

Principal risks

Our RMS is designed so that principal risks can be identified from multiple sources. Key bottom-up risks are identified by businesses and functions and the detail of risks that meet the Group threshold are subject to review and challenge by the ELT and the Board during their risk reviews.

These include monitoring the status of mitigation actions, adequacy of controls and any incidents that have occurred since the last review. Risks captured during the strategy and business planning activities also inform the development of the principal risks.

The Board, assisted by the ELT, has carried out a robust assessment of, and reviewed our appetite for, the principal risks facing the Group. These include those principal risks that threaten the business model, future performance, solvency and liquidity of the Group. These reviews have been informed by the financial evaluation of severe but plausible scenarios of our principal risks.

During the year, the Board and ELT reviews have involved: discussing changes to the risks; reviewing the risk indicators for principal risks; understanding any unplanned incidents that have occurred to support the Board's consideration of our risk appetite; and, discussing with management about how risks will be managed.

The Board, or the most appropriate Board committee, undertakes in-depth reviews (deep dives) of our principal risks in which it assesses our material controls and the effectiveness of our risk management and mitigation activities. These reviews are supported by the ELT risk committee performing deep dives of related bottom-up key risks and the actions and controls in place to manage them. During the year, the Board or the most appropriate Board committee has undertaken a deep dive on all of the Group's principal risks. The Board has also conducted a review of our strategic risks as part of its annual strategy review.

This ongoing review of risks has resulted in a further principal risk being added this year: Disruptive technologies and business models. This risk has been added to reflect the increasing importance of transformative technologies and new ways of doing business, not least digitisation of processes, products and services, that if not properly managed, could impact our future growth and profitability. This risk will be overseen by the Science & Technology Committee and was subject to a deep dive by the ELT at its meeting in December 2016.

The principal risks are also used to help select scenarios to exercise our Group crisis management team (CMT). This year an appropriate scenario was developed based on the IT vulnerability principal risk. This provided an opportunity for the CMT to understand the nature and complexity of cyber threats and to test the Group's response procedures and identify where our plan can be further strengthened.

The Board gave initial consideration to the implications of Brexit for the Group, and due to the prevailing uncertainty of timing and impact set up a steering group to monitor developments and report back to the Board. Rolls-Royce is headquartered in the UK but across continental Europe the Group has significant infrastructure, a large workforce, many business units and a very important customer and supplier base. Whilst the details of Brexit are still unclear, we are working with the UK government and others to ensure the implications of leaving the EU are understood and mitigated if possible. We recognise we have an obligation to look after our people in the UK, Europe and beyond, and to ensure that we take the necessary steps to position the Group to address both the opportunities and threats presented so that we can continue to do business effectively in and with Europe and the rest of the world with minimal disruption.

Additionally, Rolls-Royce has significant operations, a substantial employee base, and important customers in North America, where the new US administration has signalled broad policy changes. Some of these changes in policy with regard to trade, tax and defence and infrastructure spending could affect the industries which we serve. The North America leadership team is actively monitoring these developments to mitigate risk and position us advantageously in this new environment.

Risk management enables our strategy

1 Engineering excellence

2 **Operational excellence**

3 Capturing aftermarket value

PRIORITIES FOR 2017 ON PAGE 11

Change in risk level

- Increased
- Decreased
- Static
- N New risk

Risk or uncertainty and potential impact	How we manage it	Key controls	Change in risk level	Strategic priorities
Disruptive technologies and business models Disruptive technologies, new entrants with alternative business models or disruptions to key markets or customers could reduce our ability to win sustainable future business, achieve operating results and realise future growth opportunities.	• Horizon and emerging technology scanning, and understanding our competitors, including patent searches. • Investing in innovation and new technologies (see page 7). • Focusing on enhancing our skills and capabilities to maintain our technology leadership (see page 39). • Forming strategic partnerships and conducting joint research programmes. • Establishing our digital business. **This principal risk is subject to review by the Science & Technology Committee.**	• **Strategic planning process** • **Investment review committee** • **Digital board** • **Research & technology board**	N	1 2 3
Product failure Product not meeting safety expectations, or causing significant impact to customers or the environment through failure in quality control.	• Ensuring a culture that puts safety first. • Applying our engineering design and validation process from initial design, through production and into service. • Reviewing the scope and effectiveness of the Group's product safety policies to ensure that they operate to the highest industry standards. • Operating a safety management system (SMS), governed by the product safety review board, and subject to continual improvement based on experience and industry best practice. Product safety training is an integral part of our SMS. • Improving our supply chain quality. **This principal risk is subject to review by the Safety & Ethics Committee.**	• **Product safety review board** • **Quality compliance audit** • **Engineering technical audit** • **Crisis management team**	⇔	1 2 3
Business continuity Breakdown of external supply chain or internal facilities that could be caused by destruction of key facilities, natural disaster, regional conflict, financial insolvency of a critical supplier or scarcity of materials which would reduce the ability to meet customer commitments, win future business or achieve operational results.	• Continuing our investment in adequate capacity and modern equipment and facilities (see page 8). • Identifying and assessing points of weakness in our internal and external supply chain, our IT systems and the skills of our people. • Selecting stronger suppliers, developing dual sources or dual capability (see page 43). • Developing and testing site-level incident management and business recovery plans. • Providing improved response to supply chain disruption through customer excellence centres. • Understanding potential changes to supply chain responsiveness and resilience resulting from Brexit and change to the US administration (eg. due to logistics delays). **This principal risk is subject to review by the Audit Committee.**	• **Crisis management team** • **Major incidents board** • **Quality board and process councils** • **Operations and IT executive teams** • **Supplier audit**	⇔	2 3
IT vulnerability Breach of IT security causing controlled or critical data to be lost, made inaccessible, corrupted or accessed by unauthorised users.	• 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 IT security information through industry, government and security forums. **This principal risk is subject to review by the Audit Committee.**	• **Operations and IT executive teams** • **IT security management** • **Crisis management team**	⇔	1 2

Risk or uncertainty and potential impact	How we manage it	Key controls	Change in risk level	Strategic priorities
Competitive position The presence of large, financially strong competitors in the majority of our markets means that the Group is susceptible to significant price pressure for original equipment or services even where our markets are mature or the competitors few. Our main competitors have access to significant government funding programmes as well as the ability to invest heavily in technology and industrial capability.	• Accessing and developing key technologies and service offerings which differentiate us competitively (see page 38). • Focusing on being responsive to our customers and improving the quality, delivery and reliability of our products and services. • Partnering with others effectively. • Driving down cost and improving margins (see page 8). • Protecting credit lines. • Investing in innovation, manufacturing and production, and continuing governance of technology programmes. • Maintaining a healthy balance sheet to enable access to cost-effective sources of third-party funding. • Understanding our competitors. • Understanding the potential implications on our competitiveness resulting from Brexit and change to the US administration. **This principal risk is subject to review by the Board.**	• **Financial performance review** • **Strategic planning process** • **Investment review committee** • **Science & Technology Committee** • **Research & technology board**	↔	1 2 3
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. For example: explicit trade protectionism, differing tax or regulatory regimes, potential for conflict; or broader political issues.	• Where possible, locating our facilities and supply chain in countries with a low level of political risk and/or ensuring that we maintain dual capability. • Diversifying global operations to avoid excessive concentration of risks in particular areas. • The Group's international network and its businesses proactively monitoring local situations. • Maintaining a balanced business portfolio with high barriers to entry and a diverse customer base (see page 10). • Proactively influencing regulation where it affects us. • Steering committee, chaired by Group President, to co-ordinate activities across the Group and minimise the impact of Brexit. • Monitoring the potential impact of changes following the change to the US administration, relating to tax policy, trade and relationships with the UK government. **This principal risk is subject to review by the Board.**	• **Government relations and Group tax teams** • **Strategic planning process** • **Supplier audit**	↑	2
Major programme delivery Failure to deliver a major programme on time, within budget, to specification, or technical performance 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 (see page 142). • 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 lifecycles. • 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 then 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 assurance** • **Gated business and technical reviews** • **Quality compliance audit**	↑	1 2

Risk or uncertainty and potential impact	How we manage it	Key controls	Change in risk level	Strategic priorities
Compliance Non-compliance by the Group with legislation or other regulatory requirements in the heavily regulated environments in which it operates (eg. export controls; use of controlled chemicals and substances; and anti-bribery and corruption legislation) compromising the ability to conduct business in certain jurisdictions and exposing the Group to potential: reputational damage; financial penalties; debarment from government contracts for a period of time; and/or 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. This programme and the Global Code of Conduct 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. The Global Code of Conduct and the Group's compliance programme are supported by appropriate training. • Strengthening of the ethics, anti-bribery and corruption, compliance and export control teams. • A legal team is in place to manage regulatory investigations. • Engaging with external regulatory authorities. • Implementing a comprehensive Registration, Evaluation, Authorisation and restriction of CHemicals (REACH) compliance programme. This includes establishing appropriate data systems and processes, working with our suppliers, customers and trade associations and conducting research on alternative materials. **This principal risk is subject to review by the Safety & Ethics Committee.**	• **Corporate governance framework** • **Compliance and export control teams** • **Group Secretariat** • **Legal teams**	⇔	**2**
Market and financial shock The Group is exposed to a number of market risks, some of which are of a macro-economic nature (eg. oil price, exchange rates) and some of which are more specific to the Group (eg. liquidity and credit risks, credit rating, profitability post IFRS 15, 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 healthy balance sheet, through managing cash balances and debt levels and maturities (see page 15). • 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 (see page 16). • 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 – see page 142). • Review debt financing and hedging in light of volatility in external financial markets caused by external events, such as Brexit and change of US administration. **This principal risk is subject to review by the Audit Committee.**	• **Financial performance review** • **Financial risk committee** • **Operational performance review** • **Group finance, treasury and taxation teams**	↑	**2** **3**

Risk or uncertainty and potential impact	How we manage it	Key controls	Change in risk level	Strategic priorities
Talent and capability Inability to attract and retain the critical capabilities and skills needed in sufficient numbers and to effectively organise, deploy and incentivise our people to deliver our strategy, business plan and projects.	• Attracting, rewarding and retaining the right people with the right skills globally in a planned and targeted way, including regular benchmarking of remuneration. • Developing and enhancing organisational, leadership, technical and functional capability to deliver global programmes and transformational change. • Continuing a strong focus on individual development and succession planning. • 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 that tightly aligns Group strategy with individual and team objectives. • Retaining, 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 our annual employee opinion survey and a commitment to drive year-on-year improvement to the employee experience and communications (see page 41). • Reviewing employee mobility as part of Brexit steering committee. **This principal risk is subject to review by the Nominations & Governance Committee.**	• **Remuneration Committee** • **ELT** • **HR executive team**	↔	1 **2** 3

Signed on behalf of the Board

Warren East
Chief Executive
13 February 2017

Board of Directors

Ian Davis
Chairman

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

Career, skills and experience
Ian is senior partner emeritus of McKinsey & Company. He was a partner at McKinsey for 31 years until 2010 and served as chairman and worldwide managing director of McKinsey between 2003 and 2009. He brings significant financial and strategic experience to the Board. He has worked with and advised global organisations and companies in a wide variety of sectors as well as in the public sector, enabling him to draw on knowledge of diverse issues and outcomes to assist the Board. His role in the Cabinet Office, from which he stepped down in March 2016, gives him a unique perspective on government affairs.

Other current principal roles
- BP p.l.c., non-executive director
- Johnson & Johnson Inc., director
- Teach for All Inc., director
- Majid Al Futtaim Holding LLC, director
- McKinsey & Company, senior partner emeritus

Warren East CBE
Chief Executive
Executive Director

Appointed as an independent Non-executive Director in January 2014, Warren became Chief Executive in July 2015.

Career, skills and experience
Warren is an engineer by training and had an outstanding record at ARM Holdings plc which he joined in 1994 and where he was CEO from 2001 until 2013. He has a deep understanding of technology and of developing long-term partnerships and has proven strategic and leadership skills in a global business with a strong record of value creation – all of which are relevant to Rolls-Royce particularly as it undergoes a period of transformation.

He is a fellow of the The Institution of Engineering and Technology, a fellow of the Royal Academy of Engineering and a distinguished fellow of BCS, the Chartered Institute for IT. He was awarded a CBE in 2014 for services to the technology industry.

Other current principal roles
- Dyson James Group Limited, director
- The Institution of Engineering and Technology, trustee

David Smith
Chief Financial Officer
Executive Director

Appointed in November 2014.

Career, skills and experience
David has extensive industrial experience having worked for over 25 years with Ford and Jaguar Land Rover and latterly with Edwards Group Limited, a major manufacturer of industrial vacuum products. He joined Rolls-Royce as Chief Financial Officer for the Aerospace Division in January 2014 before being appointed as CFO to the Group. David's skills in developing systems has been of particular benefit to Rolls-Royce where he has introduced a new management information and forecasting system. He is a member of the Chartered Institute of Management Accountants' Advisory Panel. David has resigned from Rolls-Royce and will leave the Group following the appointment of Stephen Daintith, whose biography is shown on page 55.

Other current principal roles
- Motability Operations Group plc, non-executive director

Colin Smith CBE
Group President
Executive Director

Appointed in July 2005.

Career, skills and experience
Colin joined Rolls-Royce in 1974. He has held a variety of key positions within the Group including Director – Research & Technology, Director of Engineering & Technology – Civil Aerospace, and Group Director – Engineering & Technology before being appointed as Group President in January 2016. Colin is a fellow of the Royal Society, the Royal Academy of Engineering, the Royal Aeronautical Society and the Institute of Mechanical Engineers. In June 2012 he was awarded a CBE for services to UK engineering. Colin will step down from the Board after the 2017 AGM.

Other current principal roles
- Council for Science and Technology, member

Lewis Booth CBE
Independent
Non-executive Director

Appointed in May 2011.

Career, skills and experience
Lewis has considerable financial expertise and experience, having been the former executive vice president and chief financial officer for Ford Motor Company. He brings an international perspective, having worked in Europe, Asia, Africa and the US during his 34-year career in the motor industry. After gaining a bachelor of engineering degree with honours in mechanical engineering, Lewis began his career with British Leyland before joining Ford in 1978. He was awarded a CBE in 2012 for services to the UK automotive and manufacturing industries.

Other current principal roles
- Mondelez International, Inc., director
- Gentherm Inc., director

Ruth Cairnie
Independent
Non-executive Director

Appointed in September 2014.

Career, skills and experience
A physicist by background, Ruth has strong strategic and commercial experience gained at Royal Dutch Shell Plc where she held a number of senior international roles, most recently as executive vice president strategy and planning, before her retirement in 2014.

Ruth also has significant remuneration committee experience having chaired the remuneration committee at Keller Group plc since April 2012 and as a member of the remuneration committee at Associated British Foods plc. She chairs the POWERful Women initiative, supporting the progression of women to senior positions in the energy sector, and is a strong supporter of our diversity and inclusion initiatives.

Other current principal roles
- Associated British Foods plc, non-executive director
- Keller Group plc, non-executive director
- POWERful Women, chairman

Sir Frank Chapman
Independent
Non-executive Director

Appointed in November 2011.

Career, skills and experience
Sir Frank has significant industrial and safety experience, having worked in the oil & gas industry for 38 years including appointments within Royal Dutch Shell plc and BP p.l.c. He has a life-long passion for engineering and innovation and a deep understanding of technology, together with an outstanding record of business achievement. He was chief executive of BG Group plc for 12 years until 2012 and chairman of Golar LNG Ltd from 2014 to 2015. Sir Frank 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.

Other current principal roles
- Myeloma UK, vice chairman

Irene Dorner
Independent
Non-executive Director

Appointed in July 2015.

Career, skills and experience
Irene has a strong background in risk management and is very familiar with regulatory requirements. She was chief executive officer and president of HSBC, US, until December 2014. Her background in risk management played a key role in strengthening the financial institution's risk processes and she brings this insight as part of her role on our Audit Committee. During a 29-year career at HSBC, she held a number of international roles including leading HSBC in Malaysia and launching its Islamic banking unit. Irene is a passionate advocate of diversity and inclusion and an active supporter of our employee resource groups.

Irene was a consultant at PricewaterhouseCoopers until February 2016. She is also an honorary fellow of St Anne's College, Oxford.

Other current principal roles
- AXA SA, director
- Control Risks International Limited, non-exectutive director
- OUTLeadership Advisory Board, member

Lee Hsien Yang
Independent
Non-executive Director

Appointed in January 2014.

Career, skills and experience
A Singaporean, Hsien Yang was formerly a member of our International Advisory Board and combines a strong background in engineering with extensive international business experience in our most important growth markets. He was chief executive of Singapore Telecommunications Limited for 12 years until 2007. He served as chairman and non-executive director of Fraser and Neave Limited from 2007 to February 2013. He has significant industrial and financial skills.

Other current principal roles
- Civil Aviation Authority of Singapore, chairman
- The Islamic Bank of Asia Private Limited, chairman
- The Australian and New Zealand Banking Group Limited, director
- General Atlantic LLC and associated funds, special adviser
- Lee Kuan Yew School of Public Policy, member of the board of governors
- INSEAD SE Asia Council, president

John McAdam
Independent
Non-executive Director

Appointed in February 2008.

Career, skills and experience
John has extensive international and industrial experience. He was appointed to the board of ICI plc in 1999 and became chief executive in 2003, a position he held until 2008. He held a number of senior positions at Unilever, within its Birds Eye Walls, Quest International and Unichema International businesses. He is a former non-executive director of Severn Trent plc and Sara Lee Corporation and stepped down as senior independent director of J Sainsbury plc in 2016.

Other current principal roles
- Rentokil Initial plc, chairman
- United Utilities Group PLC, chairman
- Electra Private Equity PLC, director

Bradley Singer
Non-independent
Non-executive Director

Appointed in March 2016.

Career, skills and experience
Brad has an outstanding record as a business leader in the US. He brings with him experience of public companies during periods of change, growth and significant financial outperformance, particularly in the US where Rolls-Royce has important business interests and a significant shareholder base. He has been senior executive vice president and chief financial officer of Discovery Communications, Inc. and chief financial officer and treasurer of American Tower Corp. Before these appointments, he worked as an investment banker at Goldman Sachs. He is a former director of Martha Stewart Living, Omnimedia, Inc., Citizens Communications Corp and Motorola Solutions Inc.

Other current principal roles
- ValueAct Capital Master Fund P.L., partner and chief operating officer
- Posse Foundation, director
- McIntire School Foundation, University of Virginia, trustee

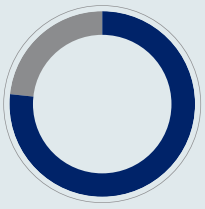
Sir Kevin Smith CBE
Senior Independent
Non-executive Director

Appointed in November 2015.

Career, skills and experience
Sir Kevin has extensive industrial leadership experience and a deep knowledge of global engineering and manufacturing businesses, as well as the aerospace industry. He was chief executive officer of GKN plc for nine years until 31 December 2011. Before joining GKN, he spent nearly 20 years with BAE Systems where he held a number of senior executive positions. He joined Unitas Capital in 2012 and served as partner and chairman of its operating advisor group until October 2015, based in Hong Kong. His private equity experience in operation-intensive businesses with Unitas is extremely valuable to Rolls-Royce. He served as a non-executive director of SSE plc between June 2004 and July 2008. He has an honorary fellowship doctorate from Cranfield University, is an honorary fellow of the University of Central Lancashire and a fellow of the Royal Aeronautical Society. He was awarded a CBE in 1997 and was knighted in 2006 for services to industry.

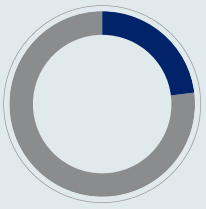
Other current principal roles
- Unitas Capital, senior adviser
- LEK Consulting, European advisory board member
- University of Central Lancashire, industry steering group member

BOARD MEMBERS BY GENDER



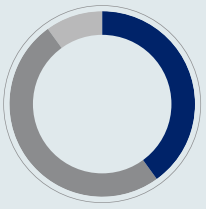
Female	3
Male	10

BALANCE OF THE BOARD



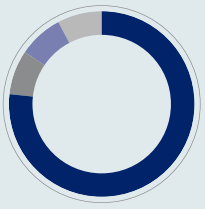
Executive Directors	3
Non-executive Directors	10

NON-EXECUTIVE DIRECTORS' TENURE



0–3 years	4
3–6 years	5
6–9 years	1

NATIONALITIES OF DIRECTORS*



British	10
German	1
Singaporean	1
US	1

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

Jasmin Staiblin
Independent
Non-executive Director

Appointed in May 2012.

Career, skills and experience
A German national, Jasmin combines a strong background in advanced engineering and deep technology knowledge with extensive international business experience, having worked in Switzerland, Sweden and Australia. She has been the chief executive officer of Alpiq Holding AG since 2013. She held a number of senior positions in the ABB Group becoming chief executive officer of ABB Switzerland from 2006 to December 2012.

Other current principal roles
- Alpiq Holding AG, chief executive officer
- Georg Fischer AG, board member

Pamela Coles
Company Secretary

Appointed in October 2014.

Career, skills and experience
Pamela is an expert in corporate governance and company law. She has been a fellow of the ICSA: The Governance Institute since 1997. She has held a variety of company secretary roles throughout her career. 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 & head of legal at RAC plc.

Other current principal roles
- None

Stephen Daintith

Expected to be appointed as Chief Financial Officer in February 2017.

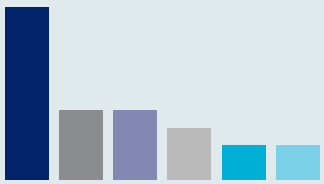
Career, skills and experience
Stephen will join Rolls-Royce from Daily Mail and General Trust plc where he has served on its board of directors since 2011. He was a member of the Euromoney Institutional Investor plc audit committee, and a non-executive director of Zoopla Property Group plc, both of which are associated companies of Daily Mail and General Trust plc. Stephen is a chartered accountant and has held a number of senior positions at News Corporation, British American Tobacco, Forte, the Civil Aviation Authority and PricewaterhouseCoopers. He is currently a non-executive director of 3i Group plc.

Stephen has extensive experience of strategic financial management and he has a deep understanding of international business. His record of achievement in change management is particularly relevant to Rolls-Royce.

The names of the Directors who held office during the year are set out on pages 52 to 55, with the exception of Dame Helen Alexander who stepped down on 5 May 2016 and Alan Davies who stepped down on 18 November 2016.

At 31 December 2016, all the Directors were also Directors of Rolls-Royce Holdings plc, the ultimate parent company. As Directors of the ultimate parent company, there is no requirement to disclose their remuneration or their interests in the shares of Rolls-Royce Group companies in this Directors' report, as they are included in the Annual Report of Rolls-Royce Holdings plc.

BOARD SKILLS AND EXPERIENCE



Chairman, CEO or CFO experience	10
Engineering/technology	4
Related industry/operational	4
Safety/regulatory/risk	3
Financial	2
Remuneration/HR	2

Internal control and risk management

The Board's responsibility for internal control and risk management

In developing our internal governance framework we looked at how the Group's risk management and internal control systems work together. You can read about our risk management system on page 46 and details of our internal control system below.

The Board has overall responsibility to the 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 Group has a long-standing process for identifying risks and planning mitigating actions and for assessing the effectiveness of internal control. In 2015, the Group identified improvements to the assessment of the existing processes. In 2016, the implementation of these improvements has continued. Our model for representing the system comprises:

- Entity-level controls covering leadership and direction from the top.
- Specific control activities, covering detailed process controls, and internal and external assurance activities.

In 2016, the Group issued a governance framework providing an overview of how internal control frameworks to manage risk in key business activities are established. This gives a framework for the entity-level controls. The Group has continued to document and assess the effectiveness of core financial controls, and we routinely review controls over the Group's principal risks, and the key risks and critical processes in each of the Group's businesses.

The Group has also used the internal control framework as an opportunity to improve the consistency of reporting, in particular from the Group's smaller operations. We paid particular attention to internal controls over financial reporting and have implemented a wide-ranging plan to improve controls in this area.

Risk management is a fundamental and integral part of how we work. All risks are managed through a risk management system (RMS) (described on page 46) in accordance with policies and guidance established by the Director of Risk and his team and approved by the Board.

Judgement is required in evaluating the risks facing the Group in achieving its objectives, in determining the risks that are considered acceptable, in determining the likelihood of those risks materialising, in identifying the Group's ability to reduce the incidence and impact on the business of risks that do materialise, and in ensuring the costs of operating particular controls are proportionate to the benefit provided.

During 2016, we focused on the continued implementation of the enhancements identified in 2015. These are described in more detail on page 46.

This process and the principal risks arising then formed the basis for the assessment of the going concern statement which are discussed later in this report. The processes are designed to identify and manage, rather than eliminate, the risk of failure to achieve our business objectives.

Financial reporting

The Group has a comprehensive budgeting system with an annual budget approved by the Board. Revised forecasts for the year are reported at least quarterly. Actual results, at both a business and a Group level, are reported monthly against budget and variances are kept under scrutiny.

Financial managers are required to acknowledge in writing that their routine financial reporting is based on reliable data and that results are properly stated in accordance with Group requirements. In addition, for annual reporting, business presidents and finance directors are required to confirm that their business has complied with the Group's finance manual. This contains the Group's key accounting policies.

The Audit Committee

Rolls-Royce Holdings plc has an Audit Committee, whose key objective is to assist its Board in ensuring the integrity of its financial statements. In addressing the key objective, the committee reviewed financial statements with both management and the external auditor, concentrating on:

Financial reporting

→ Review financial results announcements and financial statements, focusing on:

- the appropriateness of critical accounting policies, judgements and estimates and consistent application of those accounting policies;
- inclusion of appropriate disclosures;
- compliance with relevant regulations; and
- reporting to the Board as to whether the Annual Report, taken as a whole, is fair balanced and understandable.

Risk and control environment

→ Assess the scope and effectiveness of the systems to identify, manage and monitor financial and non-financial risks.

→ Assess the management of principal risks allocated to the Committee: business continuity, market and financial shock and IT vulnerability.

→ Review the procedures for detecting, monitoring and managing the risk of fraud.

- Review the system of internal control over the business processes and the risks identified through the risk management process.

Internal audit

- Review the scope, resources, results and effectiveness of internal audit.

External auditor

- Oversee the relationship with the external auditor, review the effectiveness of the external audit process and make recommendations to the Board for the external auditor's appointment and fees.

The Rolls-Royce Holdings plc Safety & Ethics Committee (the Committee) and the referral the Serious Fraud Office

Regulatory investigations

Following a lengthy period of investigation into allegations of bribery and corruption, in January 2017 the Group entered into deferred prosecution agreements with the UK Serious Fraud Office and the US Department of Justice, and a leniency agreement with the Brazilian Federal Prosecution Service (together the DPAs). During 2016, the Committee was kept informed on the ongoing status of the investigations and developments and discussions with the relevant authorities. We fully supported and endorsed the Group's approach of full and open co-operation with the investigations, for which the Group was highly praised in the judgment of Lord Justice Leveson.

Lord Gold's work

Lord Gold, a leading expert on regulatory compliance matters, was appointed by the Group in 2013 to conduct an independent review of its ethics and compliance procedures and to provide oversight of the Group's ethics and compliance improvement programme, under which the recommendations contained in his interim reports to the Company in 2013 and December 2014 have been implemented.

As part of his work, Lord Gold has reviewed the Group's policies and procedures, met with many members of management, the ethics and compliance teams, and a wide range of other employees to gain an understanding of the extent to which ethics and compliance awareness and adherence to the Group's Global Code of Conduct (Global Code) is embedded in the Group's culture, and the robustness of the risk management, controls and assurance framework that supports this.

Lord Gold is invited to meetings of the Safety & Ethics Committee of Rolls-Royce Holdings plc, and attended in July and December 2016. He updated the Committee on his findings and observations to date, including insights from the latest focus groups that he held with a range of employees in different businesses across different countries. The Committee discussed his observations and identified areas for continued focus. Lord Gold's latest report was issued to the Company in January 2017, and will be considered by the Committee during this year.

Lord Gold will continue his role as an independent specialist in 2017 and beyond, to report on findings and where appropriate advise and make recommendations to be implemented. His ongoing oversight is an important factor that led to the investigating authorities deciding not to appoint their own monitor to oversee the Group's adherence to the terms of the DPAs. We welcome Lord Gold's ongoing valuable insight and counsel as we maintain our focus on sustaining a culture of compliance and zero tolerance for unethical behaviour and misconduct.

Our ethics and compliance programme

Over the last few years the Group has continued to invest significantly in its ethics and compliance programme. The Group's management recognise that companies that are run ethically and have a strong compliance culture are sustainable, enabling profitable and long-term partnerships with its customers, suppliers and investors.

Share capital

Throughout 2015, the Company's authorised share capital was £400 million, comprising 2,000,000,000 ordinary shares of 20p. On 31 December 2016, there were 1,630,996,508 ordinary shares in issue.

Each member has one vote for each ordinary share held. Holders of ordinary shares are entitled to receive the Company's Annual Report; attend and speak at general meetings of the Company; to appoint one or more proxies or, if they are corporations, corporate representatives; and to exercise voting rights.

The ordinary shares are not listed.

Other statutory information

Disclosures in the strategic report

The Board has taken advantage of section 414C(11) of the Companies Act 2006 to include disclosures in the Strategic report including:

- Employee engagement.
- The future development, performance and position of the Group.
- The financial position of the Group.
- R&D activities.
- the principal risks and uncertainties.

Political donations

The Group's policy is not to make political donations and therefore did not donate any money to any political party during the year. However, it is possible that certain activities undertaken by the Group may unintentionally fall within the broad scope of the provisions contained in the Companies Act 2006 (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$42,742 (2015: US$45,021). 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 require authorisation by shareholders under the Companies Act 2006.

Greenhouse gas emissions

In 2016, our total greenhouse gas (GHG) emissions from our facilities and processes, including product test and development, was 587 kilotonnes carbon dioxide equivalent ($ktCO_2e$). This represents a decrease of 3% compared with 602 $ktCO_2e$ in 2015.

We have introduced reporting of fugitive emissions of hydroflurocarbons (HFCs), associated with air conditioning equipment, into our GHG emissions figures for 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. Figures from prior years (2012 to 2015) exclude emissions associated with HFCs.

Total GHG emissions ($ktCO_2e$)	2012	2013	2014*	2015	**2016**
Direct emissions – facilities, processes, product test and development (Scope 1)	219	241	301	242	**240**
Indirect emissions – facilities, processes, product test and development (Scope 2)	313	313	382	360	**347**
Total for facilities, processes, product test and development	532	554	683	602	**587**
Direct emissions – power generation to grid (Scope 1)		153	155	132	**132**
Indirect emissions – power generation to grid (Scope 2)		12	14	15	**11**
Total for facilities, processes, product test and development, and power generation to grid		719	852	749	**730**
Intensity ratio (total emissions normalised by revenue) for facilities, processes, product test and development, and power generation to grid ($ktCO_2e$/£m)		0.048	0.062	0.055	**0.052**

* 2014 data has been restated to reflect the inclusion of greenhouse gas emissions data from Power Systems. Figures for prior years (2012 to 2013) do not include data from Power Systems and therefore are not directly comparable.

With the exceptions noted above, we have reported on all of the emission sources required under the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013. These sources fall within our consolidated financial statements. We do not have responsibility for any emission sources that are not included in our consolidated financial statements.

We have used the GHG Protocol Corporate Accounting and Reporting Standard (revised edition) as of 31 December 2014, data gathered to fulfil our requirements under the Carbon Reduction Commitment (CRC) Energy Efficiency scheme, and emission factors from the UK Government's GHG Conversion Factors for Company Reporting 2016.

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

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 134 to 139.

Post balance sheet events

In January 2017, the Group entered into Deferred Prosecution Agreements with the US Serious Fraud Office and the US Department of Justice, and a leniency agreement with the Brazilian Federal Prosecution Service. These agreements require that the Group pays financial penalties, the details of which are set out on page 6.

There have been no other events affecting the Group since 31 December 2016 which need to be reflected in the 2016 Consolidated Financial Statements.

Financial instruments

Details of the Group's financial instruments are set out in note 16 to the Consolidated Financial Statements.

Related party transactions

Related party transactions are set out in note 23 to the Consolidated Financial Statements.

Management report

The Strategic Report and the Directors' Report together are the management report for the purposes of Rule 4.1.8R of the Financial Conduct Authority's (FCA's) Disclosure Rules and Transparency Rules.

Directors' report and financial statements

Responsibility statements

Statement of Directors' responsibilities in respect of the Annual Report and the Financial statements

The Directors, as listed on pages 52 to 55, are responsible for preparing the Annual Report and the Group and parent company financial statements in accordance with applicable law and regulations.

Company law requires the Directors to prepare Group and parent company financial statements for each financial year. Under that law they are required to prepare the Group financial statements in accordance with IFRS as adopted by the EU and applicable law and have elected to prepare the parent company financial statements in accordance with UK Accounting Standards 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 their profit or loss for that period.

In preparing each of the Group and parent company financial statements, the Directors are required to:

- select suitable accounting policies and then apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- for the Group financial statements, state whether they have been prepared in accordance with IFRS as adopted by the EU;
- for the parent company financial statements, state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the parent company financial statements; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the Group and the parent company will continue in business.

Directors' report and financial statements continued

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the parent and Group's transactions and disclose with reasonable accuracy at any time the financial position of the parent company and enable them to ensure that its financial statements comply with the Companies Act 2006. They have general responsibility for taking such steps as are reasonably open to them to safeguard the assets of the Group and to prevent and detect fraud and other irregularities.

The Directors are responsible for the maintenance and integrity of the corporate and financial information included on the Group's website. Legislation in the UK governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Responsibility statements under the disclosure guidance and transparency rules

Each of the persons who is a Director at the date of approval of this report confirms that to the best of his or her knowledge:

i) each of the Group and parent company financial statements, prepared in accordance with IFRS and UK Accounting Standards respectively, gives a true and fair view of the assets, liabilities, financial position and profit or loss of the Company and the undertakings included in the consolidation taken as a whole;

ii) the Strategic Report on pages 2 to 51 and Directors' Report on pages 52 to 60 include a fair review of the development and performance of the business and the position of the Company and the undertakings included in the consolidation taken as a whole, together with a description of the principal risks and uncertainties that they face; and

iii) the Annual Report, taken as a whole, is fair, balanced and understandable and provides the information necessary for shareholders to assess the Group's position and performance, business model and strategy.

Going concern

The going concern assessment considers whether it is appropriate to prepare the financial statements on a going concern basis.

As described on page 142, the Group meets its funding requirements through a mixture of shareholders' funds, bank borrowings, bonds and notes. At 31 December 2016, the Group had borrowing facilities of £5.3bn and total liquidity of £5.1bn, including cash and cash equivalents of £2.8bn and undrawn facilities of £2.3bn. £170m of the facilities mature in 2017.

At 31 December 2016, the Company had net liabilities of £642m (page 115). In accordance with section 656 of the Companies Act 2006, the Directors called a general meeting of the Company, which was held on 13 February 2017, to consider whether any, and if so, what, steps should be taken to deal with the situation. The meeting considered that the net liabilities had arisen largely as a result of the requirement under IAS 39 *Financial Instruments: Recognition and Measurement* to value foreign exchange derivatives (principally those entered into to hedge future US$ cash flows) at fair value. At the foreign exchange rates prevailing on 31 December 2016, this fair value was a liability of £5.4bn. However, accounting standards do not permit the recognition of a corresponding asset in respect of the forecast US$ cash flows which have been hedged, and which will, when received, be valued at equivalent rates, offsetting the liability recognised at 31 December 2016. Based on these considerations, the meeting concluded that no further steps should be taken.

The Group's forecasts and projections, taking into account reasonably possible changes in trading performance and the deficit on the Company's net assets noted above, show that the Company and the Group have 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 Financial Reporting Council in September 2014).

Disclosure of information to auditors

Each of the persons who is a Director at the date of approval of this report confirms that:

i) So far as the Director is aware, there is no relevant audit information of which the Company's auditor is unaware.

ii) 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 Companies Act 2006.

By order of the Board

Pamela Coles
Company Secretary
13 February 2017

Financial Statements

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Consolidated income statement

For the year ended 31 December 2016

	Notes	**2016 £m**	2015[1] £m
Revenue	2	**14,955**	13,725
Cost of sales		**(11,907)**	(10,448)
Gross profit		**3,048**	3,277
Other operating income		**5**	10
Commercial and administrative costs[2]		**(2,208)**	(1,070)
Research and development costs	3	**(918)**	(818)
Share of results of joint ventures and associates	10	**117**	100
Operating profit		**44**	1,499
(Loss)/profit on disposal of businesses		**(3)**	2
Profit before financing and taxation	2	**41**	1,501
Financing income	4	**96**	115
Financing costs	4	**(4,773)**	(1,456)
Net financing		**(4,677)**	(1,341)
(Loss)/profit before taxation*		**(4,636)**	160
Taxation	5	**604**	(76)
(Loss)/profit for the year		**(4,032)**	84
Attributable to:			
Ordinary shareholders		**(4,032)**	83
Non-controlling interests		**–**	1
(Loss)/profit for the year		**(4,032)**	84
* Underlying profit before taxation	2	**813**	1,432

[1] 2015 figures have been restated as a result of £11m of Power Systems costs previously reported in 'cost of sales', being reclassified as 'commercial and administrative costs' to ensure consistent treatment with 2016. The applicable notes have also restated.

[2] In 2016, 'commercial and administrative costs' include £671m for financial penalties from agreements with investigating bodies and £306m for the restructuring of the UK pension schemes.

Consolidated statement of comprehensive income

For the year ended 31 December 2016

	Notes	2016 £m	2015 £m
(Loss)/profit for the year		**(4,032)**	84
Other comprehensive income (OCI)			
Movements in post-retirement schemes	18	**495**	(722)
Share of OCI of joint ventures and associates	10	**(2)**	–
Related tax movements		**(179)**	257
Items that will not be reclassified to profit or loss		**314**	(465)
Foreign exchange translation differences on foreign operations		**861**	(129)
Reclassified to income statement on disposal of businesses		**–**	1
Share of OCI of joint ventures and associates	10	**(7)**	(19)
Related tax movements	5	**4**	(2)
Items that may be reclassified to profit or loss		**858**	(149)
Total comprehensive income for the year		**(2,860)**	(530)
Attributable to:			
Ordinary shareholders		**(2,860)**	(530)
Non-controlling interests		**–**	–
Total comprehensive income for the year		**(2,860)**	(530)

Consolidated balance sheet

At 31 December 2016

	Notes	2016 £m	2015 £m
ASSETS			
Intangible assets	8	**5,080**	4,645
Property, plant and equipment	9	**4,114**	3,490
Investments – joint ventures and associates	10	**844**	576
Investments – other	10	**38**	33
Other financial assets	16	**382**	83
Deferred tax assets	5	**876**	318
Post-retirement scheme surpluses	18	**1,346**	1,063
Non-current assets		**12,680**	10,208
Inventories	11	**3,086**	2,637
Trade and other receivables	12	**9,506**	7,985
Taxation recoverable		**32**	23
Other financial assets	16	**5**	29
Short-term investments		**3**	2
Cash and cash equivalents	13	**2,771**	3,176
Assets held for sale		**5**	5
Current assets		**15,408**	13,857
TOTAL ASSETS		**28,088**	24,065
LIABILITIES			
Borrowings	14	**(172)**	(419)
Other financial liabilities	16	**(623)**	(302)
Trade and other payables	15	**(8,942)**	(7,420)
Current tax liabilities		**(211)**	(164)
Provisions for liabilities and charges	17	**(543)**	(336)
Current liabilities		**(10,491)**	(8,641)
Borrowings	14	**(3,185)**	(2,883)
Other financial liabilities	16	**(5,129)**	(1,651)
Trade and other payables	15	**(3,459)**	(2,317)
Non-current tax liabilities		**–**	(1)
Deferred tax liabilities	5	**(776)**	(839)
Provisions for liabilities and charges	17	**(216)**	(304)
Post-retirement scheme deficits	18	**(1,375)**	(1,140)
Non-current liabilities		**(14,140)**	(9,135)
TOTAL LIABILITIES		**(24,631)**	(17,776)
NET ASSETS		**3,457**	6,289
EQUITY			
Called-up share capital	19	**326**	326
Share premium account		**631**	631
Cash flow hedging reserve		**(107)**	(100)
Other reserves		**811**	(54)
Retained earnings		**1,794**	5,484
Equity attributable to ordinary shareholders		**3,455**	6,287
Non-controlling interests		**2**	2
TOTAL EQUITY		**3,457**	6,289

The financial statements on pages 62 to 114 were approved by the Board on 13 February 2017 and signed on its behalf by:

WARREN EAST
Chief Executive

DAVID SMITH
Chief Financial Officer

Consolidated cash flow statement

For the year ended 31 December 2016

	Notes	2016 £m	2015 £m
Operating profit		**44**	1,499
Loss on disposal of property, plant and equipment		**5**	8
Share of results of joint ventures and associates	10	**(117)**	(100)
Dividends received from joint ventures and associates	10	**74**	63
Amortisation and impairment of intangible assets	8	**628**	432
Depreciation and impairment of property, plant and equipment	9	**426**	378
Impairment of investments	10	**–**	2
Increase/(decrease) in provisions		**44**	(151)
(Increase)/decrease in inventories		**(161)**	63
Decrease/(increase) in trade and other receivables		**54**	(836)
Accruals for financial penalties from agreements with investigating bodies		**671**	–
Other increase in trade and other payables		**234**	240
Cash flows on other financial assets and liabilities held for operating purposes		**(608)**	(305)
Net defined benefit post-retirement cost recognised in profit before financing	18	**510**	213
Cash funding of defined benefit post-retirement schemes	18	**(271)**	(259)
Share-based payments	20	**35**	5
Net cash inflow from operating activities before taxation		**1,568**	1,252
Taxation paid		**(157)**	(160)
Net cash inflow from operating activities		**1,411**	1,092
Cash flows from investing activities			
Additions of unlisted investments	10	**–**	(6)
Additions of intangible assets	8	**(631)**	(408)
Disposals of intangible assets	8	**8**	4
Purchases of property, plant and equipment		**(585)**	(487)
Government grants received		**15**	8
Disposals of property, plant and equipment		**8**	33
Acquisitions of businesses	24	**(6)**	(5)
Disposal of discontinued operations		**–**	(121)
Disposals of other businesses	24	**7**	2
Increase in share in joint ventures	10	**(154)**	–
Other investments in joint ventures and associates	10	**(30)**	(15)
Cash and cash equivalents of joint ventures reclassified as joint operations		**5**	–
Net cash outflow from investing activities		**(1,363)**	(995)
Cash flows from financing activities			
Repayment of loans		**(434)**	(54)
Proceeds from increase in loans and finance leases		**93**	1,150
Capital element of finance lease payments		**(4)**	(1)
Net cash flow from (decrease)/increase in borrowings and finance leases		**(345)**	1,095
Interest received		**14**	5
Interest paid		**(84)**	(58)
Interest element of finance lease payments		**(2)**	(2)
(Increase)/decrease in short-term investments		**(1)**	5
Movement on balances with parent company		**(321)**	(822)
Net cash (outflow)/inflow from financing activities		**(739)**	221
Change in cash and cash equivalents		**(691)**	320
Cash and cash equivalents at 1 January		**3,176**	2,862
Exchange gains/(losses) on cash and cash equivalents		**286**	(6)
Cash and cash equivalents at 31 December		**2,771**	3,176

Consolidated cash flow statement continued

For the year ended 31 December 2016

	2016 £m	2015 £m
Reconciliation of movements in cash and cash equivalents to movements in net debt		
Change in cash and cash equivalents	**(691)**	320
Cash flow from decrease/(increase) in borrowings and finance leases	**345**	(1,095)
Cash flow from increase/(decrease) in short-term investments	**1**	(5)
Change in net debt resulting from cash flows	**(345)**	(780)
Net debt (excluding cash and cash equivalents) of joint ventures reclassified as joint operations	**(9)**	–
Exchange gains on net debt	**240**	3
Fair value adjustments	**(345)**	45
Movement in net debt	**(459)**	(732)
Net debt at 1 January excluding the fair value of swaps	**(124)**	608
Net debt at 31 December excluding the fair value of swaps	**(583)**	(124)
Fair value of swaps hedging fixed rate borrowings	**358**	13
Net debt at 31 December	**(225)**	(111)

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

	At 1 January 2016 £m	Funds flow £m	Reclassification of joint ventures to joint operations £m	Exchange differences £m	Fair value adjustments £m	Reclassifications £m	At 31 December 2016 £m
Cash at bank and in hand	**662**	**96**	**5**	**109**	**–**	**–**	**872**
Money-market funds	**783**	**(260)**	**–**	**29**	**–**	**–**	**552**
Short-term deposits	**1,731**	**(532)**	**–**	**148**	**–**	**–**	**1,347**
Cash and cash equivalents	**3,176**	**(696)**	**5**	**286**	**–**	**–**	**2,771**
Short-term investments	**2**	**1**	**–**	**–**	**–**	**–**	**3**
Other current borrowings	**(417)**	**350**	**(9)**	**(24)**	**–**	**(69)**	**(169)**
Non-current borrowings	**(2,833)**	**(1)**	**–**	**(11)**	**(345)**	**69**	**(3,121)**
Finance leases	**(52)**	**(4)**	**–**	**(11)**	**–**	**–**	**(67)**
Net debt excluding fair value of swaps	**(124)**	**(350)**	**(4)**	**240**	**(345)**	**–**	**(583)**
Fair value of swaps hedging fixed rate borrowings	**13**				**345**		**358**
Net debt	**(111)**	**(350)**	**(4)**	**240**	**–**	**–**	**(225)**

Consolidated statement of changes in equity

For the year ended 31 December 2016

	Notes	Attributable to ordinary shareholders						Non-controlling interests (NCI) £m	Total equity £m
		Share capital £m	Share premium £m	Cash flow hedging reserve[1] £m	Other reserves £m	Retained earnings £m	Total £m		
At 1 January 2015		326	631	(81)	75	5,875	6,826	5	6,831
Profit for the year		–	–	–	–	83	83	1	84
Foreign exchange translation differences on foreign operations		–	–	–	(128)	–	(128)	(1)	(129)
Reclassified to income statement on disposal of businesses		–	–	–	1	–	1	–	1
Movement on post-retirement schemes	18	–	–	–	–	(722)	(722)	–	(722)
Share of other comprehensive income of joint ventures and associates	10	–	–	(19)	–	–	(19)	–	(19)
Related tax movements	5	–	–	–	(2)	257	255	–	255
Total comprehensive income for the year		–	–	(19)	(129)	(382)	(530)		(530)
Share-based payments – direct to equity[2]		–	–	–	–	(3)	(3)	–	(3)
Disposal of business		–	–	–	–	–	–	(3)	(3)
Related tax movements	5	–	–	–	–	(6)	(6)	–	(6)
Other changes in equity in the year		–	–	–	–	(9)	(9)	(3)	(12)
At 1 January 2016		**326**	**631**	**(100)**	**(54)**	**5,484**	**6,287**	**2**	**6,289**
Profit for the year		**–**	**–**	**–**	**–**	**(4,032)**	**(4,032)**	**–**	**(4,032)**
Foreign exchange translation differences on foreign operations		**–**	**–**	**–**	**861**	**–**	**861**	**–**	**861**
Movement on post-retirement schemes	18	**–**	**–**	**–**	**–**	**495**	**495**	**–**	**495**
Share of other comprehensive income of joint ventures and associates	10	**–**	**–**	**(7)**	**–**	**(2)**	**(9)**	**–**	**(9)**
Related tax movements	5	**–**	**–**	**–**	**4**	**(179)**	**(175)**	**–**	**(175)**
Total comprehensive income for the year		**–**	**–**	**(7)**	**865**	**(3,718)**	**(2,860)**	**–**	**(2,860)**
Share-based payments – direct to equity[2]		**–**	**–**	**–**	**–**	**30**	**30**	**–**	**30**
Related tax movements	5	**–**	**–**	**–**	**–**	**(2)**	**(2)**	**–**	**(2)**
Other changes in equity in the year		**–**	**–**	**–**	**–**	**28**	**28**	**–**	**28**
At 31 December 2016		**326**	**631**	**(107)**	**811**	**1,794**	**3,455**	**2**	**3,457**

[1] See accounting policies note 1

[2] Share-based payments – direct to equity is the net of the credit to equity in respect of the share-based payment charge to the income statement and the actual cost of shares vesting, excluding those vesting from own shares

Notes to the consolidated financial statements

1 Accounting policies

THE COMPANY

Rolls-Royce plc (the 'Company') is a company domiciled in the United Kingdom. The consolidated financial statements of the Company for the year ended 31 December 2016 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 European Union (EU) regulations, these financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB), as adopted for use in the EU effective at 31 December 2016 (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 115 to 133 and the accounting policies in respect of Company financial statements are set out on pages 117 to 123.

These 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 60.

The consolidated financial statements are presented in sterling which is the Company's functional currency.

The preparation of 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 financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

KEY AREAS OF JUDGEMENT

Introduction

The Group generates a significant portion of its revenues and profit on aftermarket arrangements arising from the installed original equipment (OE) fleet. As a consequence, the Group will often agree contractual prices for OE deliveries that take into account the anticipated aftermarket arrangements. Accounting policies reflect this aspect of the business model, in particular the policies for the recognition of contractual aftermarket rights and the linkage of OE and actual aftermarket arrangements.

When a civil large engine is sold, the economic benefits received usually far exceed the cash receivable under the contract, due to the rights to valuable aftermarket spare parts business. However, because the value of this right cannot be estimated with enough precision, accounting standards require that the revenue recognised in the accounts on sale of the engine is restricted to a total amount that results in a break even position. The amount of the revenue recognised in excess of cash receivable is recognised as an intangible asset, which is called a contractual aftermarket right.

There is only one circumstance where accounting standards require the recognition of more of the value of the aftermarket rights when an engine is sold. This occurs where a long-term aftermarket contract (generally a TotalCare agreement – TCA) and an engine sale contract have been negotiated together. In this circumstance, the part of the aftermarket rights covered by the TCA can be valued much more precisely and is recognised at the time of the engine sale through accounting for the engine sale and TCA as a single contract. Nevertheless, the accounting profit recognised is still less than the economic benefits on the sale as there will be other valuable aftermarket rights (for instance for the period beyond the TCA term or for the sale of parts which are outside the scope of the TCA) which cannot be recognised.

The Group enters into arrangements with long-term suppliers to share the risks and rewards of major programmes – risk and revenue sharing arrangements (RRSAs). The accounting policy for these arrangements has been chosen, consistent with Adopted IFRS, to reflect their commercial effect.

The key judgements in determining these accounting policies are described below.

Contractual aftermarket rights (CARs)

On delivery of Civil Aerospace engines, the Group has contractual rights to supply aftermarket parts to the customers and its intellectual rights, warranty arrangements and, where relevant, statutory airworthiness or other regulatory requirements provide reasonable control over this supply. The Directors consider that these rights meet the definition of an intangible asset in IAS 38 *Intangible Assets*. However, the Directors do not consider that it is possible to determine a reliable fair value for this intangible asset. Accordingly, an intangible asset (CAR) is only recognised on the occasions where the contractual price of the engine is below the cost of manufacture and then only to the extent of this deficit, as this amount is reliably measurable. An equal amount of revenue is recognised at the same point. Where a long-term aftermarket contract is linked to the OE contract (see below), the contractual price of the engine (including amounts allocated from the aftermarket contract) is above its cost of manufacture; consequently no CAR is recognised.

1 Accounting policies continued

Measure of performance on long-term aftermarket contracts

A large proportion of the Group's activities relate to long-term aftermarket contracts, in particular TotalCare and similar arrangements in Civil Aerospace. Under these contracts, the Group's primary obligation is to maintain customers' equipment in an operational condition and achieves this by undertaking various activities, such as engine monitoring, line maintenance and repair and overhaul, over the period of the contract. In general, the Directors consider that the stage of performance of the contract should be by reference to the obligation to maintain an operational fleet and that this is best measured by the operation of the fleet. Accordingly, stage of performance is measured by reference to flying hours of each fleet under contract.

Linkage of OE and long-term aftermarket contracts

Where the key terms of a long-term aftermarket contract are substantively agreed (eg. in a term sheet) at the same time as an OE contract with the operator, the Directors consider these to be linked for accounting purposes and they are treated as a single contract, as this best reflects the overall commercial effect. Where the OE contract is not with the operator, eg. where it is with an OE manufacturer or a lessor, the contracts are not linked as they were not negotiated on a unified basis.

Sales of spare engines to joint ventures

Whether the sales price reflects fair value when the Group sells spare engines to a joint venture company.

Risk and revenue sharing arrangements

RRSAs with key suppliers (workshare partners) are a feature of our 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 revenues as a 'life of type' supplier (ie. as long as the engine remains in service). The share of development costs borne by the workshare partner and of the revenues it receives reflect the partner's proportionate cost of providing its production parts compared to the overall manufacturing cost of the engine. The share is based on a jointly-agreed forecast at the commencement of the arrangement.

These arrangements are complex and have features that could be indicative of: a collaboration agreement, including sharing of risk and cost in a development programme; a long-term supply agreement; sharing of intellectual property; or a combination of these. In summary, and as described below, the Directors' view is that the development and production phases of the contract should be considered separately in accounting for the RRSA, which results in the entry fee being matched against the non-recurring costs incurred by the Group.

Having considered the features above, the Directors consider that there is no directly applicable IFRS to determine an accounting policy for the recognition of entry fees of this nature in the income statement. Consequently, in developing an accounting treatment for such entry fees that best reflects the commercial objectives of the contractual arrangement, the Directors have analysed these features in the context of relevant accounting pronouncements (including those of other standard setters where these do not conflict with IFRS) and have weighed the importance of each feature in faithfully representing the overall commercial effect. The most important considerations that need to be balanced are: the transfer of development risk; the workshare partner receiving little standalone value from the payment of the entry fee; and the overall effect being collaboration between the parties which falls short of being a joint venture as the Group controls the programme. Also important in the analysis is the fact that, whilst the Group and the workshare partner share risks and rewards through the life of the contract, these risks and rewards are very different during the development and production phases.

In this context, the entry fee might be considered to represent: an amount paid as an equalisation of development costs; a payment to secure a long-term supply arrangement; a purchase of intellectual property; or some combination thereof. The accounting under these different scenarios could include: recognition of the entry fee to match the associated costs in the income statement; being spread over the life of the programme as a reduction in the cost of supply during production; or being spread over the time period of the access to the intellectual property by the workshare partner.

The Directors consider that the most important features of the arrangement are the risk sharing and that the entry fee represents a contribution to the development costs that the Group incurs in excess of its proportionate programme share. The key judgements taken in reaching this view are: the entry fee is determined by the parties on that basis and the contract specifies that, in the event that a derivative engine is to be developed, additional entry fees will also be calculated on this basis; the workshare partners describe the entry fee in this way; although the workshare partner receives little stand-alone value from paying the entry fee, the entry fee together with its own development activities represent its aggregate investment in the collaboration; the amount of the entry fee does not include any amount in excess of that necessary to equalise forecast development costs; the Group is not 'on risk' for the full development costs it incurs but for that amount less the entry fees received.

The resulting accounting policy (described on page 72) represents the commercial effect of the contractual arrangements in that the Group recognises only those development costs to which it is exposed (and thus reflects the significant transfer of development risk to the workshare partner) and the costs of supply of parts during the production phase is measured at the workshare partner's share of programme revenues (which we consider to be a commercial fair value). The Directors do not consider that accounting which would result in entry fees only being recognised in the production phase would appropriately reflect the sharing of development risk. Accordingly, the Directors believe that the policy adopted best reflects the commercial objectives of the arrangements, the nature of the relationship with the workshare partner and is in accordance with Adopted IFRS.

Notes to the consolidated financial statements continued

1 Accounting policies continued

As described in the 2013 Annual Report, an alternative view is that the RRSA contract cannot be divided into separate development and production phases, as the fees and development components received by the Group during the development phase are exchanged for the obligation to pay the supplier a predetermined share of any sales receipts during the production phase. On this basis, the entry fees received would be deferred in their entirety and recognised over the period of production. The size of the difference between the two approaches is monitored and is not currently expected to become material in the foreseeable future. The impact of the different approaches on profit before tax and net assets, which is not considered to be material, is as follows:

	2016			2015		
	Reported profit before tax £m	**Underlying profit before tax £m**	**Net assets £m**	Reported profit before tax £m	Underlying profit before tax £m	Net assets £m
Adopted policy	**(4,636)**	**813**	**3,457**	160	1,432	6,289
Difference	**(2)**	**(2)**	**(442)**	(28)	(28)	(435)
Alternative policy[1]	**(4,638)**	**811**	**3,015**	132	1,404	5,854

[1] If the alternative policy were adopted, the difference would be included in profit before financing, which would change from **£41m** as reported to **£39m** (2015: £1,501m to £1,473m)

Internally-generated development costs

IAS 38 requires that internally-generated development costs should only be recognised if strict criteria are met, in particular relating to technical feasibility and generation of future economic benefits. The Directors consider that, due to the complex nature of new equipment programmes, these criteria are not met until relatively late in the programme – Civil Aerospace programmes represent around half of development costs recognised; for these, the criteria are generally satisfied around the time of the initial engine certification.

Customer financing contingent liabilities

The Group has contingent liabilities in respect of financing support provided to customers. In order to assess whether a provision should be recognised, judgement as to the likelihood of these crystallising is required. This judgement is based on an assessment on the knowledge of the customers' fleet plans, the underlying value of the security provided and, where appropriate, the customers' creditworthiness.

KEY SOURCES OF ESTIMATION UNCERTAINTY

In applying the accounting policies, estimates are made in many areas; the actual outcome may differ from that calculated. The 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 set out below. The estimation of the relevant assets and liabilities involves the combination of a number of assumptions. Sensitivities are disclosed in the relevant notes where this is appropriate and practicable.

Forecasts and discount rates

The carrying values of a number of items on the balance sheet are dependent on the estimates of future cash flows arising from the Group's operations, in particular:

- The assessment of whether the goodwill (carrying value at 31 December 2016: **£1,537m**, 31 December 2015: £1,503m) arising on the consolidation of acquired businesses is impaired is dependent of the present value of the future cash flows expected to be generated by the business.
- The assessment as to whether there are any indications of impairment of development, participation, certification, customer relationships and contractual aftermarket rights recognised as intangible assets (carrying values at 31 December 2016: **£2,846m**, 31 December 2015: £2,533m) is dependent on estimates of cash flows generated by the relevant assets and the discount rate used to calculate a present value. These estimates include the performance of long-term contractual arrangements as described below, as well as estimates for future market share, pricing and unit cost for uncontracted business. The risk of impairment is generally higher for newer programmes and for customer specific intangible assets (CARs) for launch customers and typically reduces as programmes become more established.

Assessment of long-term contractual arrangements

The Group has long-term contracts that fall into different accounting periods and which can extend over significant periods – the most significant of these are long-term service arrangements in the Civil Aerospace business. The estimated revenues 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; and life cycle cost improvements over the term of the contracts. The estimates take account of the inherent uncertainties and the risk of non-recovery of any resulting contract balances. During 2016, the estimates for future cost escalation were reviewed against actual experience. Estimates of future escalation were reduced, resulting in a one-off improvement to profit before tax of £45m. In addition many of the revenues and costs are denominated in currencies other than that of the relevant Group undertaking. These are translated at an estimated long-term exchange rate, based on historical trends. In 2016, the US dollar long-term exchange rate was reduced by 5¢, resulting in a one-off benefit to profit before tax of £35m.

1 Accounting policies continued

Post-retirement benefits

The Group's defined benefit pension schemes and similar arrangements are assessed annually in accordance with IAS 19. The accounting valuation, which is based on assumptions determined with independent actuarial advice, resulted in a net deficit of **£29m** before deferred taxation being recognised on the balance sheet at 31 December 2016 (31 December 2015: net deficit £77m). The size of the net surplus/deficit is sensitive to the market value of the assets held by the schemes and to actuarial assumptions, which include price inflation, pension and salary increases, the discount rate used in assessing actuarial liabilities, mortality and other demographic assumptions and the levels of contributions. Further details are included in note 18.

Provisions

As described in the accounting policy on page 75, the Group measures provisions (carrying value at 31 December 2016: **£759m**, 31 December 2015: £640m) at the Directors' best estimate of the expenditure required to settle the obligation at the balance sheet date. These estimates take account of information available and different possible outcomes.

Taxation

The tax payable on profits is determined based on tax laws and regulations that apply in each of the numerous jurisdictions in which the Group operates. Where the precise impact of these laws and regulations is unclear, or uncertain, then reasonable estimates may be used to determine the tax charge included in the financial statements.

The main area of uncertainty is in relation to cross border transactions, entered into in the normal course of business, as the amount of income or profit taxable in each country involved can be subjective and therefore open to interpretation by the relevant tax authorities. This can result in disputes and possibly litigation.

Tax provisions require management to make judgements and estimates of exposures in relation to tax audit issues and other areas of uncertainty. Contingent liabilities, including in respect of any tax disputes or litigation, are covered in note 22 (contingent liabilities). All provisions are in current liabilities. Any liability relating to interest or penalties on tax liabilities is included in the tax charge.

Deferred tax assets are recognised to the extent it is probable that future taxable profits will be available, against which the deductable temporary difference can be utilised, based on management's assumptions relating to the amounts and timing of future taxable profits.

Further details on the Group's tax position can be found on page 141.

SIGNIFICANT ACCOUNTING POLICIES

The Group's significant accounting policies are set out below. These accounting policies have been applied consistently to all periods presented in these consolidated financial statements and by all Group entities.

Basis of consolidation

The Group consolidated financial statements include the financial statements of the Company and its subsidiary undertakings together with the Group's share of the results of joint arrangements and associates made up to 31 December. In line with common practice in Germany, a small number of immaterial subsidiaries of Rolls-Royce Power Systems are not consolidated and are carried at cost in other investments.

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.

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.

During the year, the Group has reassessed the categorisation of joint arrangements. As a result of this review, certain entities, previously classified as joint ventures, have been reclassified as joint operations from 1 January 2016. This reclassification does not affect profit before tax or net assets, but the Group's share of the individual income statement and balance sheet categories are included on a proportional basis, rather than as a single figure. The adjustment to the opening balance was to reclassify £57m of investments in joint ventures to: property, plant and equipment (£41m), inventory (£19m), receivables (£18m), cash (£5m), payables (£17m) and borrowings (£9m). Prior figures have not been restated.

Any subsidiary undertakings, joint arrangements or associates 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.

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.

Notes to the consolidated financial statements continued

1 Accounting policies continued

Revenue recognition

Revenues comprise sales to outside customers after discounts, excluding value added taxes.

Sales of products (both OE and spare parts) are recognised when the significant risks and rewards of ownership of the goods are transferred to the customer, the sales price agreed and the receipt of payment can be assured – this is generally on delivery. On occasion, the Group may participate in the financing of OE, most commonly by the provision of guarantees as described in note 17. In such circumstances, the contingent obligations arising under these arrangements are taken into account in assessing when the significant risks and rewards of ownership have been transferred to the customer. As described on page 68, a sale of OE at a contractual price below its cost of manufacture is considered to give rise to revenue to the extent that an intangible asset (contractual aftermarket right) is recognised at the same time.

Sales of services are recognised by reference to the stage of completion based on services performed to date. As described on page 69, the assessment of the stage of completion is dependent on the nature of the contract, but will generally be based on: flying hours or equivalent for long-term aftermarket arrangements where the service is provided on a continuous basis; costs incurred to the extent these relate to services performed up to the reporting date; or achievement of contractual milestones where relevant.

As described on page 69, **sales of products and services** are treated as though they are a single contract where these components have been negotiated as a single commercial package and are so closely interrelated that they do not operate independently of each other and are considered to form a single transaction with an overall profit margin. The total revenue is allocated between the two components such that the total agreed discount to list prices is allocated to revenue for each of the two components pro rata, based on list prices. The revenue is then recognised for each component on this basis as the products are delivered and services provided, as described above. Where the contractual price of the OE component is below the revenue allocated from the combined arrangement, this will give rise to an asset included in 'amounts recoverable on contracts'. This asset reduces as services are provided, increases as costs are incurred, and reduces to zero by the end of the contract. Where the balance is a liability, it is recognised in 'accruals and deferred income'.

Provided that the outcome of construction contracts can be assessed with reasonable certainty, the revenues and costs on such contracts are recognised based on stage of completion and the overall contract profitability. Full provision is made for any estimated losses to completion of contracts, having regard to the overall substance of the arrangements.

Progress payments received, when greater than recorded revenue, are deducted from the value of work in progress except to the extent that payments on account exceed the value of work in progress on any contract where the excess is included in accruals and deferred income within trade and other payables. The amount by which recorded revenue of long-term contracts is in excess of payments on account is classified as amounts recoverable on contracts and is separately disclosed within trade and other receivables.

TotalCare arrangements

As described above, these are accounted for on a stage of completion basis, with the stage of completion based on the proportion of flying hours completed compared to the total estimated under the contract. In making the assessment of future revenues, costs and the level of profit recognised the Group takes account of: (i) the forecast utilisation of the engines by the operator; (ii) the forecast costs to maintain the engines in accordance with the contractual requirements – the principal variables being the time between shop visits and the cost of each shop visit; and (iii) the recoverability of any contract asset arising. The Group benchmarks the forecast costs against previous programmes, recognising that the reliability of the forecasts will improve as operational experience of the engine increases. To the extent that actual costs differ from forecast costs or that forecast costs change, the cumulative impact is recognised in the period. An allowance is made against forecast contract revenues given the potential for reduced engine flying hours based on historical forecasting accuracy, the risk of aircraft being parked by the customer and the customer's creditworthiness. Again, changes in this allowance are recognised in the period.

Risk and revenue sharing arrangements (RRSAs)

As described on page 69, the Group enters into arrangements with certain workshare partners under which these suppliers: (i) contribute to the forecast costs of developing an engine by performing their own development work, providing development parts and paying a non-refundable cash entry fee; and (ii) supply components for the production phase for which they receive consideration, which is an agreed proportion of the total programme revenues. Both the suppliers' contributions to the forecast non-recurring development costs and their consideration are determined by reference to their proportionate forecast scopes of supply relative to that of the engine overall. Once the forecast costs and the scopes of supply have been agreed at the inception of the contract, each party is then accountable for its own incurred costs. No accounting entries are recorded when the suppliers undertake development work or when development components are supplied. Cash sums received are recognised in the income statement, as a reduction in research and development costs incurred, to match the expensing of the Group's related costs – where the cash sums are received in advance of the related costs being expensed or where the related costs are capitalised as intangible assets, the recognition of the cash received is deferred (in accruals and deferred income) to match the recognition of the related expense or the amortisation of the related intangible asset respectively. The payments to suppliers of their shares of the programme revenues for their production components are charged to cost of sales as programme revenues arise.

The Group has arrangements with partners who do not undertake development work or supply parts. Such arrangements are considered to be financial instruments as defined by IAS 32 *Financial Instruments: Presentation* and are accounted for using the amortised cost method.

1 Accounting policies continued

Government investment
Where a government or similar body has previously invested in a development programme, the Group treats payments to that body as royalty payments, which are matched to 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 included in the balance sheet as deferred income. Non-monetary grants are recognised at fair value.

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

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

- Current tax is the expected tax payable for the year, using tax rates enacted or substantively enacted at the balance sheet date, and any adjustment to tax payable in respect of previous years.
- Deferred tax is provided using the balance sheet liability method, providing for temporary differences between the carrying amounts of the assets and liabilities for financial reporting purposes and the amounts used for tax purposes and is calculated using the enacted or substantively enacted rates that are expected to apply when the asset or liability is settled.

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

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

Deferred tax assets are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised.

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 exchange rates ruling on the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are translated into the relevant functional currency at the rate ruling at the year end. Exchange differences arising on foreign exchange transactions and the retranslation of assets and liabilities into functional currencies at the rate ruling at the year end are taken into account in determining profit 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 ruling 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
IAS 39 *Financial Instruments: Recognition and Measurement* requires the classification of financial instruments into separate categories for which the accounting requirement is different. The Group has classified its financial instruments as follows:

- Short-term investments are generally classified as **available for sale**.
- Short-term deposits (principally comprising funds held with banks and other financial institutions), trade receivables and short-term investments not designated as available for sale are classified as **loans and receivables**.
- Borrowings, trade payables, financial RRSAs and TotalCare Flex liabilities are classified as **other liabilities**.
- Derivatives, comprising foreign exchange contracts, interest rate swaps and commodity swaps are classified as **fair value through profit or loss**.

Financial instruments are recognised at the contract date and initially measured at fair value. Their subsequent measurement depends on their classification:

- **Available for sale** assets are held at fair value. Changes in fair value arising from changes in exchange rates are included in the income statement. All other changes in fair value are taken to equity. On disposal, the accumulated changes in value recorded in equity are included in the gain or loss recorded in the income statement.

Notes to the consolidated financial statements continued

1 Accounting policies continued

- **Loans and receivables** and **other liabilities** are held at amortised cost and not revalued (except for changes in exchange rates and forecast contractual cash flows, which are included in the income statement) unless they are included in a fair value hedge accounting relationship. Where such a hedging relationship exists, the instruments are revalued in respect of the risk being hedged, with the change in value included in the income statement.
- **Fair value through profit or loss** items are held at fair value. Changes in fair value are included in the income statement unless the instrument is included in a cash flow hedge. If the instruments are included in an effective cash flow hedging relationship, changes in value are taken to equity. When the hedged forecast transaction occurs, amounts previously recorded in equity are recognised in the income statement.

Financial instruments are derecognised on expiry or when all contractual rights and obligations are transferred.

Hedge accounting
The Group does not generally apply hedge accounting in respect of forward foreign exchange contracts or commodity swaps held to manage the cash flow exposures of forecast transactions denominated in foreign currencies or in commodities respectively.

The Group applies hedge accounting in respect of transactions entered into to manage the fair value and cash flow exposures of its borrowings. Forward foreign exchange contracts 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 and are designated as fair value or cash flow hedges of fixed and floating rate borrowings respectively.

Changes in the fair values of derivatives designated as fair value hedges and changes in fair value of the related hedged item are recognised directly in the income statement.

Changes in the fair values of derivatives that are designated as cash flow hedges and are effective are recognised directly in equity. Any ineffectiveness in the hedging relationships is included in the income statement. The amounts deferred in equity are recognised in the income statement to match the recognition of the hedged item.

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 equity is retained in equity until the forecast transaction occurs. If a hedged transaction is no longer expected to occur, the net cumulative gain or loss previously recognised in equity is transferred to the income statement.

The portion of a gain or loss on an instrument used to hedge a net investment in a foreign operation that is determined to be an effective hedge is recognised directly in equity. The ineffective portion is recognised immediately in the income statement. Gains and losses accumulated in the translation reserve will be recycled to profit when the foreign operation is sold.

Business combinations and goodwill
On the acquisition of a business, fair values are attributed to the identifiable assets and liabilities and contingent liabilities unless the fair value cannot be measured reliably, in which case the value is subsumed into goodwill. Where fair values of acquired contingent liabilities cannot be measured reliably, the assumed contingent liability is not recognised but is disclosed in the same manner as other contingent liabilities.

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.

Certification costs and participation fees
Costs incurred in respect of meeting regulatory certification requirements for new civil aero-engine/aircraft combinations including payments made to airframe manufacturers for this and participation fees are carried forward in intangible assets to the extent that they can be recovered out of future sales and are charged to the income statement over the programme life on a straight-line basis, up to a maximum of 15 years from the entry into service of the product.

Research and development
In accordance with IAS 38 *Intangible Assets*, 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 capitalised as an internally generated intangible asset only if it meets strict criteria, relating in particular to technical feasibility and generation of future economic benefits. As described on page 70, the Group considers that it is not possible to distinguish reliably between research and development activities until relatively late in the programme.

Expenditure capitalised is amortised over its useful economic life on a straight-line basis, up to a maximum of 15 years from the entry into service of the product.

1 Accounting policies continued

Contractual aftermarket rights
As described under key judgements on page 68, the Group may sell OE to customers at a price below its cost, on the basis that it also receives valuable aftermarket rights. Such a sale is considered to give rise to an intangible asset which is recognised, in accordance with IAS 38, at the same time as the revenue at an amount equal to the cash deficit and is amortised on a straight-line basis over the period that highly probable aftermarket sales are expected to be earned.

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 occurs on a straight-line basis over its useful economic life, up to a maximum of 15 years.

Software
The cost of acquiring software that is not specific to an item of property, plant and equipment is classified as an intangible asset and amortised on a straight-line basis over its useful economic life, up to a maximum of five years.

Property, plant and equipment
Property, plant and equipment are stated at cost less accumulated depreciation and any provision for impairment in value.

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 provided on assets in the course of construction. Estimated useful lives are as follows:

- Land and buildings, as advised by the Group's professional advisers:
  - freehold buildings – five to 45 years (average 26 years);
  - leasehold buildings – lower of adviser's estimates or period of lease;
  - 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 13 years).

Where the Group obtains effective control of customers' installed engines as a result of a TotalCare Flex arrangement, the fair value of these engines is recognised as an addition (shown separately in note 9). The corresponding liability is recognised either as deferred revenue or a financial liability depending on the precise nature of the arrangement.

Operating leases
Payments made and rentals received under operating lease arrangements are charged/credited to the income statement on a straight-line basis.

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

If the recoverable amount of an asset (or cash-generating unit) is estimated to be below the carrying value, the carrying value is reduced to the recoverable amount and the impairment loss recognised as an expense. The recoverable amount is the higher of value in use or fair value less costs to sell, 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 and work in progress are valued at the lower of cost and net realisable value on a first-in, first-out basis. Cost comprises direct materials and, where applicable, direct labour costs and those overheads, including depreciation of property, plant and equipment, that have been incurred in bringing the inventories to their present location and condition. Net realisable value represents the estimated selling prices less all estimated costs of completion and costs to be incurred in marketing, selling and distribution.

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.

Provisions
Provisions are recognised when the Group has a present obligation as a result of a past event, and it is probable that the Group will be required to settle that obligation. Provisions are measured at the Directors' best estimate of the expenditure required to settle the obligation at the balance sheet date, and are discounted to present value where the effect is material.

Notes to the consolidated financial statements continued

1 Accounting policies continued

Post-retirement benefits

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

For defined benefit plans, obligations are measured at discounted present value, using a discount rate derived from high-quality corporate bonds denominated in the currency of the plan, whilst plan assets are recorded at fair value. Surpluses in schemes are recognised as assets only if they represent economic benefits available to the Group in the future. A liability is recognised to the extent that the minimum funding requirements in respect of past service will give rise to an unrecognisable surplus.

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.
- Financing costs are recognised in the periods in which they arise.

Actuarial gains and losses and movements in unrecognised surpluses and minimum funding liabilities are recognised immediately in OCI.

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 Performance Share Plan (PSP).

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

See note 20 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 IAS 39 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 70, 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.

Revisions to Adopted IFRS in 2016

There were no changes to accounting standards that had a material impact on the 2016 financial statements.

Revisions to IFRS not applicable in 2016

Standards and interpretations issued by the IASB are only applicable if endorsed by the EU.

IFRS 9 *Financial Instruments* will simplify the classification of financial assets for measurement purposes, but is not anticipated to have a significant impact on the financial statements.

1 Accounting policies continued

IFRS 15 *Revenue from Contracts with Customers* (effective for the year beginning 1 January 2018), provides a single, principles-based five-step model to be applied to all sales contracts, based on the transfer of control of goods and services to customers. It replaces the separate models for goods, services and construction contracts currently included in IAS 18 *Revenue* and IAS 11 *Construction Contracts*.

The Group has undertaken significant analysis of how IFRS 15 should be implemented and has taken tentative accounting policy decisions. Based on this analysis, we expect that adoption of IFRS 15 will have a significant impact on the timing of recognition of revenue on individual long-term contracts, most particularly in the Civil Aerospace business. The most significant changes are:

- IFRS 15 contains more specific requirements on the combination of contracts. Contracts can only be combined if they are with the same counterparty or related counterparties. The existing standards require contracts with different counterparties to be combined where that reflects the overall substance of a transaction. As a result, it will no longer be possible to link contracts entered into at the same time for: (i) installed OE, with an airframer; and (ii) long-term servcie agreements (LTSAs), relating to that OE, with the aircraft operator.
- For similar reasons, it will no longer be possible to recognise an intangible asset in respect of contractual aftermarket rights (relating to future aftermarket business with an operator) when OE is sold to an airframer.
- For each performance obligation identified, IFRS 15 requires revenue to be recognised based on the transfer of control of the relevant goods or services. In contrast, under the existing standards, revenue is recognised based on when risk and reward is transferred. As a result it will no longer be possible to use flying hours (or equivalent) as a basis for measuring the stage of completion of LTSAs.
- Compared to IAS 11, IFRS 15 includes only limited guidance on accounting for costs incurred to fulfil a performance obligation and in general these will be recognised as incurred. It is no longer possible to defer or accrue costs to report a consistent margin percentage over the term of the LTSAs.

In summary, the impact of these changes will be that, upon adoption of IFRS 15:

- Revenues and costs relating to deliveries of engines will be recognised when they are delivered. The revenue recognised will comprise that included in the contract with the airframer reduced (if applicable) by any OE concession agreed with the operator (which IFRS 15 describes as a payment to 'a customer's customer'). Consequently, the revenues and costs recognised on OE deliveries will more closely match the related cash flows. No contractual aftermarket revenue will be allocated to the OE delivery (where contracts are currently combined – 'linked accounting') and no intangible asset will be recognised (where contracts are not currently combined – 'unlinked accounting'). This will result in a loss being recognised on engine deliveries when the direct costs exceed the direct revenues.
- Revenues on LTSAs will be recognised as services are performed rather than as the equipment is used (engine flying hours) as is the case under the current accounting policy. The stage of completion will be measured using the actual costs incurred to date compared to the estimated costs to complete the performance obligation. In practice the bulk of the revenue and costs will relate to overhaul activity which occurs at distinct points of time during the period of the LTSA. As the first major overhaul typically occurs some years after delivery, this change will generally defer the recognition of revenue on LTSAs, as compared to the current accounting policy.

Taken together, had IFRS 15 been applicable with effect from 1 January 2015, the Group currently estimates the results for the year ended 31 December 2015 would have been as follows:

	IAS 11 and IAS 18		IFRS 15	
	Reported £bn	*Underlying £bn*	Reported £bn	*Underlying £bn*
Revenue				
Civil Aerospace original equipment		*3.3*		*2.6*
Civil Aerospace aftermarket services		*3.7*		*3.5*
Other segments		*6.4*		*6.4*
Total revenue	13.7	*13.4*	12.8	*12.5*
Gross profit				
Civil Aerospace		*1.5*		*0.6*
Other segments		*1.7*		*1.7*
Total gross profit	3.3	*3.2*	2.4	*2.3*
Profit before financing and taxation	1.5	*1.5*	0.6	*0.6*
Net financing	(1.3)	*(0.1)*	(1.3)	*(0.1)*
Taxation	(0.1)	*(0.3)*	0.1	*(0.1)*
Profit for the year	0.1	*1.1*	(0.6)	*0.4*
Net assets	6.3		3.3	

The Group plans to adopt IFRS 15 in 2018 using the 'full' retrospective approach. The comparative 2017 results included in the 2018 financial statements will be restated, with an adjustment to equity as at 1 January 2017.

Notes to the consolidated financial statements continued

1 Accounting policies continued

The Group will continue to work during 2017 to design, implement and refine procedures to apply the new requirements of IFRS 15 and to finalise accounting policy choices. As a result of this ongoing work, it is possible that some changes to the impact above may result.

IFRS 16 *Leases* (effective for the year ending 31 December 2019, not yet endorsed by the EU) will require all leases to be recognised on the balance sheet. Currently, IAS 17 *Leases* only requires leases categorised as finance leases to be recognised on the balance sheet, with leases categorised as operating leases not recognised. In broad terms, the impact will be to recognise a lease liability and corresponding asset for the operating lease commitments set out in note 21.

The Group does not consider that any other standards, amendments or interpretations issued by the IASB, but not yet applicable, will have a significant impact on the financial statements.

2 Segmental analysis

The analysis by business segment is presented in accordance with IFRS 8 *Operating Segments*, on the basis of those segments whose operating results are regularly reviewed by the Board (the Chief Operating Decision Maker as defined by IFRS 8), as follows:

Civil Aerospace	– development, manufacture, marketing and sales of commercial aero engines and aftermarket services.
Defence Aerospace	– development, manufacture, marketing and sales of military aero engines and aftermarket services.
Power Systems	– development, manufacture, marketing and sales of reciprocating engines and power systems.
Marine	– development, manufacture, marketing and sales of marine-power propulsion systems and aftermarket services.
Nuclear	– development, manufacture, marketing and sales of nuclear systems for civil power generation and naval propulsion systems.

The operating results are reviewed by the Board and are prepared on an underlying basis, which the Board considers reflects better the economic substance of the Group's trading during the year and provides financial measures that, together with the results prepared in accordance with Adopted IFRS, allow better analysis of the factors affecting the year's results compared to the prior year. The principles adopted to determine underlying results are:

Underlying revenues and costs

Where revenues and costs are denominated in a currency other than the functional currency of the Group undertaking and the Group hedges the net exposure, these reflect the achieved exchange rates arising on derivative contracts settled to cover the net exposure. These achieved exchange rates are applied to all relevant revenues and costs, including those for which there is a natural offsetting position, rather than translating the offsetting transactions at spot rates. The underlying profits would be the same under both approaches, but the Board considers that the approach taken provides a better indication of trends over time.

Underlying profit before financing

In addition to the impact of exchange rates on revenues and costs above, adjustments have been made to exclude one-off past service credits on post-retirement schemes, exceptional restructuring costs (associated with the substantial closure or exit of a site, facility or line of business or other major transformation activities), the effect of acquisition accounting, the effect of business disposals, the impairment of goodwill, and in 2016 financial penalties from agreements with investigating bodies.

Underlying profit before taxation

In addition to those adjustments in underlying profit before financing:

- Includes amounts realised from settled derivative contracts and revaluation of relevant assets and liabilities to exchange rates forecast to be achieved from future settlement of derivative contracts.
- Excludes unrealised amounts arising from revaluations required by IAS 39 *Financial Instruments: Recognition and Measurement*, changes in value of financial RRSA contracts arising from changes in forecast payments and the net impact of financing costs related to post-retirement scheme benefits.

Taxation

The tax effect of the adjustments above are excluded from the underlying tax charge. In addition changes in the amount of recoverable advance corporation tax recognised and the impact of changes in tax rates are also excluded.

This analysis also includes a reconciliation of the underlying results to those reported in the consolidated income statement.

2 Segmental analysis continued

	Civil Aerospace £m	Defence Aerospace £m	Power Systems £m	Marine £m	Nuclear £m	Inter-segment £m	Total reportable segments £m
Year ended 31 December 2016							
Underlying revenue from sale of original equipment	**3,272**	**823**	**1,609**	**575**	**346**	**(33)**	**6,592**
Underlying revenue from aftermarket services	**3,634**	**1,229**	**751**	**437**	**415**	**(35)**	**6,431**
Total underlying revenue at 2015 exchange rates	**6,906**	**2,052**	**2,360**	**1,012**	**761**	**(68)**	**13,023**
Translation to 2016 exchange rates	**161**	**157**	**295**	**102**	**16**	**(8)**	**723**
Total underlying revenue	**7,067**	**2,209**	**2,655**	**1,114**	**777**	**(76)**	**13,746**
Gross profit	**1,129**	**530**	**628**	**216**	**117**	**–**	**2,620**
Commercial and administrative costs	**(339)**	**(127)**	**(305)**	**(207)**	**(67)**	**–**	**(1,045)**
Restructuring	**(11)**	**10**	**–**	**3**	**–**	**–**	**2**
Research and development costs	**(549)**	**(68)**	**(157)**	**(39)**	**(6)**	**–**	**(819)**
Share of results of joint ventures and associates	**96**	**15**	**1**	**–**	**–**	**–**	**112**
Underlying profit/(loss) before financing and taxation at 2015 exchange rates	**326**	**360**	**167**	**(27)**	**44**	**–**	**870**
Translation to 2016 exchange rates	**41**	**24**	**24**	**–**	**1**	**–**	**90**
Underlying profit/(loss) before financing and taxation	**367**	**384**	**191**	**(27)**	**45**	**–**	**960**
Segment assets	**14,612**	**2,239**	**3,879**	**1,772**	**530**	**(1,223)**	**21,809**
Investments in joint ventures and associates	**826**	**4**	**9**	**2**	**1**	**–**	**842**
Segment liabilities	**(15,104)**	**(2,178)**	**(1,170)**	**(998)**	**(502)**	**1,223**	**(18,729)**
Net assets	**334**	**65**	**2,718**	**776**	**29**	**–**	**3,922**
Investment in intangible assets, property, plant and equipment and joint ventures and associates	**1,215**	**112**	**123**	**37**	**19**	**–**	**1,506**
Depreciation, amortisation and impairment	**491**	**67**	**207**	**239**	**39**	**–**	**1,043**
Year ended 31 December 2015							
Underlying revenue from sale of original equipment	3,258	801	1,618	773	251	(53)	6,648
Underlying revenue from aftermarket services	3,675	1,234	767	551	436	(53)	6,610
Total underlying revenue	6,933	2,035	2,385	1,324	687	(106)	13,258
Gross profit	1,526	579	656	260	111	7	3,139
Commercial and administrative costs	(296)	(124)	(296)	(201)	(53)	–	(970)
Restructuring	(7)	(8)	(4)	(16)	(2)	–	(37)
Research and development costs	(515)	(73)	(162)	(28)	14	–	(764)
Share of results of joint ventures and associates	104	19	–	–	–	–	123
Underlying profit before financing and taxation	812	393	194	15	70	7	1,491
Segment assets	12,291	1,768	3,411	1,690	404	(850)	18,714
Investments in joint ventures and associates	545	12	8	7	3	–	575
Segment liabilities	(8,995)	(1,787)	(1,026)	(839)	(352)	850	(12,149)
Net assets/(liabilities)	3,841	(7)	2,393	858	55	–	7,140
Investment in intangible assets, property, plant and equipment and joint ventures and associates	668	84	108	36	18	–	914
Depreciation, amortisation and impairment	410	58	197	111	23	–	799

Notes to the consolidated financial statements continued

2 Segmental analysis continued

RECONCILIATION TO REPORTED RESULTS

	Total reportable segments £m	Other business[1] and corporate £m	Total underlying £m	Underlying adjustments and foreign exchange £m	Group at actual exchange rates £m
Year ended 31 December 2016					
Revenue from sale of original equipment	**6,592**	**20**	**6,612**	**976**	**7,588**
Revenue from aftermarket services	**6,431**	**15**	**6,446**	**921**	**7,367**
Total underlying revenue at 2015 exchange rates	**13,023**	**35**	**13,058**	**1,897**	**14,955**
Translation to 2016 exchange rates	**723**	**2**	**725**	**(725)**	**–**
Total revenue	**13,746**	**37**	**13,783**	**1,172**	**14,955**
Gross profit	**2,620**	**6**	**2,626**	**422**	**3,048**
Other operating income	**–**	**–**	**–**	**5**	**5**
Commercial and administrative costs	**(1,045)**	**(51)**	**(1,096)**	**(1,112)**	**(2,208)**
Restructuring	**2**	**–**	**2**	**(2)**	**–**
Research and development costs	**(819)**	**7**	**(812)**	**(106)**	**(918)**
Share of results of joint ventures and associates	**112**	**(5)**	**107**	**10**	**117**
Profit/(loss) before financing and taxation at 2015 exchange rates	**870**	**(43)**	**827**	**(783)**	**44**
Translation to 2016 exchange rates	**90**	**(2)**	**88**	**(88)**	**–**
Loss on disposal of businesses	**–**	**–**	**–**	**(3)**	**(3)**
Profit/(loss) before financing and taxation	**960**	**(45)**	**915**	**(874)**	**41**
Net financing		**(102)**	**(102)**	**(4,575)**	**(4,677)**
Profit/(loss) before taxation		**(147)**	**813**	**(5,449)**	**(4,636)**
Taxation		**(261)**	**(261)**	**865**	**604**
Profit/(loss) for the year			**552**	**(4,584)**	**(4,032)**
Attributable to:					
Ordinary shareholders			**552**	**(4,584)**	**(4,032)**
Non-controlling interests			**–**	**–**	**–**
Year ended 31 December 2015					
Revenue from sale of original equipment	6,648	76	6,724	215	6,939
Revenue from aftermarket services	6,610	20	6,630	156	6,786
Total revenue	13,258	96	13,354	371	13,725
Gross profit	3,139	64	3,203	74	3,277
Other operating income	–	–	–	10	10
Commercial and administrative costs	(970)	(55)	(1,025)	(45)	(1,070)
Restructuring	(37)	(2)	(39)	39	–
Research and development costs	(764)	(1)	(765)	(53)	(818)
Share of results of joint ventures and associates	123	(5)	118	(18)	100
Profit on disposal of businesses	–	–	–	2	2
Profit before financing and taxation	1,491	1	1,492	9	1,501
Net financing		(60)	(60)	(1,281)	(1,341)
Profit/(loss) before taxation		(59)	1,432	(1,272)	160
Taxation		(351)	(351)	275	(76)
Profit/(loss) for the year		(410)	1,081	(997)	84
Attributable to:					
Ordinary shareholders			1,080	(997)	83
Non-controlling interests			1	–	1

[1] Other businesses comprise former Energy businesses not included in the disposal to Siemens in 2014.

2 Segmental analysis continued

UNDERLYING ADJUSTMENTS

	2016				2015			
	Revenue £m	**Profit before financing £m**	**Net financing £m**	**Taxation £m**	Revenue £m	Profit before financing £m	Net financing £m	Taxation £m
Underlying performance	**13,783**	**915**	**(102)**	**(261)**	13,354	1,492	(60)	(351)
Revenue recognised at exchange rate on date of transaction	**1,172**	**–**	**–**	**–**	371	–	–	–
Realised losses/(gains on settled derivative contracts[1]	**–**	**426**	**162**	**(107)**	–	287	(35)	(51)
Net unrealised fair value changes to derivative contracts[2]	**–**	**–**	**(4,420)**	**792**	–	(9)	(1,306)	270
Effect of currency on contract accounting	**–**	**77**	**–**	**(14)**	–	(9)	–	2
Revaluation of trading assets and liabilities	**–**	**67**	**(313)**	**56**	–	(13)	20	(6)
Financial RRSAs – foreign exchange differences and changes in forecast payments	**–**	**–**	**(8)**	**(1)**	–	–	8	(1)
Effect of acquisition accounting[3]	**–**	**(115)**	**–**	**35**	–	(124)	–	31
Impairment of goodwill	**–**	**(219)**	**–**	**–**	–	(75)	–	–
Pension restructuring[4]	**–**	**(306)**	**–**	**107**	–	–	–	–
Net post-retirement scheme financing	**–**	**–**	**3**	**(2)**	–	–	32	(12)
Disposal of businesses	**–**	**(3)**	**–**	**–**	–	2	–	15
Exceptional restructuring	**–**	**(129)**	**–**	**34**	–	(49)	–	11
Financial penalties from agreements with investigating bodies	**–**	**(671)**	**–**	**–**	–	–	–	–
Other	**–**	**(1)**	**1**	**(5)**	–	(1)	–	(2)
Reduction in rate of UK corporation tax	**–**	**–**	**–**	**(30)**	–	–	–	18
Total underlying adjustments	**1,172**	**(874)**	**(4,575)**	**865**	371	9	(1,281)	275
Reported per consolidated income statement	**14,955**	**41**	**(4,677)**	**604**	13,725	1,501	(1,341)	(76)

[1] Realised (gains)/losses on settled derivative contracts include adjustments to reflect the losses/(gains) in the same year as the related trading cash flows.
[2] Unrealised fair value changes to derivative contracts included in profit before financing: (i) include those of equity accounted joint ventures; and (ii) exclude those for which the related trading contracts have been cancelled when the fair value changes are recognised immediately in underlying profit.
[3] The adjustment eliminates charges recognised as a result of recognising assets in acquired businesses at fair value.
[4] In the UK, tax is provided on pension surpluses at a rate of 35%, which is the relevant rate if the surpluses were to be returned to the Group.

RECONCILIATION TO THE BALANCE SHEET

	2016 £m	2015 £m
Reportable segment assets	**21,809**	18,714
Investments in joint ventures and associates	**844**	576
Other businesses and corporate	**49**	119
Cash and cash equivalents and short-term investments	**2,774**	3,178
Fair value of swaps hedging fixed rate borrowings	**358**	74
Income tax assets	**908**	341
Post-retirement scheme surpluses	**1,346**	1,063
Total assets	**28,088**	24,065
Reportable segment liabilities	**(18,729)**	(12,149)
Other businesses and corporate	**(183)**	(120)
Borrowings	**(3,357)**	(3,302)
Fair value of swaps hedging fixed rate borrowings	**–**	(61)
Income tax liabilities	**(987)**	(1,004)
Post-retirement scheme deficits	**(1,375)**	(1,140)
Total liabilities	**(24,631)**	(17,776)
Net assets	**3,457**	6,289

Notes to the consolidated financial statements continued

2 Segmental analysis continued

GEOGRAPHICAL SEGMENTS

The Group's revenue by destination from continuing operations is as follows:

	2016 £m	2015 £m
United Kingdom	**1,821**	1,780
Germany	**850**	642
Switzerland	**745**	782
France	**294**	249
Spain	**289**	200
Norway	**279**	280
Italy	**232**	222
Russia	**75**	59
Rest of Europe	**700**	786
Europe	**5,285**	5,000
United States	**4,176**	3,591
Canada	**341**	475
North America	**4,517**	4,066
South America	**314**	425
Saudi Arabia	**486**	365
Rest of Middle East	**570**	445
Middle East	**1,056**	810
China	**1,417**	1,236
Singapore	**518**	549
Japan	**333**	136
South Korea	**251**	278
Malaysia	**117**	78
India	**99**	99
Rest of Asia	**508**	546
Asia	**3,243**	2,922
Africa	**290**	144
Australasia	**188**	278
Other	**62**	80
	14,955	13,725

No single customer represented 10% or more of the Group's revenue.

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

	2016 £m	2015 £m
United Kingdom	**4,643**	4,072
Germany	**2,714**	2,339
United States	**1,046**	835
Nordic countries	**512**	598
Other	**1,161**	900
	10,076	8,744

3 Research and development

	2016 £m	2015 £m
Expenditure in the year	**(937)**	(831)
Capitalised as intangible assets	**99**	51
Amortisation of capitalised costs	**(147)**	(136)
Impairment of capitalised costs	**(2)**	–
Net research and development cost	**(987)**	(916)
Entry fees received	**73**	83
Entry fees deferred in respect of charges in future years	**(40)**	(28)
Recognition of previously deferred entry fees	**36**	43
Net cost recognised in the income statement	**(918)**	(818)
Underlying adjustments relating to effects of acquisition accounting and foreign exchange	**56**	53
Net underlying cost recognised in the income statement	**(862)**	(765)
Translation to 2015 exchange rates	**50**	–
Net underlying cost at 2015 exchange rates	**(812)**	(765)

4 Net financing

	Notes	2016 Per consolidated income statement £m	2016 *Underlying financing*[2] £m	2015 Per consolidated income statement £m	2015 *Underlying financing*[2] £m
Financing income					
Interest receivable		**14**	***14***	12	*12*
Net fair value gains on foreign currency contracts[1]	16	**1**	**–**	–	–
Financial RRSAs – foreign exchange differences and changes in forecast payments	16	**23**	**–**	21	–
Net fair value gains on commodity contracts[1]	16	**16**	**–**		
Financing on post-retirement scheme surpluses	18	**42**	**–**	65	–
Net foreign exchange gains[3]		**–**	**–**	17	*32*
		96	**14**	115	*44*
Financing costs					
Interest payable		**(77)**	***(77)***	(71)	*(71)*
Net fair value losses on foreign currency contracts[1]	16	**(4,437)**	**–**	(1,217)	–
Financial RRSAs – foreign exchange differences and changes in forecast payments	16	**(31)**	**–**	(13)	–
Financial charge relating to financial RRSAs	16	**(6)**	***(6)***	(8)	*(8)*
Net fair value losses on commodity contracts[1]	16	**–**	**–**	(89)	–
Financing on post-retirement scheme deficits	18	**(39)**	**–**	(33)	–
Net foreign exchange losses		**(145)**	**–**	–	–
Other financing charges		**(38)**	***(33)***	(25)	*(25)*
		(4,773)	***(116)***	(1,456)	*(104)*
Net financing		**(4,677)**	***(102)***	(1,341)	*(60)*
Analysed as:					
Net interest payable		**(63)**	***(63)***	(59)	*(59)*
Net fair value losses on derivative contracts		**(4,420)**	**–**	(1,306)	–
Net post-retirement scheme financing		**3**	**–**	32	–
Net other financing		**(197)**	***(39)***	(8)	*(1)*
Net financing		**(4,677)**	***(102)***	(1,341)	*(60)*
[1] Net loss on fair value items through profit or loss		**(4,420)**	**–**	(1,306)	–

[2] See note 2.
[3] The underlying financing income includes nil (2015: £34m) from gains on settlement of foreign exchange contracts following the receipt in the UK of dividends from overseas subsidiaries.

Notes to the consolidated financial statements continued

5 Taxation

	UK		Overseas		Total	
	2016 £m	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m
Current tax						
Current tax charge for the year	**12**	9	**187**	157	**199**	166
Less double tax relief	**–**	–	**–**	–	**–**	–
	12	9	**187**	157	**199**	166
Adjustments in respect of prior years	**(8)**	6	**4**	(23)	**(4)**	(17)
	4	15	**191**	134	**195**	149
Deferred tax						
Deferred tax credit for the year	**(804)**	(37)	**(44)**	(23)	**(848)**	(60)
Adjustments in respect of prior years	**(5)**	10	**24**	(5)	**19**	5
Deferred tax charge/(credit) resulting from reduction in tax rates	**30**	(18)	**–**	–	**30**	(18)
	(779)	(45)	**(20)**	(28)	**(799)**	(73)
Recognised in the income statement	**(775)**	(30)	**171**	106	**(604)**	76

OTHER TAX (CHARGES)/CREDITS

	OCI				Equity	
	Items that will not be reclassified		Items that may be reclassified			
	2016 £m	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m
Deferred tax:						
Movement in post-retirement schemes	**(179)**	257				
Share-based payments – direct to equity					**(2)**	(6)
Net investment hedge			**4**	(2)		
	(179)	257	**4**	(2)	**(2)**	(6)

TAX RECONCILIATION ON CONTINUING OPERATIONS

	2016 £m	2015 £m
(Loss)/profit before taxation	**(4,636)**	160
Less share of results of joint ventures and associates (note 10)	**(117)**	(100)
(Loss)/profit before taxation excluding joint ventures and associates	**(4,753)**	60
Nominal tax (credit)/charge at UK corporation tax rate 20% (2015: 20.25%)	**(951)**	12
UK tax rate differential[1]	**41**	20
Overseas rate differences[2]	**25**	43
Impairment of goodwill	**44**	13
Financial penalties from agreements with investigating bodies	**153**	–
Other permanent differences	**11**	5
Benefit to deferred tax from previously unrecognised tax losses and temporary differences	**(2)**	(7)
Tax losses in year not recognised in deferred tax	**30**	20
Adjustments in respect of prior years[3]	**15**	(12)
Reduction in closing deferred taxes resulting from decrease in tax rates	**30**	(18)
	(604)	76
Underlying items (note 2)	**261**	351
Non-underlying items	**(865)**	(275)
	(604)	76

[1] The UK tax rate differential arises on the difference between the appropriate 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, which have higher tax rates than the UK.
[3] The adjustments in respect of prior years include a £14m charge relating to losses in Norway no longer recognised due to the current uncertainty in the Marine oil and gas market.

5 Taxation continued

DEFERRED TAXATION ASSETS AND LIABILITIES

	2016 £m	2015 £m
At 1 January	**(521)**	(859)
Amount credited to income statement	**799**	73
Amount (charged)/credited to other comprehensive income	**(175)**	255
Amount charged to equity	**(2)**	(6)
Exchange differences	**(1)**	16
At 31 December	**100**	(521)
Deferred tax assets	**876**	318
Deferred tax liabilities	**(776)**	(839)
	100	(521)

The analysis of the deferred tax position is as follows:

	At 1 January 2016 £m	Recognised in income statement £m	Recognised in OCI £m	Recognised in equity £m	Exchange differences £m	At 31 December 2016 £m
Intangible assets	**(392)**	**11**	**–**	**–**	**(8)**	**(389)**
Property, plant and equipment	**(190)**	**14**	**–**	**–**	**(15)**	**(191)**
Other temporary differences	**21**	**15**	**4**	**–**	**(12)**	**28**
Amounts recoverable on contracts	**(539)**	**27**	**–**	**–**	**–**	**(512)**
Pensions and other post-retirement scheme benefits	**(90)**	**103**	**(179)**	**–**	**35**	**(131)**
Foreign exchange and commodity financial assets and liabilities	**306**	**620**	**–**	**–**	**–**	**926**
Losses	**343**	**(1)**	**–**	**(2)**	**(1)**	**339**
R&D expenditure credit	**20**	**10**	**–**	**–**	**–**	**30**
	(521)	**799**	**(175)**	**(2)**	**(1)**	**100**

	At 1 January 2015 £m	Recognised in income statement £m	Recognised in OCI £m	Recognised in equity £m	Exchange differences £m	At 31 December 2015 £m
Intangible assets	(455)	52	–	–	11	(392)
Property, plant and equipment	(195)	7	–	–	(2)	(190)
Other temporary differences	97	(69)	(2)	(7)	2	21
Amounts recoverable on contracts	(526)	(13)	–	–	–	(539)
Pensions and other post-retirement scheme benefits	(324)	(30)	257	–	7	(90)
Foreign exchange and commodity financial assets and liabilities	135	171	–	–	–	306
Losses	393	(49)	–	1	(2)	343
R&D expenditure credit	16	4	–	–	–	20
	(859)	73	255	(6)	16	(521)

UNRECOGNISED DEFERRED TAX ASSETS

	2016 £m	2015 £m
Advance corporation tax	**182**	182
Losses and other unrecognised deferred tax assets	**71**	36
Deferred tax not recognised on unused tax losses and other items on the basis that future economic benefit is uncertain[1]	**253**	218

[1] Advance corporation tax, tax losses and other deductible temporary differences are not expected to expire under current legislation.

DEFERRED TAXATION ASSETS AND LIABILITIES

Following announcements in the Summer Budget 2015 and the Budget 2016, the UK corporation tax rate will reduce to 19% from 1 April 2017 and 17% from 1 April 2020. The Summer Budget 2015 had originally announced that the rate would reduce to 18% from 1 April 2020. This reduction was substantively enacted on 26 October 2015 and so the prior year deferred tax assets and liabilities were calculated at this rate. The subsequent announcement in the Budget 2016 that the rate will reduce to 17% from 1 April 2020 was substantively enacted on 6 September 2016. As this reduction was substantively enacted prior to the year end, the closing deferred tax assets and liabilities have been calculated at this rate.

The resulting charges or credits have been recognised in the income statement except to the extent that they relate to items previously charged or credited to OCI or equity. Accordingly, in 2016, £30m has been charged to the income statement (2015: £18m credited) and £2m has been charged directly to equity (2015: £3m).

Notes to the consolidated financial statements continued

The temporary differences associated with investments in subsidiaries, joint ventures and associates, for which a deferred tax liability has not been recognised, aggregate to £276m (2015: £347m). 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 Employee information

	2016 Number	2015 Number
Average number of employees		
United Kingdom	**22,300**	23,200
Germany	**10,700**	10,700
United States	**6,300**	6,400
Nordics	**3,400**	3,800
Canada	**1,000**	1,100
Rest of world	**6,200**	5,300
	49,900	50,500
Civil Aerospace	**23,800**	23,100
Defence Aerospace	**6,000**	6,300
Power Systems	**10,300**	10,600
Marine	**5,300**	6,000
Nuclear	**4,300**	4,100
Other businesses and corporate[1, 2]	**200**	400
	49,900	50,500

	£m	£m
Group employment costs[3]		
Wages, salaries and benefits	**2,788**	2,514
Social security costs	**376**	334
Share-based payments (note 20)	**35**	5
Pensions and other post-retirement scheme benefits (note 18)	**623**	299
	3,822	3,152

[1] Other businesses and corporate includes Energy businesses not sold to Siemens in 2014 and corporate employees who do not provide a shared service to the segments. Where corporate functions provide such a service, employees have been allocated to the segments on an appropriate basis. 2015 figures have been restated on this basis.
[2] As described in note 1, the Group has reclassified certain joint ventures to joint operations from 1 January 2016. This increased the reported Group employees by 800.
[3] Remuneration of key management personnel is shown in note 23.

7 Auditors' remuneration

Fees payable to the Company's auditors and its associates were as follows:

	2016 £m	2015 £m
Fees payable to the Company's auditors for the audit of the Company's annual financial statements	**2.0**	1.9
Fees payable to the Company's auditors and its associates for the audit of the Company's subsidiaries pursuant to legislation[1]	**4.4**	3.7
Total fees payable for audit services	**6.4**	5.6
Fees payable to the Company's auditors and its associates for other services:		
Audit related assurance services	**0.3**	1.0
Taxation compliance services	**0.5**	0.4
All other services	**0.1**	–
	7.3	7.0
Fees payable in respect of the Group's pension schemes:		
Audit	**0.3**	0.2

[1] Audit fees for overseas entities are reported at the average exchange rate for the year. The weakening of sterling during 2016 gave rise to an increase of **£0.4m** compared to 2015.

8 Intangible assets

	Goodwill £m	Certification costs and participation fees £m	Development expenditure £m	Contractual aftermarket rights £m	Customer relationships £m	Software £m	Other £m	Total £m
Cost								
At 1 January 2015	1,675	1,079	1,707	638	469	543	518	6,629
Exchange differences	(87)	(7)	(32)	–	(14)	–	(16)	(156)
Additions	–	73	55	161	–	79	40	408
Acquisitions of businesses	1	–	–	–	1	–	1	3
Disposals	–	–	–	–	–	(6)	–	(6)
At 1 January 2016	**1,589**	**1,145**	**1,730**	**799**	**456**	**616**	**543**	**6,878**
Exchange differences	**284**	**26**	**116**	**–**	**84**	**16**	**66**	**592**
Additions	**–**	**154**	**100**	**208**	**–**	**116**	**53**	**631**
Acquisitions of businesses	**1**	**–**	**–**	**–**	**–**	**–**	**1**	**2**
Disposals	**–**	**–**	**(2)**	**–**	**–**	**(6)**	**–**	**(8)**
At 31 December 2016	**1,874**	**1,325**	**1,944**	**1,007**	**540**	**742**	**663**	**8,095**
Accumulated amortisation								
At 1 January 2015	16	311	564	389	96	259	190	1,825
Exchange differences	(5)	(1)	(10)	–	(3)	–	(3)	(22)
Charge for the year[1]	–	63	137	55	46	68	38	407
Impairment	75	–	–	–	–	–	–	75
Reversal of impairment	–	–	–	(50)	–	–	–	(50)
Disposals	–	–	–	–	–	(2)	–	(2)
At 1 January 2016	**86**	**373**	**691**	**394**	**139**	**325**	**225**	**2,233**
Exchange differences	**32**	**3**	**48**	**–**	**28**	**8**	**35**	**154**
Charge for the year[1]	**–**	**64**	**147**	**39**	**42**	**81**	**33**	**406**
Impairment	**219**	**–**	**2**	**–**	**–**	**–**	**1**	**222**
At 31 December 2016	**337**	**440**	**888**	**433**	**209**	**414**	**294**	**3,015**
Net book value								
At 31 December 2016	**1,537**	**885**	**1,056**	**574**	**331**	**328**	**369**	**5,080**
At 31 December 2015	1,503	772	1,039	405	317	291	318	4,645
At 1 January 2015	1,659	768	1,143	249	373	284	328	4,804

[1] Charged to cost of sales except development costs, which are charged to research and development costs.

Notes to the consolidated financial statements continued

8 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, or groups of cash-generating units, that are expected to benefit from the synergies of the business combination that gave rise to the goodwill as follows:

CASH-GENERATING UNIT (CGU) OR GROUP OF CGUs

	Primary reporting segment	2016 £m	2015 £m
Rolls-Royce Power Systems AG	Power Systems	**871**	739
Marine – arising from the acquisitions of Vinters Limited, Scandinavian Electric Holding AS and ODIM ASA	Marine	**401**	516
Rolls-Royce Deutschland Ltd & Co KG	Civil Aerospace	**236**	202
Other	Various	**29**	46
		1,537	1,503

Goodwill has been tested for impairment during 2016 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. Given the long-term and established nature of many of the Group's products (product lives are often measured in decades), these forecasts generally cover the next five-ten years. Growth rates for the period not covered by the forecasts are based on a range of growth rates 2.0-3.5%) 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.

Prior to 2016, goodwill in the Marine business was considered as separate CGUs, based on the original acquisitions (including ODIM ASA, Scandinavian Electric Holdings and Vinters Limited (formerly Vickers plc)). However, following re-organisations, including those resulting from the current transformation programme, we now consider that the Marine business (excluding the UK marine defence business) is a single CGU.

The Marine business has continued to be impacted by the low crude oil price and over supply of vessels to its offshore support customers. The downturn has been deeper and more prolonged than forecast a year ago and, as a consequence, the Group has recognised an impairment loss of £200m to the carrying value of goodwill of the CGU. This is included in cost of sales in the income statement, but excluded from the underlying results. The impairment loss is based on a value in use calculation using cash flows forecast over a ten-year period (which are considered to take account of the cyclicality of the market). The impairment test indicated a recoverable amount of £473m (including allowance for identified risks of £18m) compared with a pre-impairment carrying value of £673m.

The Group has also recognised other impairments to goodwill of £19m, including £14m in relation to its North American civil nuclear business. This reflects the current weakness in the services market, although the Directors expect these to recover in the medium term.

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

- **Rolls-Royce Power Systems AG** – Discount rate **11.7%** (2015: 11.7%). Volume of equipment deliveries, pricing achieved and cost escalation. These are based on current and known future programmes, estimates of capture of market share and long-term economic forecasts. The principal foreign exchange exposures are on translating income in a variety of non-functional currencies into euros. For the purposes of the impairment only, cash flows from recent management forecasts for a five-year period have been included. Cash flows beyond five years are assumed to grow at **2%** (2015: 2%). Reasonably possible changes in the key assumptions would cause the value in use of the goodwill to fall below its carrying value, which include a reduction in the level of cash generation of 13%, or an increase in the assumed discount rate of 1.5%. At 31 December 2016, the value in use exceeded the carrying value by €510m.
- **Marine business** – Discount rate **13%**, including an allowance of 0.8% to reflect uncertainties in market recovery and the achievement of cost savings, (2015: 13%). Volume of equipment deliveries, capture of aftermarket and cost escalation. These are based on current and known future programmes, estimates of customers' fleet requirements and long-term economic forecasts. The principal foreign exchange exposures are on translating income in a variety of non-functional currencies into Norwegian kroner. For the purposes of the impairment test only, cash flows beyond the ten-year forecasts are assumed to grow at **2.5%** (2015: 2.5%). Any further deterioration of the market would require additional impairment. For example if the market recovery were delayed by one year, compared to that assumed, this would result in an additional impairment of around £60m.
- **Rolls-Royce Deutschland Ltd & Co KG** – Discount rate **13%** (2015: 13%). Volume of engine deliveries, flying hours of installed fleet and cost escalation. These are based on current and known future programmes, estimates of customers' fleet requirements and long-term economic forecasts. The principal foreign exchange exposure is on translating US dollar income into euros. For the purposes of the impairment test only, cash flows beyond the ten-year forecasts are assumed to grow at **2.5%** (2015: 2.5%). The Directors do not consider that any reasonably possible change in the key assumptions would cause the value in use of the goodwill to fall below its carrying value. The overall level of business would need to reduce by around 70% to cause an impairment of this balance.

8 Intangible assets continued

OTHER INTANGIBLE ASSETS

Certification costs and participation fees, development costs and contractual aftermarket rights 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 **9-13%** (2015: 9-13%), 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.

No impairment is required on this basis. However, a combination of adverse changes in assumptions (eg. market size and share, unit costs and programme delays) and other variables (eg. discount rate and foreign exchange rates), could result in impairment in future years.

Notes to the consolidated financial statements continued

9 Property, plant and equipment

	Land and buildings £m	Plant and equipment £m	Aircraft and engines £m	In course of construction £m	Total £m
Cost					
At 1 January 2015	1,334	3,600	321	795	6,050
Exchange differences	(20)	(39)	(2)	(3)	(64)
Additions	18	117	19	340	494
Acquisitions of businesses	–	1	–	–	1
Disposals of businesses	–	(1)	–	–	(1)
Reclassifications	81	335	7	(423)	–
Transferred to assets held for sale	(8)	(23)	(2)	–	(33)
Disposals/write-offs	(30)	(96)	(4)	(1)	(131)
At 1 January 2016	**1,375**	**3,894**	**339**	**708**	**6,316**
Exchange differences	**141**	**352**	**12**	**55**	**560**
Reclassification of joint ventures to joint operations	**7**	**87**	**–**	**–**	**94**
Additions – purchased	**25**	**124**	**51**	**426**	**626**
Additions – arising from TotalCare Flex contracts (non-cash)	**–**	**–**	**75**	**–**	**75**
Disposals of businesses	**(1)**	**(3)**	**–**	**–**	**(4)**
Reclassifications	**131**	**230**	**63**	**(424)**	**–**
Disposals/write-offs	**(11)**	**(85)**	**(49)**	**–**	**(145)**
At 31 December 2016	**1,667**	**4,599**	**491**	**765**	**7,522**
Accumulated depreciation					
At 1 January 2015	391	2,109	103	1	2,604
Exchange differences	(7)	(24)	(1)	–	(32)
Charge for the year[1]	48	299	26	–	373
Impairment	3	2	–	–	5
Disposals of businesses	–	(1)	–	–	(1)
Transferred to assets held for sale	(5)	(20)	(1)	–	(26)
Disposals/write-offs	(14)	(81)	(2)	–	(97)
At 1 January 2016	**416**	**2,284**	**125**	**1**	**2,826**
Exchange differences	**44**	**182**	**4**	**–**	**230**
Reclassification of joint ventures to joint operations	**1**	**52**	**–**	**–**	**53**
Charge for the year[1]	**63**	**333**	**28**	**–**	**424**
Impairment	**1**	**–**	**–**	**1**	**2**
Disposals of businesses	**–**	**(2)**	**–**	**–**	**(2)**
Reclassifications	**–**	**(9)**	**9**	**–**	**–**
Disposals/write-offs	**(10)**	**(75)**	**(40)**	**–**	**(125)**
At 31 December 2016	**515**	**2,765**	**126**	**2**	**3,408**
Net book value					
At 31 December 2016	**1,152**	**1,834**	**365**	**763**	**4,114**
At 31 December 2015	959	1,610	214	707	3,490
At 1 January 2015	943	1,491	218	794	3,446

[1] Depreciation charged during the year is included in the income statement or included in the cost of inventory as appropriate.

9 Property, plant and equipment continued

Property, plant and equipment includes:

	2016 £m	2015 £m
Net book value of finance leased assets:		
Land and buildings	**5**	5
Plant and equipment	**6**	7
Aircraft and engines	**42**	40
Assets held for use in operating leases:		
Cost	**413**	321
Depreciation	**(108)**	(87)
Net book value	**305**	234
Capital expenditure commitments	**252**	167
Cost of fully depreciated assets	**1,059**	853

The Group's share of equity accounted entities' capital commitments is **£72m** (2015: £75m).

10 Investments

COMPOSITION OF THE GROUP

The entities contributing to the Group's financial results are listed on pages 134 to 139.

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 2015	535	4	539	31
Exchange differences	7	–	7	(2)
Additions	12	3	15	6
Taxation paid by the Group	(3)	–	(3)	–
Share of retained profit/(loss)	42	(5)	37	–
Impairment	–	–	–	(2)
Share of OCI – may be reclassified to profit or loss	(19)	–	(19)	–
At 1 January 2016	**574**	**2**	**576**	**33**
Exchange differences	**109**	**(2)**	**107**	**5**
Increase in share in joint ventures	**154**	**–**	**154**	**–**
Other additions	**20**	**10**	**30**	**–**
Reclassification of joint ventures to joint operations	**(57)**	**–**	**(57)**	**–**
Share of retained profit/(loss)	**44**	**(1)**	**43**	**–**
Share of OCI – will not be reclassified to profit or loss	**(2)**	**–**	**(2)**	**–**
Share of OCI – may be reclassified to profit or loss	**(7)**	**–**	**(7)**	**–**
At 31 December 2016	**835**	**9**	**844**	**38**

Notes to the consolidated financial statements continued

10 Investments continued

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

	Principal location	Activity	Ownership interest[1]
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% (45.0%)
Singapore Aero Engine Services Pte Limited (SAESL)	Singapore	Aero engine repair and overhaul	50.0% (39.0%)
Industria de Turbo Propulsores SA (ITP)	Spain	Aero engine component manufacture and maintenance	46.9%

[1] Figures in brackets are 2015 ownership interest, if different. During 2016, the Group completed the changes to the Approved Maintenance Centres announced in November 2015, resulting in increases in the ownership interests in HAESL and SAESL.

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

	APL		HAESL		SAESL		ITP	
	2016 £m	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m
Revenue	**151**	130	**799**	652	**763**	626	**615**	520
Profit for the year	**58**	65	**233**	27	**33**	46	**50**	40
Other comprehensive income	**–**	–	**–**	–	**–**	–	**–**	–
Total comprehensive income for the year	**58**	65	**233**	27	**33**	46	**50**	40
Dividends received during the year	**(27)**	(29)	**(237)**	(23)	**(24)**	(35)	**(19)**	(19)
Profit for the year included the following:								
Depreciation and amortisation	**(82)**	(59)	**(10)**	(8)	**(12)**	(5)	**(45)**	(37)
Interest income	**–**	–	**–**	–	**–**	–	**11**	10
Interest expense	**(24)**	(17)	**(1)**	(1)	**(2)**	–	**(16)**	(16)
Income tax expense	**(5)**	(7)	**(8)**	(5)	**–**	–	**7**	7
Current assets	**176**	129	**248**	223	**307**	218	**731**	576
Non-current assets	**1,888**	1,349	**105**	85	**167**	125	**701**	626
Current liabilities	**(348)**	(70)	**(88)**	(116)	**(146)**	(75)	**(497)**	(416)
Non-current liabilities	**(1,296)**	(1,123)	**(79)**	(38)	**(143)**	(136)	**(485)**	(431)
Net assets	**420**	285	**186**	154	**185**	132	**450**	355
Included in the above:								
Cash and cash equivalents	**21**	20	**12**	4	**7**	10	**274**	225
Current financial liabilities[1]	**(292)**	(19)	**(7)**	–	**–**	–	**(12)**	(25)
Non-current financial liabilities[1]	**(1,111)**	(969)	**(71)**	(30)	**(143)**	(136)	**(331)**	(273)

[1] Excluding trade and other payables.

Reconciliation to the carrying amount recognised in the consolidated financial statements

Ownership interest	**50.0%**	50.0%	**50.0%**	45.0%	**50.0%**	39.0%	**46.9%**	46.9%
Group share of net assets above	**210**	143	**93**	69	**93**	51	**211**	166
Goodwill	**–**	–	**38**	–	**100**	–	**–**	–
Adjustments for intercompany trading	**–**	–	**–**	–	**–**	–	**(43)**	(33)
Included in the consolidated balance sheet	**210**	143	**131**	69	**193**	51	**168**	133

On 11 July 2016, the Group announced that it will purchase the outstanding 53.1% shareholding in ITP owned by SENER Grupo de Ingeniería SA (SENER). This follows a decision by SENER to exercise its put option. On 28 November 2016, and following due diligence, the Group confirmed the valuation of €720m. Under the agreement, consideration will be settled over a two-year period following completion in eight evenly spaced instalments of equal value. The updated agreement allows flexibility to settle the consideration either in cash, in the form of Rolls-Royce shares or any mixture of the two, as preferred by Rolls-Royce. A decision as to whether each payment will be settled in cash, shares or cash and shares will be determined by Rolls-Royce during the payment period.

Completion remains subject to regulatory clearances and is expected in 2017.

10 Investments continued

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

	Individually material joint ventures (above)		Other joint ventures		Associates		Total	
	2016 £m	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m
Assets:								
Non-current assets	**1,503**	1,016	**921**	982	**8**	–	**2,432**	1,998
Current assets	**710**	523	**383**	320	**1**	2	**1,094**	845
Liabilities:[1]								
Current liabilities	**(524)**	(312)	**(266)**	(229)	**–**	–	**(790)**	(541)
Non-current liabilities	**(987)**	(831)	**(905)**	(895)	**–**	–	**(1,892)**	(1,726)
	702	396	**133**	178	**9**	2	**844**	576
[1] Liabilities include borrowings of	**(970)**	(700)	**(761)**	(773)	**–**	–	**(1,731)**	(1,473)
Profit for the year	**84**	82	**34**	23	**(1)**	(5)	**117**	100
Other comprehensive income	**–**	–	**(7)**	(19)	**–**	–	**(7)**	(19)
Total comprehensive income for the year	**84**	82	**27**	4	**(1)**	(5)	**110**	81

11 Inventories

	2016 £m	2015 £m
Raw materials	**529**	509
Work in progress	**1,199**	882
Long-term contracts work in progress	**18**	23
Finished goods	**1,312**	1,173
Payments on account	**28**	50
	3,086	2,637
Inventories stated at net realisable value	**271**	221
Amount of inventory write-down	**74**	64
Reversal of inventory write-down	**8**	14

12 Trade and other receivables

	2016 £m	2015 £m
Trade receivables	**1,945**	1,612
Amounts recoverable on contracts[1]	**3,514**	3,179
Amounts owed by parent undertaking	**2,550**	1,741
Amounts owed by joint ventures and associates	**297**	252
Other receivables	**1,003**	1,006
Prepayments and accrued income	**197**	195
	9,506	7,985
Analysed as:		
Financial instruments (note 16):		
Trade receivables and similar items	**2,470**	2,061
Other non-derivative financial assets	**811**	843
Non-financial instruments	**6,225**	5,081
	9,506	7,985
Trade and other receivables expected to be recovered in more than one year:		
Trade receivables	**81**	57
Amounts recoverable on contracts	**3,020**	2,768
Amounts owed by joint ventures and associates	**–**	1
Other receivables	**109**	131
Prepayments and accrued income	**69**	68
	3,279	3,025

[1] Amounts recoverable on contracts include **£3,348m** (2015: £2,994m) of TotalCare assets.

Notes to the consolidated financial statements continued

13 Cash and cash equivalents

	2016 £m	2015 £m
Cash at bank and in hand	**872**	662
Money-market funds	**552**	783
Short-term deposits	**1,347**	1,731
	2,771	3,176
Overdrafts (note 14)	**–**	–
Cash and cash equivalents per cash flow statement (page 65)	**2,771**	3,176
Cash held as collateral against third party obligations (note 17)	**38**	35

Cash and cash equivalents at 31 December 2016 include **£34m** (2015: £21m) that is not available for general use by the Group. This balance relates to cash held in non-wholly owned subsidiaries and the Group's captive insurance company.

14 Borrowings

	Current		Non-current		Total	
	2016 £m	2015 £m	2016 £m	2015 £m	2016 £m	2015 £m
Unsecured						
Overdrafts	**–**	–	**–**	–	**–**	–
Bank loans	**169**	217	**271**	330	**440**	547
7 3/8% Notes 2016 £200m	**–**	200	**–**	–	**–**	200
6.75% Notes 2019 £500m[1]	**–**	–	**534**	536	**534**	536
2.375% Notes 2020 US$500m[2]	**–**	–	**403**	333	**403**	333
2.125% Notes 2021 €750m[2]	**–**	–	**682**	576	**682**	576
3.625% Notes 2025 US$1,000m[2]	**–**	–	**814**	668	**814**	668
3.375% Notes 2026 £375m[1]	**–**	–	**417**	390	**417**	390
Secured						
Obligations under finance leases[3]	**3**	2	**64**	50	**67**	52
	172	419	**3,185**	2,883	**3,357**	3,302

[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 interest rate swap agreements under which the Group has undertaken to pay floating rates of interest, and currency swaps which form a fair value hedge.
[3] Obligations under finance leases are secured by related leased assets.

15 Trade and other payables

	Current		Non-current		Total	
	2016 £m	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m
Payments received on account[1]	**1,246**	1,491	**1,024**	516	**2,270**	2,007
Trade payables	**1,981**	1,397	**–**	23	**1,981**	1,420
Amounts owed to parent undertaking	**985**	497	**–**	–	**985**	497
Amounts owed to joint ventures and associates	**268**	197	**3**	2	**271**	199
Other taxation and social security	**93**	90	**–**	1	**93**	91
Other payables	**2,243**	1,784	**784**	361	**3,027**	2,145
Accruals and deferred income	**2,126**	1,964	**1,648**	1,414	**3,774**	3,378
	8,942	7,420	**3,459**	2,317	**12,401**	9,737
[1] Includes payments received on account from joint ventures and associates	**140**	161	**17**	35	**157**	196

Included within trade and other payables are government grants of **£75m** (2015: £64m). During the year, **£11m** (2015: £21m) of government grants were released to the income statement.

Included in accruals and deferred income are deferred receipts from RRSA workshare partners of **£233m** (2015: £228m), **£907m** (2015: £783m) of TotalCare liabilities and **£671m** (2015: nil) for financial penalties from agreements with investigating bodies.

Trade and other payables are analysed as follows:

	2016 £m	2015 £m
Financial instruments (note 16):		
Trade payables and similar items	**3,889**	3,101
Other non-derivative financial liabilities	**1,660**	817
Non-financial instruments	**6,852**	5,819
	12,401	9,737

Notes to the consolidated financial statements continued

16 Financial instruments

CARRYING VALUES AND FAIR VALUES OF FINANCIAL INSTRUMENTS

			Assets				Liabilities		Total
	Notes	Basis for determining fair value	Fair value through profit or loss £m	Loans and receivables £m	Available for sale £m	Cash £m	Fair value through profit or loss £m	Other £m	£m
2016									
Unlisted non-current asset investments	10	A	**–**	**38**	**–**	**–**	**–**	**–**	**38**
Trade receivables and similar items	12	B	**–**	**2,470**	**–**	**–**	**–**	**–**	**2,470**
Other non-derivative financial assets	12	B	**–**	**811**	**–**	**–**	**–**	**–**	**811**
Derivative financial assets[1]		C	**387**	**–**	**–**	**–**	**–**	**–**	**387**
Short-term investments		B	**–**	**3**	**–**	**–**	**–**	**–**	**3**
Cash and cash equivalents	13	B	**–**	**1,347**	**552**	**872**	**–**	**–**	**2,771**
Borrowings	14	D	**–**	**–**	**–**	**–**	**–**	**(3,357)**	**(3,357)**
Derivative financial liabilities[1]		C	**–**	**–**	**–**	**–**	**(5,636)**	**–**	**(5,636)**
Financial RRSAs		E	**–**	**–**	**–**	**–**	**–**	**(101)**	**(101)**
TotalCare Flex		D	**–**	**–**	**–**	**–**	**–**	**(15)**	**(15)**
Trade payables and similar items	15	B	**–**	**–**	**–**	**–**	**–**	**(3,889)**	**(3,889)**
Other non-derivative financial liabilities	15	B	**–**	**–**	**–**	**–**	**–**	**(1,660)**	**(1,660)**
			387	**4,669**	**552**	**872**	**(5,636)**	**(9,022)**	**(8,178)**
2015									
Unlisted non-current asset investments	10	A	–	33	–	–	–	–	33
Trade receivables and similar items	12	B	–	2,061	–	–	–	–	2,061
Other non-derivative financial assets	12	B	–	843	–	–	–	–	843
Derivative financial assets[1]		C	112	–	–	–	–	–	112
Short-term investments		B	–	2	–	–	–	–	2
Cash and cash equivalents	13	B	–	1,731	783	662	–	–	3,176
Borrowings	14	D	–	–	–	–	–	(3,302)	(3,302)
Derivative financial liabilities[1]		C	–	–	–	–	(1,843)	–	(1,843)
Financial RRSAs		E	–	–	–	–	–	(110)	(110)
Trade payables and similar items	15	B	–	–	–	–	–	(3,101)	(3,101)
Other non-derivative financial liabilities	15	B	–	–	–	–	–	(817)	(817)
			112	4,670	783	662	(1,843)	(7,330)	(2,946)

[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 nil and liabilities £5,249m.

Fair values equate to book values for both 2016 and 2015, with the following exceptions:

	2016		2015	
	Book value £m	Fair value £m	Book value £m	Fair value £m
Borrowings	**(3,357)**	**(3,413)**	(3,302)	(3,312)
Financial RRSAs	**(101)**	**(109)**	(110)	(110)

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

A These primarily comprise unconsolidated companies where fair value approximates to the book value.
B Fair values are assumed to approximate to cost either due to the short-term maturity of the instruments or because the interest rate of the investments is reset after periods not exceeding six months.
C Fair values of derivative financial assets and liabilities 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 Borrowings and TotalCare Flex liabilities 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 *Fair Value Measurement*).
E The fair value of RRSAs is 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 *Fair Value Measurement* defines a three-level valuation hierarchy:
Level 1 – quoted prices for similar instruments
Level 2 – directly observable market inputs other than Level 1 inputs
Level 3 – inputs not based on observable market data

16 Financial instruments continued

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	TotalCare Flex £m	Total £m
2016							
Non-current assets	**13**	**5**	**364**	**382**	**–**	**–**	**382**
Current assets	**4**	**1**	**–**	**5**	**–**	**–**	**5**
Assets	**17**	**6**	**364**	**387**	**–**	**–**	**387**
Current liabilities	**(566)**	**(24)**	**–**	**(590)**	**(33)**	**–**	**(623)**
Non-current liabilities	**(5,002)**	**(38)**	**(6)**	**(5,046)**	**(68)**	**(15)**	**(5,129)**
Liabilities	**(5,568)**	**(62)**	**(6)**	**(5,636)**	**(101)**	**(15)**	**(5,752)**
	(5,551)	**(56)**	**358**	**(5,249)**	**(101)**	**(15)**	**(5,365)**
2015							
Non-current assets	3	–	80	83	–	–	83
Current assets	29	–	–	29	–	–	29
Assets	32	–	80	112	–	–	112
Current liabilities	(244)	(39)	–	(283)	(19)	–	(302)
Non-current liabilities	(1,428)	(65)	(67)	(1,560)	(91)	–	(1,651)
Liabilities	(1,672)	(104)	(67)	(1,843)	(110)	–	(1,953)
	(1,640)	(104)	13	(1,731)	(110)	–	(1,841)

[1] Includes the FX 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 US dollars, 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		Total	
	2016 £m	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m
At 1 January	**(1,640)**	(639)	**(104)**	(43)	**13**	52	**(1,731)**	(630)
Currency options at inception[1]	**(33)**	(20)	**–**	–	**–**	–	**(33)**	(20)
Movements in fair value hedges[2]	**–**	1	**–**	–	**345**	(36)	**345**	(35)
Movements in other derivative contracts[3]	**(4,436)**	(1,217)	**16**	(89)	**–**	–	**(4,420)**	(1,306)
Contracts settled[4]	**558**	235	**32**	28	**–**	(3)	**590**	260
At 31 December	**(5,551)**	(1,640)	**(56)**	(104)	**358**	13	**(5,249)**	(1,731)

[1] The Group has written currency options to sell USD and buy GBP as part of a commercial agreement. The fair values of these options on inception are treated as a discount to the customer.
[2] Loss on related hedged items **£345m** (2015: £35m gain).
[3] Included in financing
[4] Includes **nil** contracts settled in fair value hedges (2015: £8m).

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.

Notes to the consolidated financial statements continued

16 Financial instruments continued

Movements in the carrying values were as follows:

	Financial RRSAs		TotalCare Flex
	2016 £m	2015 £m	**2016 £m**
At 1 January	**(110)**	(145)	**–**
Exchange adjustments included in OCI	**5**	–	**–**
Additions	**–**	–	**(14)**
Financing charge[1]	**(6)**	(8)	**(1)**
Excluded from underlying profit:			
Changes in forecast payments[1]	**5**	11	**–**
Exchange adjustments[1]	**(13)**	(3)	**(3)**
Cash paid to partners	**18**	35	**–**
Other	**–**	–	**3**
At 31 December	**(101)**	(110)	**(15)**

[1] Included in financing.

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. For accounting purposes, these derivative contracts are not designated as hedging instruments.

The Group also has exposures to the fair values of non-derivative financial instruments denominated in foreign currencies. To manage the risk of changes in these fair values, the Group enters into derivative forward foreign exchange contracts, which are designated as fair value hedges for accounting purposes. 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. Where appropriate, foreign currency financial liabilities may be designated as hedges of the net investment.

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 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 within the Group policy, which is to maintain a higher proportion of net debt at floating rates of interest as a natural hedge to the net cash position. These are designated as either fair value or cash flow hedges as appropriate.

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. For accounting purposes, these derivative contracts are not designated as hedging instruments.

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.

16 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 2016							
Foreign exchange contracts:							
Non-hedge accounted	**29,327**	**5,826**	**4,867**	**15,011**	**3,623**	**17**	**(5,568)**
Interest rate contracts:							
Fair value hedges	**2,735**	**–**	**–**	**1,548**	**1,187**	**358**	**–**
Non-hedge accounted	**–**	**–**	**–**	**–**	**–**	**6**	**(6)**
Commodity contracts:							
Non-hedge accounted	**300**	**83**	**80**	**122**	**15**	**6**	**(62)**
	32,362	**5,909**	**4,947**	**16,681**	**4,825**	**387**	**(5,636)**
At 31 December 2015							
Foreign exchange contracts:							
Non-hedge accounted	22,418	5,736	4,266	11,637	779	32	(1,672)
Interest rate contracts:							
Fair value hedges	2,437	–	–	500	1,937	74	(61)
Non-hedge accounted	–	–	–	–	–	6	(6)
Commodity contracts:							
Non-hedge accounted	268	90	72	83	23	–	(104)
	25,123	5,826	4,338	12,220	2,739	112	(1,843)

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

Derivative financial instruments related to foreign exchange risks are denominated in the following currencies:

	Currencies purchased forward				
	Sterling £m	US dollar £m	Euro £m	Other £m	Total £m
At 31 December 2016					
Currencies sold forward:					
Sterling	**–**	**–**	**246**	**274**	**520**
US dollar	**25,330**	**–**	**1,885**	**984**	**28,199**
Euro	**36**	**148**	**–**	**196**	**380**
Other	**13**	**101**	**105**	**9**	**228**
At 31 December 2015					
Currencies sold forward:					
Sterling	–	383	–	221	604
US dollar	18,869	–	1,552	902	21,323
Euro	2	76	–	125	203
Other	131	12	143	2	288

Other derivative financial instruments are denominated in the following currencies:

	2016 £m	2015 £m
Sterling	**875**	875
US dollar	**1,515**	1,279
Euro	**645**	550

Notes to the consolidated financial statements continued

16 Financial instruments continued

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

	Sterling £m	US dollar £m	Euro £m	Other £m	Total £m
At 31 December 2016					
Unlisted non-current investments	**–**	**1**	**36**	**1**	**38**
Trade receivables and similar items	**160**	**1,567**	**653**	**90**	**2,470**
Other non-derivative financial assets	**284**	**271**	**123**	**133**	**811**
Short-term investments	**–**	**–**	**–**	**3**	**3**
Cash and cash equivalents	**1,134**	**831**	**507**	**299**	**2,771**
Assets	**1,578**	**2,670**	**1,319**	**526**	**6,093**
Borrowings	**(1,194)**	**(1,374)**	**(783)**	**(6)**	**(3,357)**
Financial RRSAs	**9**	**(78)**	**(32)**	**–**	**(101)**
TotalCare Flex	**–**	**(15)**	**–**	**–**	**(15)**
Trade payables and similar items	**(1,730)**	**(1,437)**	**(573)**	**(149)**	**(3,889)**
Other non-derivative financial liabilities	**(889)**	**(588)**	**(138)**	**(45)**	**(1,660)**
Liabilities	**(3,804)**	**(3,492)**	**(1,526)**	**(200)**	**(9,022)**
	(2,226)	**(822)**	**(207)**	**326**	**(2,929)**
At 31 December 2015					
Unlisted non-current investments	–	1	31	1	33
Trade receivables and similar items	131	1,228	613	89	2,061
Other non-derivative financial assets	280	350	102	111	843
Short-term investments	–	–	–	2	2
Cash and cash equivalents	1,554	959	446	217	3,176
Assets	1,965	2,538	1,192	420	6,115
Borrowings	(1,369)	(1,162)	(768)	(3)	(3,302)
Financial RRSAs	–	(75)	(35)	–	(110)
Trade payables and similar items	(1,536)	(859)	(523)	(183)	(3,101)
Other non-derivative financial liabilities	(242)	(303)	(139)	(133)	(817)
Liabilities	(3,147)	(2,399)	(1,465)	(319)	(7,330)
	(1,182)	139	(273)	101	(1,215)

CURRENCY EXPOSURES

The Group's actual currency exposures 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 2016					
Sterling	**–**	**(1)**	**3**	**–**	**2**
US dollar	**(22)**	**–**	**(2)**	**19**	**(5)**
Euro	**(2)**	**(1)**	**–**	**1**	**(2)**
Other	**3**	**9**	**18**	**2**	**32**
At 31 December 2015					
Sterling	–	–	1	27	28
US dollar	(12)	1	–	8	(3)
Euro	4	–	–	–	4
Other	–	3	1	(1)	3

16 Financial instruments continued

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 2016					
Unlisted non-current asset investments	**38**	**–**	**–**	**–**	**38**
Trade receivables and similar items	**2,133**	**218**	**85**	**34**	**2,470**
Other non-derivative financial assets	**796**	**13**	**–**	**2**	**811**
Derivative financial assets	**387**	**–**	**–**	**–**	**387**
Short-term investments	**3**	**–**	**–**	**–**	**3**
Cash and cash equivalents	**2,771**	**–**	**–**	**–**	**2,771**
	6,128	**231**	**85**	**36**	**6,480**
At 31 December 2015					
Unlisted non-current asset investments	33	–	–	–	33
Trade receivables and similar items	1,745	184	98	34	2,061
Other non-derivative financial assets	835	5	1	2	843
Derivative financial assets	112	–	–	–	112
Short-term investments	2	–	–	–	2
Cash and cash equivalents	3,176	–	–	–	3,176
	5,903	189	99	36	6,227

CONTRACTUAL MATURITY ANALYSIS OF FINANCIAL LIABILITIES

	Gross values					
	Within one year £m	Between one and two years £m	Between two and five years £m	After five years £m	Discounting £m	Carrying value £m
At 31 December 2016						
Borrowings	**(276)**	**(114)**	**(2,007)**	**(1,458)**	**498**	**(3,357)**
Derivative financial liabilities	**(604)**	**(1,297)**	**(3,190)**	**(1,418)**	**873**	**(5,636)**
Financial RRSAs	**(24)**	**(26)**	**(66)**	**(2)**	**17**	**(101)**
TotalCare Flex	**–**	**–**	**(18)**	**–**	**3**	**(15)**
Trade payables and similar items	**(3,860)**	**(15)**	**–**	**(14)**	**–**	**(3,889)**
Other non-derivative financial liabilities	**(1,080)**	**(68)**	**(438)**	**(74)**	**–**	**(1,660)**
	(5,844)	**(1,520)**	**(5,719)**	**(2,966)**	**1,391**	**(14,658)**
At 31 December 2015						
Borrowings	(530)	(161)	(1,317)	(1,897)	603	(3,302)
Derivative financial liabilities	(286)	(329)	(1,026)	(314)	112	(1,843)
Financial RRSAs	(16)	(20)	(76)	(10)	12	(110)
Trade payables and similar items	(3,059)	(38)	(4)	–	–	(3,101)
Other non-derivative financial liabilities	(640)	(43)	(74)	(60)	–	(817)
	(4,531)	(591)	(2,497)	(2,281)	727	(9,173)

Notes to the consolidated financial statements continued

16 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 and the periods in which they reprice. The value shown is the carrying amount.

At 31 December 2016	Effective interest rate %	Total £m	Period in which interest rate reprices: 6 months or less £m	Period in which interest rate reprices: 6-12 months £m
Short-term investments [1]		3	1	2
Cash and cash equivalents [2]		2,771	2,771	–
Unsecured bank loans				
Other borrowings		(107)	–	–
£200m floating rate loan	GBP LIBOR + 1.26	(200)	(200)	–
£43m floating rate loan	GBP LIBOR + 0.402	(43)	(43)	–
€125m fixed rate loan	2.6000%	–	–	–
€75m fixed rate loan	2.0600%	(64)	–	–
€50m fixed rate loan	2.3500%	(26)	–	–
Unsecured bond issues				
6.75% Notes 2019 £500m	6.7500%	(534)	–	–
Effect of interest rate swaps	GBP LIBOR + 2.9824	–	(534)	–
2.375% Notes 2020 $500m	2.3750%	(403)	–	–
Effect of interest rate swaps	GBP LIBOR + 0.8410	–	(403)	–
2.125% Notes 2021 €750m	2.1250%	(682)	–	–
Effect of interest rate swaps	GBP LIBOR +0.7005	–	(682)	–
3.625% Notes 2025 $1,000m	3.6250%	(814)	–	–
Effect of interest rate swaps	GBP LIBOR + 1.4658	–	(814)	–
3.375% Notes 2026 £375m	3.3750%	(417)	–	–
Effect of interest rate swaps	GBP LIBOR + 0.8930	–	(417)	–
Other secured				
Obligations under finance leases	4.5488%	(67)	–	–
		(583)		

At 31 December 2015	Effective interest rate %	Total £m	Period in which interest rate reprices: 6 months or less £m	Period in which interest rate reprices: 6-12 months £m
Short-term investments [1]		2	2	–
Cash and cash equivalents [2]		3,176	3,176	–
Unsecured bank loans				
Other borrowings		(129)	(1)	–
£200m floating rate loan	GBP LIBOR + 1.26	(200)	(200)	–
£43m floating rate loan	GBP LIBOR + 0.402	(43)	(43)	–
€125m fixed rate loan	2.6000%	(92)	–	–
€75m fixed rate loan	2.0600%	(55)	–	–
€50m fixed rate loan	2.3500%	(28)	–	–
Unsecured bond issues				
7 3/8% Notes 2016 £200m	7.3750%	(200)	–	–
6.75% Notes 2019 £500m	6.7500%	(536)	–	–
Effect of interest rate swaps	GBP LIBOR + 2.9824	–	(536)	–
2.375% Notes 2020 $500m	2.3750%	(333)	–	–
Effect of interest rate swaps	GBP LIBOR + 0.8410	–	(333)	–
2.125% Notes 2021 €750m	2.1250%	(576)	–	–
Effect of interest rate swaps	GBP LIBOR + 0.7005	–	(576)	–
3.625% Notes 2025 $1,000m	3.6250%	(668)	–	–
Effect of interest rate swaps	GBP LIBOR + 1.4658	–	(668)	–
3.375% Notes 2026 £375m	3.3750%	(390)	–	–
Effect of interest rate swaps	GBP LIBOR + 0.8930	–	(390)	–
Other secured				
Obligations under finance leases	4.1089%	(52)		
		(124)		

[1] Interest on the short-term investments are at fixed rates.
[2] Cash and cash equivalents comprise bank balances and demand deposits and earn interest at rates based on daily deposit rates.

16 Financial instruments continued

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. 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 **£2,280m** (2015: £1,780m) of undrawn committed borrowing facilities available for at least the next two years.

SENSITIVITY ANALYSIS

Sensitivities at 31 December (all other variables held constant) – impact on profit after tax and equity	2016 £m	2015 £m
Sterling 10% weaker against the US dollar	**(2,552)**	(1,574)
Sterling 10% stronger against the US dollar	**2,089**	1,288
Euro 10% weaker against the US dollar	**(158)**	(130)
Euro 10% stronger against the US dollar	**133**	111
Sterling 10% weaker against the Euro	**26**	18
Sterling 10% stronger against the Euro	**(21)**	(15)
Commodity prices 10% lower	**(19)**	(13)
Commodity prices 10% higher	**19**	13

At 31 December 2016 the Group had no material sensitivity to changes in interest rates on that date. The main interest rate sensitivity for the Group arises as a result of the gross up of net cash and this is mitigated as described under the interest rate risk management policies on page 98.

Notes to the consolidated financial statements continued

17 Provisions for liabilities and charges

	At 1 January 2016 £m	Exchange differences £m	Unused amounts reversed £m	Charged to income statement £m	Utilised £m	At 31 December 2016 £m
Warranty and guarantees[1]	381	55	(24)	171	(109)	474
Contract loss	36	7	(4)	18	(3)	54
Restructuring	66	3	(19)	35	(41)	44
Customer financing	20	–	–	5	(6)	19
Insurance	67	–	(24)	36	(11)	68
Other	70	10	(27)	104	(57)	100
	640	75	(98)	369	(227)	759
Current liabilities	336					543
Non-current liabilities	304					216

[1] During 2016, following a review of consistency, £92m of accruals have been reclassified as provisions. Prior figures have not been restated.

Provisions for warranties and guarantees primarily relate to products sold and generally cover a period of up to three years.

Provisions for contract loss and restructuring are generally expected to be utilised within two years.

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$3.2bn (2015: US$3.1bn) to provide borrowing facilities to enable customers to purchase aircraft (of which approximately US$421m could be called during 2017). 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.

Customer financing provisions cover guarantees provided for asset value and/or financing. These guarantees, the risks arising and the process used to assess the extent of the risk are described under the heading 'Customer financing' in the Financial review on page 37. It is estimated that the provision will be utilised as follows:

	2016 £m	2015 £m
Potential claims with specific claim dates:		
In one year or less	2	3
In more than one year but less than five years	12	12
In more than five years	5	5
	19	20

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.

	2016		2015	
	£m	$m	£m	$m
Gross commitments	238	293	269	399
Value of security[1]	(103)	(126)	(136)	(201)
Indemnities	(74)	(91)	(79)	(118)
Net commitments	61	76	54	80
Net commitments with security reduced by 20%[2]	86	106	78	115
[1] Security includes unrestricted cash collateral of:	38	47	35	52

[2] Although sensitivity calculations are complex, the reduction of relevant security by 20% illustrates the sensitivity to changes in this assumption.

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.

Other provisions comprise a number of liabilities with varying expected utilisation rates.

18 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 separate trustee administered funds. 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 2016.

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 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 portfolios, which hold investments designed to offset interest rate and inflation rate risks. In addition, in the UK, the scheme has invested in a longevity swap, which is designed to offset longevity risks in respect of approximately two thirds of current pensioners.

During the year, the Group has restructured its UK defined benefit arrangements. Four of the five UK schemes have been merged together into a consolidated scheme, renamed the 'Rolls-Royce UK Pension Fund'. All future defined benefit accrual will be provided from this scheme, limited to employees who joined the Company before 1 April 2007. The scheme merger will simplify future administration and governance. As part of this merger, the three transferring schemes are being wound up. Members of these schemes with benefits below statutory limits were offered lump sums in exchange for their existing benefits, which resulted in a settlement charge of £2m.

The liabilities of the fifth scheme, the Vickers Group Pension Scheme have been fully bought-out with a UK insurance company Legal & General Assurance Company Limited, resulting in a settlement charge of £301m. This scheme is expected to be wound up in 2017.

Neither of these transactions required any additional funding by the Group

AMOUNTS RECOGNISED IN THE INCOME STATEMENT

	2016			2015		
	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[1]	**169**	**50**	**219**	169	52	221
Past-service (credit)/cost	**(22)**	**1**	**(21)**	(16)	8	(8)
Settlements	**302**	**10**	**312**	–	–	–
	449	**61**	**510**	153	60	213
Defined contribution schemes	**29**	**87**	**116**	33	85	118
Operating cost	**478**	**148**	**626**	186	145	331
Net financing (credit)/charge in respect of defined benefit schemes	**(41)**	**38**	**(3)**	(65)	33	(32)
Total income statement charge	**437**	**186**	**623**	121	178	299

[1] £306m of costs have been excluded from the underlying results, comprising: £301m settlement cost on the buy-out of the Vickers Group Pension Scheme; £3m of administrative expenses on the restructuring all the UK defined benefit plans; and £2m settlement cost in relation winding-up lump sums on small pensions as a consequence of the restructuring.

The operating cost is charged as follows:

	Defined benefit		Defined contribution		Total	
	2016 £m	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m
Cost of sales	**133**	147	**72**	80	**205**	227
Commercial and administrative costs	**343**	32	**27**	21	**370**	53
Research and development	**34**	34	**17**	17	**51**	51
	510	213	**116**	118	**626**	331

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 £31m (2015 £32m) in the year.

Notes to the consolidated financial statements continued

18 Post-retirement benefits continued

Net financing comprises:

	2016			2015		
	UK schemes £m	**Overseas schemes £m**	**Total £m**	UK schemes £m	Overseas schemes £m	Total £m
Financing on scheme obligations	**385**	**65**	**450**	375	57	432
Financing on scheme assets	**(426)**	**(27)**	**(453)**	(440)	(24)	(464)
Net financing (income)/charge in respect of defined benefit schemes	**(41)**	**38**	**(3)**	(65)	33	(32)
Financing income on scheme surpluses	**(41)**	**(1)**	**(42)**	(65)	–	(65)
Financing cost on scheme deficits	**–**	**39**	**39**	–	33	33

AMOUNTS RECOGNISED IN OCI IN RESPECT OF DEFINED BENEFIT SCHEMES

	2016			2015		
	UK schemes £m	**Overseas schemes £m**	**Total £m**	UK schemes £m	Overseas schemes £m	Total £m
Actuarial gains and losses arising from demographic assumptions	**566**	**12**	**578**	(185)	8	(177)
Actuarial gains and losses arising from financial assumptions	**(2,360)**	**(90)**	**(2,450)**	(70)	70	–
Actuarial gains and losses arising from experience adjustments	**(16)**	**52**	**36**	56	8	64
Return on scheme assets excluding financing income	**2,326**	**5**	**2,331**	(593)	(16)	(609)
	516	**(21)**	**495**	(792)	70	(722)

AMOUNTS RECOGNISED IN THE BALANCE SHEET IN RESPECT OF DEFINED BENEFIT SCHEMES

	2016			2015		
	UK schemes £m	**Overseas schemes £m**	**Total £m**	UK schemes £m	Overseas schemes £m	Total £m
Present value of funded obligations	**(12,014)**	**(798)**	**(12,812)**	(10,914)	(650)	(11,564)
Fair value of scheme assets	**13,350**	**747**	**14,097**	11,957	597	12,554
Net asset/(liability) on funded schemes	**1,336**	**(51)**	**1,285**	1,043	(53)	990
Present value of unfunded obligations	**–**	**(1,314)**	**(1,314)**	–	(1,067)	(1,067)
Net asset[1]/(liability) recognised in the balance sheet	**1,336**	**(1,365)**	**(29)**	1,043	(1,120)	(77)
Post-retirement scheme surpluses	**1,336**	**10**	**1,346**	1,059	4	1,063
Post-retirement scheme deficits	**–**	**(1,375)**	**(1,375)**	(16)	(1,124)	(1,140)

[1] The surplus in the UK scheme is recognised as, on ultimate wind-up when there are no longer any remaining beneficiaries, 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:

	2016			2015		
	Assets £m	**Obligations £m**	**Net £m**	Assets £m	Obligations £m	Net £m
Canada	**194**	**(243)**	**(49)**	152	(188)	(36)
Germany	**–**	**(717)**	**(717)**	–	(553)	(553)
US pension schemes	**553**	**(631)**	**(78)**	429	(513)	(84)
US healthcare schemes	**–**	**(497)**	**(497)**	–	(426)	(426)
Other	**–**	**(24)**	**(24)**	16	(37)	(21)
Net asset/(liability) recognised in the balance sheet	**747**	**(2,112)**	**(1,365)**	597	(1,717)	(1,120)

18 Post-retirement benefits continued

DEFINED BENEFIT SCHEMES' ASSUMPTIONS

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

	2016	2015
Discount rate	**2.70%**	3.60%
Inflation assumption (RPI)[1]	**3.50%**	3.25%
Rate of increase in salaries	**4.25%**	4.00%
Life expectancy from age 65: current male pensioner	**22.7 years**	22.8 years
future male pensioner currently aged 45	**24.3 years**	24.8 years
current female pensioner	**24.1 years**	24.2 years
future female pensioner currently aged 45	**26.4 years**	27.0 years

[1] This is the assumption for the Retail Price Index. The Consumer Price Index is assumed to be 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 indexed 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 SAP actuarial tables, with future improvements in line with the CMI 2016 Proposed 2015 core projections and long-term improvements of 1.5%. Where appropriate, these are adjusted to take account of the relevant scheme's actual experience.

Other assumptions have been set on advice from the relevant 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 relevant 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:

	2016	2015
Discount rate	**3.3%**	3.6%
Inflation assumption	**2.1%**	2.2%
Long-term healthcare cost trend rate	**4.8%**	5.0%
Male life expectancy from age 65: current pensioner	**21.0 years**	21.1 years
future pensioner currently aged 45	**22.5 years**	23.3 years

Changes in present value of defined benefit obligations

	2016			2015		
	UK schemes £m	**Overseas schemes £m**	**Total £m**	UK schemes £m	Overseas schemes £m	Total £m
At 1 January	**(10,914)**	**(1,717)**	**(12,631)**	(10,606)	(1,773)	(12,379)
Exchange differences	**–**	**(339)**	**(339)**	–	17	17
Current service cost	**(160)**	**(48)**	**(208)**	(164)	(50)	(214)
Past service cost	**22**	**(1)**	**21**	16	(5)	11
Finance cost	**(385)**	**(64)**	**(449)**	(375)	(58)	(433)
Contributions by employees	**(3)**	**(2)**	**(5)**	(3)	(4)	(7)
Benefits paid out	**430**	**79**	**509**	417	75	492
Actuarial (losses)/gains	**(1,810)**	**(27)**	**(1,837)**	(199)	84	(115)
Settlement	**806**	**10**	**816**	–	–	–
Other movements	**–**	**(3)**	**(3)**	–	(3)	(3)
At 31 December	**(12,014)**	**(2,112)**	**(14,126)**	(10,914)	(1,717)	(12,631)
Funded schemes	**(12,014)**	**(798)**	**(12,812)**	(10,914)	(650)	(11,564)
Unfunded schemes	**–**	**(1,314)**	**(1,314)**	–	(1,067)	(1,067)
The defined benefit obligations are in respect of:						
Active plan participants	**(5,279)**	**(1,120)**	**(6,399)**	(4,273)	(921)	(5,194)
Deferred plan participants	**(2,146)**	**(154)**	**(2,300)**	(1,946)	(130)	(2,076)
Pensioners	**(4,589)**	**(838)**	**(5,427)**	(4,695)	(666)	(5,361)
Weighted average duration of obligations (years)	**20**	**16**	**19**	18	16	17

Notes to the consolidated financial statements continued

18 Post-retirement benefits continued

Changes in fair value of scheme assets

	2016			2015		
	UK schemes £m	**Overseas schemes £m**	**Total £m**	UK schemes £m	Overseas schemes £m	Total £m
At 1 January	**11,957**	**597**	**12,554**	12,341	593	12,934
Exchange differences	**–**	**131**	**131**	–	(2)	(2)
Administrative expenses	**(9)**	**(2)**	**(11)**	(5)	(2)	(7)
Financing	**426**	**27**	**453**	440	24	464
Return on plan assets excluding financing	**2,326**	**5**	**2,331**	(593)	(16)	(609)
Contributions by employer	**185**	**86**	**271**	188	71	259
Contributions by employees	**3**	**2**	**5**	3	4	7
Benefits paid out	**(430)**	**(79)**	**(509)**	(417)	(75)	(492)
Settlements/curtailment	**(1,108)**	**(20)**	**(1,128)**	–	–	–
At 31 December	**13,350**	**747**	**14,097**	11,957	597	12,554
Total return on scheme assets	**2,752**	**32**	**2,784**	(153)	8	(145)

Fair value of scheme assets at 31 December

	2016			2015		
	UK schemes £m	**Overseas schemes £m**	**Total £m**	UK schemes £m	Overseas schemes £m	Total £m
Sovereign debt	**7,574**	**335**	**7,909**	7,283	297	7,580
Derivatives on sovereign debt	**–**	**3**	**3**	(5)	(1)	(6)
Corporate debt instruments	**3,061**	**297**	**3,358**	1,977	239	2,216
Interest rate swaps	**2,063**	**–**	**2,063**	1,868	–	1,868
Inflation swaps	**(420)**	**–**	**(420)**	(477)	–	(477)
Cash and similar instruments	**(51)**	**18**	**(33)**	118	21	139
Liability driven investment (LDI) portfolios[1]	**12,227**	**653**	**12,880**	10,764	556	11,320
Longevity swap[2]	**(175)**	**–**	**(175)**	(142)	–	(142)
Listed equities	**969**	**82**	**1,051**	810	1	811
Unlisted equities	**214**	**–**	**214**	232	–	232
Sovereign debt	**–**	**4**	**4**	110	3	113
Corporate debt instruments	**–**	**–**	**–**	24	–	24
Cash	**25**	**9**	**34**	68	21	89
Other	**90**	**(1)**	**89**	91	16	107
	13,350	**747**	**14,097**	11,957	597	12,554

[1] 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.

[2] Under the longevity swap, the Rolls-Royce UK Pension Fund has agreed an average life expectancy of pensioners with a counterparty. If pensioners live longer than expected the counterparty will make payments to the Fund to offset the additional cost of paying pensioners. If the reverse applies the cost of paying pensioners will be reduced but the scheme will be required to make payments to the counterparty. The longevity swap is valued at fair value in accordance with IFRS 13 (Level 3).

The investment strategy for the UK scheme is controlled by the Trustee in consultation with the Company. The scheme assets do not include any of the Group's own financial instruments, nor any property occupied by, or other assets used by, the Group. The longevity swap is valued by the scheme actuaries based on the difference between the agreed longevity assumptions at inception and actual longevity experience. All other fair values are provided by the fund managers. Where available, the fair values are quoted prices (eg. listed equity, sovereign debt and corporate bonds). Unlisted investments (private equity) are included at values provided by the fund manager in accordance with relevant guidance. Other significant assets are valued based on observable inputs such as yield curves.

FUTURE CONTRIBUTIONS

The Group expects to contribute approximately £210m to its defined benefit schemes in 2017.

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 or TPs) which may differ from those used for accounting set out above. In particular, the discount rate used to value TPs must be prudent and take account of the investment strategy, 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. If the scheme is in deficit, the SoC must also include agreed contributions from the employer to eliminate any deficit. The most recent update provided to the Trustee, as at 30 September 2016, showed that the UK scheme was estimated to be 108% funded on a provisional TPs basis calculated using a discount rate equal to UK Government bond yields plus 0.5%. Contributions to this scheme are currently being paid in line with the SoCs of the predecessor schemes in place pre-merger, which result in an average contribution rate of 30.8% of salary.

18 Post-retirement benefits continued

The first consolidated funding valuation is planned to be undertaken as at 31 March 2017. Any adjustment to contributions payable following this valuation are expected to take effect in 2018.

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 2016, 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 longevity risk of approximately two thirds of UK pensioner liabilities is also hedged. Where appropriate, the table also includes the corresponding movement in the value of the plan assets

		2016 £m	2015 £m
Reduction in the discount rate of 0.25%[1]	Obligation	**(625)**	(524)
	Plan assets (LDI portfolio)	**630**	569
Increase in inflation of 0.25%[1]	Obligation	**(320)**	(249)
	Plan assets (LDI portfolio)	**272**	231
Real increase in salaries of 0.25%	Obligations	**(115)**	(91)
One year increase in life expectancy	Obligations	**415**	(308)

[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. On a UK Government bond yield basis the correlation is approximately 86% for discount rates and 89% for inflation.

19 Share capital

	Equity	
	Ordinary shares of 20p each millions	Nominal value £m
Issued and fully paid		
At 1 January 2015 and 31 December 2016	**1,631**	**326**

The rights attaching to each class of share are set out on page 57.

20 Share-based payments

EFFECT OF SHARE-BASED PAYMENT TRANSACTIONS ON THE GROUP'S RESULTS AND FINANCIAL POSITION

	2016 £m	2015 £m
Total expense recognised for equity-settled share-based payments transactions	**34**	6
Total credit recognised for cash-settled share-based payments transactions	**1**	(1)
Share-based payments recognised in the consolidated income statement	**35**	5
Liability for cash-settled share-based payment transactions	**1**	–

Notes to the consolidated financial statements continued

20 Share-based payments continued

MOVEMENTS IN THE GROUP'S SHARE-BASED PAYMENT PLANS DURING THE YEAR

	ShareSave		PSP	APRA
	Number millions	Weighted average exercise price pence	Number millions	Number millions
Outstanding at 1 January 2015	24.5	660	9.8	2.4
Granted	13.0	617	3.0	–
Additional entitlements arising from TSR perfromance	–	–	0.5	–
Forfeited	(4.6)	908	(2.9)	(0.1)
Exercised	(9.7)	445	(1.7)	(1.4)
Outstanding at 1 January 2016	**23.2**	**677**	**8.7**	**0.9**
Granted	**–**	**–**	**7.3**	**–**
Forfeited	**(1.7)**	**752**	**(3.4)**	**–**
Exercised	**(0.1)**	**538**	**(1.0)**	**(0.9)**
Outstanding 31 December 2016	**21.4**	**672**	**11.6**	**–**
Exercisable at 31 December 2016	**–**	**–**	**–**	**–**
Exercisable at 31 December 2015	–	–	–	–

As share options are exercised throughout the year, the weighted average share price during the year of **682p** (2015: 820p) is representative of the weighted average share price at the date of exercise. The closing price at 31 December 2016 was **668p** (2015: 575p).

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:

	2016	2015
PSP – 25% TSR uplift	**714p**	1,015p
PSP – 30% TSR uplift	**731p**	n/a
PSP – 50% TSR uplift	**795p**	1,036p
ShareSave – three-year grant	**n/a**	192p
ShareSave – five-year grant	**n/a**	219p
APRA	**n/a**	n/a

PSP

The fair value of shares awarded under the PSP is calculated using a pricing model that takes account of the non-entitlement to dividends (or equivalent) during the vesting period and the market-based performance condition based on expectations about volatility and the correlation of share price returns in the group of FTSE 100 companies and which incorporates into the valuation the interdependency between share price performance and TSR vesting. This adjustment increases the fair value of the award relative to the share price at the date of grant.

ShareSave

The fair value of the options granted under the ShareSave plan is calculated using a binomial pricing model that assumes that participants will exercise their options at the beginning of the six-month window if the share price is greater than the exercise price. Otherwise it assumes that options are held until the expiration of their contractual term. This results in an expected life that falls somewhere between the start and end of the exercise window.

APRA

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

21 Leases

OPERATING LEASES

Leases as lessee

	2016 £m	2015[1] £m
Rentals paid – hire of plant and machinery	**48**	24
– hire of other assets	**176**	222
Non-cancellable operating lease rentals are payable as follows:		
Within one year	**200**	190
Between one and five years	**548**	488
After five years	**469**	496
	1,217	1,174

[1] 2015 figures have been re-presented to follow the 'property, plant and equipment' classification of engines, with engine costs of £98m previously reported as 'hire of plant and machinery' being reclassified as 'hire of other assets' to ensure consistent treatment with 2016.

Leases as lessor

	2016 £m	2015 £m
Rentals received – credited within revenue from aftermarket services	**35**	25
Non-cancellable operating lease rentals are receivable as follows:		
Within one year	**11**	12
Between one and five years	**35**	18
After five years	**27**	8
	73	38

The Group acts as lessee and lessor for both land and buildings and gas turbine engines, and acts as lessee for some plant and equipment.

- Sublease payments of **£1m** (2015: £1m) and sublease receipts of **£35m** (2015: £25m) were recognised in the income statement in the year.
- Purchase options exist on aero engines, land and buildings and plant and equipment with the period to the purchase option date varying between one to eight years.
- Renewal options exist on aero engines, land and buildings and plant and equipment with the period to the renewal option varying between one to 51 years at terms to be negotiated upon renewal.
- Escalation clauses exist on some leases and are linked to LIBOR.
- The total future minimum sublease payments expected to be made is **£2m** (2015: £3m) and sublease receipts expected to be received are **£49m** (2015: £24m).

FINANCE LEASES

Finance lease liabilities are payable as follows:

	2016			2015		
	Payments £m	Interest £m	Principal £m	Payments £m	Interest £m	Principal £m
Within one year	**7**	**3**	**4**	5	2	3
Between one and five years	**30**	**10**	**20**	18	8	10
After five years	**54**	**8**	**46**	46	7	39
	91	**21**	**70**	69	17	52

22 Contingent liabilities

Contingent liabilities in respect of customer financing commitments are described in note 17.

On 6 December 2012, the Company announced that it had passed information to the Serious Fraud Office (SFO), following a request from the SFO for information about allegations of malpractice in overseas markets. On 23 December 2013, the Company announced that it had been informed by the SFO that it had commenced a formal investigation. Since the initial announcement, the Company continued its investigations and engaged with the SFO and other authorities in the UK, the USA and elsewhere in relation to the matters of concern.

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 which are described on page 6. Prosecutions of individuals may follow and investigations may be commenced in other jurisdictions. 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 financial loss, but cannot anticipate all the possible actions that may be taken or their potential consequences.

Notes to the consolidated financial statements continued

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 **£12m** (2015: £11m).

23 Related party transactions

	2016 £m	2015 £m
Sales of goods and services to joint ventures and associates	**2,022**	1,896
Purchases of goods and services from joint ventures and associates	**(1,881)**	(2,266)
Operating lease payments to joint ventures and associates	**(101)**	(88)
Guarantees of joint ventures' and associates' borrowings	**5**	9
Dividends received from joint ventures and associates	**74**	63
RRSA receipts from joint ventures and associates	**22**	16
Other income received from joint ventures and associates	**2**	2

Included in sales of goods and services to joint ventures and associates are sales of spare engines amounting to **£356m** (2015: £189m). Profit recognised in the year on such sales amounted to **£119m** (2015: £71m), 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 **£97m** (2015: £67m).

The aggregated balances with joint ventures are shown in notes 12 and 15. Transactions with Group pension schemes are shown in note 18.

In the course of normal operations, related party transactions entered into by the Group have been contracted on an arms-length basis.

Key management personnel are deemed to be the Directors and the members of the ELT. Remuneration for key management personnel is shown below:

	2016 £m	2015 £m
Salaries and short-term benefits	**13**	8
Post-retirement schemes	**–**	–
Share-based payments	**1**	–
	14	8

More detailed information regarding the Directors' remuneration, shareholdings, pension entitlements, share options and other long-term incentive plans is shown in the Directors' remuneration report of Rolls-Royce Holdings plc. 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.

24 Acquisitions and disposals

ACQUISITIONS

During 2016, the Group acquired trade and assets from Fluid Mechanics Inc. for £6m, giving rise to goodwill of £1m.

DISPOSALS

During 2016, the Group completed the sales of: its rigid pipes business in the UK and China to Sigma Precision Components Limited for consideration of £4m; and Allen Diesels for consideration of £3m.

25 Derivation of summary funds flow statement

This table shows the derivation of the summary funds flow statement (lines marked *) on page 37 from the cash flow statement on page 65.

	2016		2015		
	£m	£m	£m	£m	Source
***Underlying profit before tax (PBT) – page 114**		**813**		1,432	
Depreciation of property, plant and equipment	**426**		378		Cash flow statement (CFS)
Amortisation of intangible assets	**628**		432		CFS
Impairment of goodwill	**(219)**		(75)		Reversal of adjustment in underlying PBT
Impairment of investments	**–**		2		CFS
Acquisition accounting	**(115)**		(124)		Reversal of adjustment in underlying PBT
***Depreciation and amortisation**		**720**		613	
(Increase)/decrease in inventories	**(161)**		63		CFS
Decrease/(increase) in trade and other receivables	**312**		(836)		CFS adjusted for non-underlying exchanges differences of £258m
(Decrease)/increase in trade and other payables	**(273)**		240		CFS adjusted for non-underlying exchanges differences of £507m
Revaluation of trading assets	**67**		(13)		Reversal of adjustment in underlying PBT
***Movement on net working capital**		**(55)**		(546)	
Additions of intangible assets	**(631)**		(408)		CFS
Purchases of property, plant and equipment	**(585)**		(487)		CFS
Government grants received	**15**		8		CFS
***Expenditure on PP&E and intangible assets**		**(1,201)**		(887)	
Realised losses on hedging instruments	**426**		287		Reversal of adjustment in underlying PBT
Net unrealised fair value to changes to derivatives	**–**		(9)		Reversal of adjustment in underlying PBT
Foreign exchange on contract accounting	**77**		(9)		Reversal of adjustment in underlying PBT
Exceptional restructuring	**(129)**		(49)		Reversal of adjustment in underlying PBT
Other	**(1)**		(1)		Reversal of adjustment in underlying PBT
Underlying financing	**102**		60		Reversal of charge in underlying PBT
Non-underlying exchange differences on receivables	**(258)**		–		Reversal of adjustment above
Non-underlying exchange differences on payables	**507**		–		Reversal of adjustment above
Loss on disposal of property, plant and equipment	**5**		8		CFS
Joint ventures	**(43)**		(37)		JV dividends less share of results – CFS
Increase/(decrease) in provisions	**44**		(151)		CFS
Cash flows on other financial assets and liabilities	**(608)**		(305)		CFS
Share-based payments	**35**		5		CFS
Additions of unlisted investments	**–**		(6)		CFS
Disposal of intangible assets	**8**		4		CFS
Disposal of property, plant and equipment	**8**		33		CFS
Investments in joint ventures and associates	**(30)**		(15)		CFS
Net interest	**(72)**		(55)		Interest received and paid – CFS
Net funds of JVs reclassified to joint operations	**(4)**		–		Net cash and borrowings reclassified – CFS
***Other**		**67**		(240)	
***Trading cash flow**		**344**		372	
Net defined benefit plans – underlying operating charge	**204**		213		CFS
Cash funding of defined benefit plans	**(271)**		(259)		CFS
***Contributions to defined benefit schemes in excess of underlying PBT charge**		**(67)**		(46)	
***Tax**		**(157)**		(160)	CFS
***Free cash flow**		**120**		166	
***Movements on balances with parent company**		**(321)**		(822)	CFS
***Increase in share in JVs and other acquisitions and disposals**		**(153)**		(3)	CFS
***Discontinued operations**		**–**		(121)	CFS
***Foreign exchange**		**240**		3	CFS
***Change in net funds**		**(114)**		(777)	

Notes to the consolidated financial statements continued

25 Derivation of summary funds flow statement continued

Free cash flow is a measure of financial performance of the business's 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 excluding capital expenditures, payments made to shareholders, amounts spent (or received) on business acquisitions and foreign exchange changes on net funds. The Board considers that free cash flow reflects cash generated from the Group's underlying trading.

Free cash flow can also be reconciled to the change in cash and cash equivalents presented in the Consolidated cash flow statement by combining the above table with the Reconciliation of movements in cash and cash equivalents to movements in net debt presented on page 66.

	2016		2015		
	£m	£m	£m	£m	Source
Reported operating profit		**44**		1,499	
Realised losses on hedging instruments	**(426)**		(287)		Reported to underlying adjustment (note 2)
Net unrealised fair value to changes to derivatives	**–**		9		Reported to underlying adjustment (note 2)
Foreign exchange on contract accounting	**(77)**		9		Reported to underlying adjustment (note 2)
Revaluation of trading assets and liabilities	**(67)**		13		Reported to underlying adjustment (note 2)
Effect of acquisition accounting	**115**		124		Reported to underlying adjustment (note 2)
UK pension restructuring	**306**		–		Reported to underlying adjustment (note 2)
Impairment of goodwill	**219**		75		Reported to underlying adjustment (note 2)
Exceptional restructuring	**129**		49		Reported to underlying adjustment (note 2)
Deferred prosecution agreement costs	**671**		–		Reported to underlying adjustment (note 2)
Other	**1**		1		Reported to underlying adjustment (note 2)
Adjustments to reported operating profit		**871**		(7)	
Underlying profit before financing		**915**		1,492	
Underlying financing		**(102)**		(60)	Underlying income statement (note 2)
Underlying profit before tax		**813**		1,432	

The table below shows a reconciliation of free cash flow to the change in cash and cash equivalents presented in the consolidated cash flow statement on page 65.

	2016		2015	
	£m	£m	£m	£m
Change in cash and cash equivalents		**(691)**		320
Movement on balances with parent company		**321**		822
Net cash flow from changes in borrowings and finance leases		**345**		(1,095)
Increase/decrease in short-term investments		**1**		(5)
Increase in share in joint ventures	**154**		–	
Debt of joint ventures reclassified as joint operations	**(9)**		–	
Disposal of discontinued operations	**–**		121	
Acquisition of businesses	**6**		5	
Disposal of other businesses	**(7)**		(2)	
Changes in group structure		**144**		124
Free cash flow		**120**		166

Company balance sheet

At 31 December 2016

	Notes	2016 £m	2015 £m
Assets			
Non-current assets			
Intangible assets	3	**3,396**	2,869
Property, plant and equipment	4	**1,569**	1,389
Investments – subsidiary undertakings	5	**1,424**	1,430
– joint ventures and associates	5	**70**	78
– other	5	**1**	1
Other financial assets	9	**410**	123
Deferred tax asset	13	**467**	–
Post-retirement schemes surpluses	14	**1,336**	1,052
		8,673	6,942
Current assets			
Inventories	6	**1,549**	1,218
Trade and other receivables	7	**7,861**	6,821
Taxation recoverable		**8**	9
Other financial assets	9	**176**	137
Cash and cash equivalents	8	**1,956**	2,422
		11,550	10,607
Total assets		**20,223**	17,549
Liabilities			
Current liabilities			
Borrowings	10	**(98)**	(314)
Other financial liabilities	9	**(641)**	(322)
Trade and other payables	11	**(9,564)**	(7,936)
Provisions for liabilities and charges	12	**(78)**	(57)
		(10,381)	(8,629)
Non-current liabilities			
Borrowings	10	**(3,093)**	(2,746)
Other financial liabilities	9	**(5,190)**	(1,679)
Trade and other payables	11	**(2,143)**	(1,211)
Deferred tax liabilities	13	–	(121)
Provisions for liabilities and charges	12	**(58)**	(32)
Post-retirement scheme deficits	14	–	(15)
		(10,484)	(5,804)
Total liabilities		**(20,865)**	(14,433)
Net (liabilities)/assets		**(642)**	3,116
Capital and reserves			
Called-up share capital	15	**326**	326
Share premium account		**631**	631
Revaluation reserve		**8**	11
Other reserves		**174**	167
Retained earnings		**(1,781)**	1,981
Total shareholders' funds		**(642)**	3,116

The financial statements on pages 115 to 133 were approved by the Board on 13 February 2017 and signed on its behalf by:

WARREN EAST
Chief Executive

DAVID SMITH
Chief Financial Officer

Company's registered number: 1003142

Company statement of comprehensive income

For the year ended 31 December 2016

	2016 £m	2015 £m
Loss attributable to the shareholders of Rolls-Royce plc	**(4,124)**	161
Other comprehensive income (OCI)		
Items that will not be reclassified to profit and loss	**–**	–
Net movement on post-retirement schemes	**509**	(789)
Related tax movements	**(178)**	273
Total comprehensive income for the year	**(3,793)**	(355)

Company statement of changes in equity

For the year ended 31 December 2016

	Non-distributable reserves					
	Share capital £m	Share premium £m	Revaluation reserve £m	Other reserves[1] £m	Retained earnings £m	Total equity £m
At 1 January 2015	326	631	21	167	2,331	3,476
Total comprehensive income for the year	–	–	–	–	(355)	(355)
Transfers between reserves	–	–	(10)	–	10	–
Share-based payments – direct to equity	–	–	–	–	–	–
Related tax movements	–	–	–	–	(5)	(5)
At 1 January 2016	**326**	**631**	**11**	**167**	**1,981**	**3,116**
Total comprehensive income for the year	**–**	**–**	**–**	**–**	**(3,793)**	**(3,793)**
Transfers between reserves	**–**	**–**	**(3)**	**–**	**3**	**–**
Reclassification of joint ventures to joint operations	**–**	**–**	**–**	**7**	**10**	**17**
Share-based payments – direct to equity	**–**	**–**	**–**	**–**	**20**	**20**
Related tax movements	**–**	**–**	**–**	**–**	**(2)**	**(2)**
At 31 December 2016	**326**	**631**	**8**	**174**	**(1,781)**	**(642)**

[1] Other reserves includes a translational reserve of £7m (2015 nil).

Notes to the Company financial statements

1 Accounting policies

BASIS OF ACCOUNTING

These financial statements have been prepared in accordance with Financial Reporting Standard 101 *Reduced Disclosure Framework* ('FRS 101').

In preparing these financial statements, the Company applies the recognition, measurement and disclosure requirements of International Financial Reporting Standards as adopted by the EU ('Adopted IFRSs'), but makes amendments where necessary in order to comply with 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;
- IFRS 2 *Share Based Payments* in respect of group settled share based payments;
- disclosures in respect of transactions with wholly owned subsidiaries;
- comparative period reconciliations for share capital, tangible fixed assets and intangible assets;
- disclosures in respect of the compensation of Key Management Personnel; and
- the effects of new but not yet effective IFRSs.

The accounting policies set out below have, unless otherwise stated, been applied consistently to all periods presented in these financial statements.

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.

MEASUREMENT CONVENTION

These 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 60.

KEY AREA OF JUDGEMENT

Introduction

The Rolls-Royce group generates a significant portion of its revenues and profit on spare parts revenues arising from the installed original equipment (OE) fleet. As a consequence, the Company will often agree contractual prices for OE deliveries that take into account the anticipated aftermarket arrangements elsewhere within the group. Accounting policies reflect this aspect of the business model, in particular the policies for the recognition of contractual aftermarket rights.

When a civil large engine is sold, the economic benefits received usually far exceed the cash receivable under the contract, due to the rights to valuable aftermarket spare parts business. However, because the value of this right cannot be estimated with enough precision, accounting standards require that the revenue recognised in the accounts on sale of the engine is restricted to a total amount that results in a break even position. The amount of the revenue recognised in excess of cash receivable is recognised as an intangible asset, which is called a 'contractual aftermarket right'.

The Company enters into arrangements with long-term suppliers to share the risks and rewards of major programmes – risk and revenue sharing arrangements (RRSAs). The accounting policy for these arrangements has been chosen, consistent with Adopted IFRS, to reflect their commercial effect.

The key judgements in determining these accounting policies are described below.

Contractual aftermarket rights (CARs)

On delivery of Civil Aerospace engines, the Company has contractual rights to supply aftermarket parts to the customers and its intellectual rights, warranty arrangements and, where relevant, statutory airworthiness or other regulatory requirements provide reasonable control over this supply. The Directors consider that these rights meet the definition of an intangible asset in IAS 38 *Intangible Assets*. However, the Directors do not consider that it is possible to determine a reliable fair value for this intangible asset. Accordingly, an intangible asset (CAR) is only recognised on the occasions where the contractual price of the engine is below the cost of manufacture and then only to the extent of this deficit, as this amount is reliably measurable. An equal amount of revenue is recognised at the same point.

Notes to the Company financial statements continued

1 Accounting policies

Risk and revenue sharing arrangements

RRSAs with key suppliers (workshare partners) are a feature of our 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 revenues as a 'life of type' supplier (ie. as long as the engine remains in service). The share of development costs borne by the workshare partner and of the revenues it receives reflect the partner's proportionate cost of providing its production parts compared to the overall manufacturing cost of the engine. The share is based on a jointly agreed forecast at the commencement of the arrangement.

These arrangements are complex and have features that could be indicative of: a collaboration agreement, including sharing of risk and cost in a development programme; a long-term supply agreement; sharing of intellectual property; or a combination of these. In summary, and as described below, the Directors' view is that the development and production phases of the contract should be considered separately in accounting for the RRSA, which results in the entry fee being matched against the non-recurring costs incurred by the Company.

Having considered the features above, the Directors considered that there is no directly applicable IFRS to determine an accounting policy for the recognition of entry fees of this nature in the income statement. Consequently, in developing an accounting treatment for such entry fees that best reflects the commercial objectives of the contractual arrangement, the Directors have analysed these features in the context of relevant accounting pronouncements (including those of other standard setters where these do not conflict with IFRS) and have weighed the importance of each feature in faithfully representing the overall commercial effect. The most important considerations that need to be balanced are: the transfer of development risk; the workshare partner receiving little standalone value from the payment of the entry fee; and the overall effect being collaboration between the parties which falls short of being a joint venture as the Company controls the programme. Also important in the analysis is the fact that, whilst the Company and the workshare partner share risks and rewards through the life of the contract, these risks and rewards are very different during the development and production phases.

In this context, the entry fee might be considered to represent: an amount paid as an equalisation of development costs; a payment to secure a long-term supply arrangement; a purchase of intellectual property; or some combination thereof. The accounting under these different scenarios could include: recognition of the entry fee to match the associated costs in the income statement; being spread over the life of the programme as a reduction in the cost of supply during production; or being spread over the time period of the access to the intellectual property by the workshare partner.

The Directors consider that the most important features of the arrangement are the risk sharing and that the entry fee represents a contribution to the development costs that the Company incurs in excess of its proportionate programme share. The key judgements taken in reaching this view are: the entry fee is determined by the parties on that basis and the contract specifies that, in the event that a derivative engine is to be developed, additional entry fees will also be calculated on this basis; the workshare partners describe the entry fee in this way; although the workshare partner receives little stand-alone value from paying the entry fee, the entry fee together with its own development activities represent its aggregate investment in the collaboration; the amount of the entry fee does not include any amount in excess of that necessary to equalise forecast development costs; the Company is not 'on risk' for the full development costs it incurs but for that amount less the entry fees received.

The resulting accounting policy (described on page 120) represents the commercial effect of the contractual arrangements in that the Company recognises only those development costs to which it is exposed (and thus reflects the significant transfer of development risk to the workshare partner) and the costs of supply of parts during the production phase is measured at the workshare partner's share of programme revenues (which we consider to be a commercial fair value). The Directors do not consider that accounting which would result in entry fees only being recognised in the production phase would appropriately reflect the sharing of development risk. Accordingly, the Directors believe that the policy adopted best reflects the commercial objectives of the arrangements, the nature of the relationship with the workshare partner and is in accordance with Adopted IFRS.

Internally generated development costs

IAS 38 requires that internally generated development costs should only be recognised if strict criteria are met, in particular relating to technical feasibility and generation of future economic benefits. The Directors consider that, due to the complex nature of new equipment programmes, these criteria are not met until relatively late in the programme – Civil Aerospace programmes represent around half of development costs recognised; for these, the criteria are generally satisfied around the time of the initial engine certification.

Customer financing contingent liabilities

The Company has contingent liabilities in respect of financing support provided to customers. In order to assess whether a provision should be recognised, judgement as to the likelihood of these crystallising is required. This judgement is based on an assessment on the knowledge of the customers' fleet plans, the underlying value of the security provided and, where appropriate, the customers' creditworthiness.

KEY SOURCES OF ESTIMATION UNCERTAINTY

In applying the accounting policies, estimates are made in many areas; the actual outcome may differ from that calculated. The 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 set out below. The estimation of the relevant assets and liabilities involves the combination of a number of assumptions. Sensitivities are disclosed in the relevant notes where this is appropriate and practicable.

1 Accounting policies continued

Forecasts and discount rates

The carrying values of a number of items on the balance sheet are dependent on the estimates of future cash flows arising from the Company's operations, in particular: the assessment as to whether there are any indications of impairment of development, participation, certification, and contractual aftermarket rights recognised as intangible assets (carrying values at 31 December 2016: £2,988m, 31 December 2015: £2,494m) is dependent on estimates of cash flows generated by the relevant assets and the discount rate used to calculate a present value. These estimates include the performance of long-term contractual arrangements as described below, as well as estimates for future market share, pricing and unit cost for uncontracted business. The risk of impairment is generally higher for newer programmes and for customer specific intangible assets (CARs) for launch customers and typically reduces as programmes become more established.

Post-retirement benefits

The Company's defined benefit pension schemes and similar arrangements are assessed annually in accordance with IAS 19. The accounting valuation, which is based on assumptions determined with independent actuarial advice, resulted in a net surplus of £1,336m before deferred taxation being recognised on the balance sheet at 31 December 2016 (31 December 2015: net surplus £1,037m). The size of the net surplus/deficit is sensitive to the market value of the assets held by the schemes and to actuarial assumptions, which include price inflation, pension and salary increases, the discount rate used in assessing actuarial liabilities, mortality and other demographic assumptions and the levels of contributions. Further details are included in note 14.

Provisions

As described in the accounting policy on page 122, the Company measures provisions (carrying value at 31 December 2016: £136m, 31 December 2015: £89m) at the Directors' best estimate of the expenditure required to settle the obligation at the balance sheet date. These estimates take account of information available and different possible outcomes.

Taxation

The tax payable on profits is determined based on tax laws and regulations that apply in each of the numerous jurisdictions in which the Company trades. Where the precise impact of these laws and regulations is unclear, or uncertain, then reasonable estimates may be used to determine the tax charge included in the financial statements.

The main area of uncertainty is in relation to cross border transactions, entered into in the normal course of business, as the amount of profit taxable can be subjective and therefore open to interpretation by the tax authorities. This can result in disputes and possibly litigation.

Accruals for tax contingencies require management to make judgements and estimates of exposures in relation to areas of uncertainty. Contingent liabilities, including in respect of any tax disputes or litigation, are covered in note 18 (contingent liabilities). All provisions relating to tax charges are included in current liabilities. Any liability relating to interest or penalties on tax liabilities is included in the tax charge.

Deferred tax assets are recognised to the extent it is probable that future taxable profits will be available, against which the asset can be utilised, based on management's assumptions relating to the amounts and timing of future taxable profits.

SIGNIFICANT ACCOUNTING POLICIES

The Company's significant accounting policies are set out below. These accounting policies have been applied consistently to all periods presented in these financial statements.

Revenue recognition

Revenue comprises sales to external customers after discounts, and excluding value added tax.

Sales of products (both original equipment and spare parts) are recognised when the significant risks and rewards of ownership of the goods are transferred to the customer, the sales price agreed and the receipt of payment can be assured – this is generally on delivery. On occasion, the Company may participate in the financing of OE, most commonly by the provision of guarantees as described in note 18. In such circumstances, the contingent obligations arising under these arrangements are taken into account in assessing when the significant risks and rewards of ownership have been transferred to the customer. As described on page 117, a sale of OE at a contractual price below its cost of manufacture is considered to give rise to revenue to the extent that an intangible asset (contractual aftermarket right) is recognised at the same time.

Sales of services and long-term contracts are recognised when the outcome of the transaction can be reliably estimated. Revenue is recognised by reference to the stage of completion based on services performed to date as a percentage of the total contractual obligation. The assessment of the stage of completion is dependent on the nature of the contract, but will generally be based on: costs incurred to the extent these relate to services performed up to the reporting date; achievement of contractual milestones where appropriate; or flying hours or equivalent for long-term aftermarket arrangements.

Provided that the outcome of construction contracts can be assessed with reasonable certainty, the revenues and costs on such contracts are recognised based on stage of completion and the overall contract profitability. Full provision is made for any estimated losses to completion of contracts, having regard to the overall substance of the arrangements.

Progress payments received, when greater than recorded revenue, are deducted from the value of work in progress except to the extent that payments on account exceed the value of work in progress on any contract where the excess is included in accruals and deferred income within trade and other payables. The amount by which recorded revenue of long-term contracts is in excess of payments on account is classified as amounts recoverable on contracts and is separately disclosed within trade and other receivables.

Notes to the Company financial statements continued

1 Accounting policies continued

Risk and revenue sharing arrangements (RRSAs)

As described on page 118, the Company enters into arrangements with certain workshare partners under which these suppliers: (i) contribute to the forecast costs of developing an engine by performing their own development work, providing development parts and paying a non-refundable cash entry fee; and (ii) supply components for the production phase for which they receive consideration, which is an agreed proportion of the total programme revenues. Both the suppliers' contributions to the forecast non-recurring development costs and their consideration are determined by reference to their proportionate forecast scopes of supply relative to that of the engine overall. Once the forecast costs and the scopes of supply have been agreed at the inception of the contract, each party is then accountable for its own incurred costs. No accounting entries are recorded when the suppliers undertake development work or when development components are supplied. Cash sums received are recognised in the income statement, as a reduction in research and development costs incurred, to match the expensing of the Company's related costs – where the cash sums are received in advance of the related costs being expensed or where the related costs are capitalised as intangible assets, the recognition of the cash received is deferred (in accruals and deferred income) to match the recognition of the related expense or the amortisation of the related intangible asset respectively. The payments to suppliers of their shares of the programme revenues for their production components are charged to cost of sales as programme revenues arise.

The Company has arrangements with partners who do not undertake development work or supply parts. Such arrangements are considered to be financial instruments as defined by IAS 32 *Financial Instruments: Presentation* and are accounted for using the amortised cost method.

Government investment

Where a government or similar body has previously invested in a development programme, the Company treats payments to that body as royalty payments, which are matched to related sales.

Research and development

In accordance with IAS 38 *Intangible Assets*, 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 capitalised as an internally generated intangible asset only if it meets strict criteria, relating in particular to technical feasibility and generation of future economic benefits.

The Company considers that it is not possible to distinguish reliably between research and development activities until relatively late in the programme.

Expenditure capitalised is amortised over its useful economic life, up to a maximum of 15 years from the entry into service of the product.

Interest

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

Taxation

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

- Current tax is the expected tax payable for the year, using tax rates enacted or substantively enacted at the balance sheet date, and any adjustment to tax payable in respect of previous years.
- Deferred tax is provided using the balance sheet liability method, providing for temporary differences between the carrying amounts of the assets and liabilities for financial reporting purposes and the amounts used for tax purposes and is calculated using the enacted or substantively enacted rates that are expected to apply when the asset or liability is settled.

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

Deferred tax liabilities are recognised for taxable temporary differences arising on investments in subsidiaries and joint arrangements, except where the Company is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred tax 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.

Foreign currency translation

Transactions in overseas currencies are translated into local currency at the exchange rate ruling on the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are translated into sterling at the rate ruling at the year-end. Exchange differences arising on foreign exchange transactions and the retranslation of assets and liabilities into sterling at the rate ruling at the year-end are taken into account in determining profit on ordinary activities before taxation.

1 Accounting policies continued

Financial instruments

IAS 39 *Financial instruments: Recognition and Measurement* requires the classification of financial instruments into separate categories for which the accounting requirement is different. Rolls-Royce has classified its financial instruments as follows:

- Short-term investments are generally classified as **available for sale.**
- Short-term deposits (principally comprising funds held with banks and other financial institutions), trade receivables and short-term investments not designated as available for sale are classified as **loans and receivables.**
- Borrowings, trade creditors and financial RRSAs are classified as **other liabilities**.
- Derivatives, comprising foreign exchange contracts, interest rate swaps and commodity swaps are classified as **fair value through profit or loss**.

Financial instruments are recognised at the contract date and initially measured at fair value. Their subsequent measurement depends on their classification:

- **Available for sale** assets are held at fair value. Changes in fair value arising from changes in exchange rates are included in the income statement. All other changes in fair value are taken to reserves. On disposal, the accumulated changes in value recorded in reserves are included in the gain or loss recorded in the profit and loss account.
- **Loans and receivables and other liabilities** are held at amortised cost and not revalued (except for changes in exchange rates, which are included in the income statement) unless they are included in a fair value hedge accounting relationship. Where such a relationship exists, the instruments are revalued in respect of the risk being hedged. If instruments held at amortised cost are hedged, generally by interest rate swaps, and the hedges are effective, the carrying values are adjusted for changes in fair value, which are included in the income statement.
- **Fair value through profit or loss** are held at fair value. Changes in fair value are included in the income statement unless the instrument is included in a cash flow hedge. If the instruments are included in an effective cash flow hedging relationship, changes in value are taken to equity. When the hedged forecast transaction occurs, amounts previously recorded in equity are recognised in the income statement.

Financial instruments are derecognised on expiry or when all contractual rights and obligations are transferred.

Hedge accounting

The Company does not apply hedge accounting in respect of forward foreign exchange contracts held to manage the cash flow exposures of forecast future transactions denominated in foreign currencies.

The Company does not apply hedge accounting in respect of commodity swaps held to manage the cash flow exposures of forecast future transactions in those commodities.

The Company applies hedge accounting in respect of transactions entered into to manage the fair value and cash flow exposures of its borrowings. Forward foreign exchange contracts 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 and are designated as fair value or cash flow hedges of fixed and floating rate borrowings respectively.

Changes in the fair values of derivatives designated as fair value hedges and changes in fair value of the related hedged item are recognised directly in the income statement.

Changes in the fair values of derivatives that are designated as cash flow hedges and are effective are recognised directly in reserves. Any ineffectiveness in the hedging relationships is included in the income statement. The amounts deferred in reserves are recognised in the income statement to match the recognition of the hedged item.

Hedge accounting is discontinued when the hedging instrument expires or is sold, terminated, or 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 reserves, is retained in reserves until the forecast transaction occurs. If a hedged transaction is no longer expected to occur, the net cumulative gain or loss previously recognised in reserves is transferred to the income statement.

The portion of a gain or loss on an instrument used to hedge a net investment in a foreign operation that is determined to be an effective hedge is recognised directly in reserves. The ineffective portion is recognised immediately in the income statement.

Certification costs and participation fees

Costs incurred in respect of meeting regulatory certification requirements for new civil engine/aircraft combinations and payments made to airframe manufacturers for this, and participation fees, are carried forward in intangible assets to the extent that they can be recovered out of future sales and are charged to the profit and loss account over the programme life, up to a maximum of 15 years from the entry into-service of the product.

Contractual Aftermarket Rights (CARs)

As described under key judgements on page 117, the Company may sell OE to customers at a price below its cost, on the basis that the Rolls-Royce group receive valuable aftermarket rights. Such a sale is considered to give rise to an intangible asset which is recognised, in accordance with IAS 38, at the same time as the revenue at an amount equal to the cash deficit and is amortised on a straight-line basis over the period that highly probable aftermarket sales are expected to be earned within the Rolls-Royce group.

Notes to the Company financial statements continued

1 Accounting policies continued

Software
The cost of acquiring software that is not specific to an item of tangible fixed assets is classified as an intangible asset and amortised over its useful economic life, up to a maximum of five years.

Tangible fixed assets and depreciation
Tangible fixed assets are stated at cost or valuation less accumulated depreciation and any provision for impairments in value.

Depreciation is provided on a straight-line basis to write-off the cost or valuation, less the estimated residual value, over the estimated useful life. Estimated useful lives are as follows:

i) Land and buildings, as advised by the Company's professional valuers:
   a) Freehold buildings – five to 45 years (average 26 years).
   b) Leasehold land and buildings – lower of valuers' estimates or period of lease.
   c) No depreciation is provided in respect of freehold land.
ii) Plant and equipment – five to 25 years (average 12 years).
iii) Aircraft and engines – five to 20 years (average 9 years).
iv) No depreciation is provided on assets in the course of construction.

Where the Company obtains effective control of customers' installed engines as a result of a TotalCare ® Flex® arrangement, the fair value of these engines is recognised as an addition (shown separately in note 4). The corresponding liability is recognised either as deferred revenue or a financial liability depending on the nature of the arrangement.

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

If the recoverable amount of an asset (or cash-generating unit) is estimated to be below the carrying value, the carrying value is reduced to the recoverable amount and the impairment loss recognised as an expense. The recoverable amount is the higher of value in use or fair value less costs to sell, 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.

Joint arrangements
During the period, the Company has reassessed the categorisation of joint arrangements. As a result of this review, certain entities, previously accounted for as joint ventures, have been reclassified as joint operations from 1 January 2016. Therefore, they have been included in the accounts on a proportional basis, rather than at their investment value.

Operating leases
Payments made and rentals received under operating lease arrangements are charged/credited to the income statement on a straight-line basis.

Inventories
Inventories and work in progress are valued at the lower of cost and net realisable value on a first-in, first-out basis. Cost comprises direct materials and, where applicable, direct labour costs and those overheads, including depreciation of property, plant and equipment, that have been incurred in bringing the inventories to their present location and condition. Net realisable value represents the estimated selling prices less all estimated costs of completion and costs to be incurred in marketing, selling and distribution.

Provisions
Provisions are recognised when the Company has a present obligation as a result of a past event, and it is probable that the Company will be required to settle that obligation. Provisions are measured at the directors' best estimate of the expenditure required to settle the obligation at the balance sheet date, and are discounted to present value where the effect is material.

Post-retirement benefits
Pensions and similar benefits (principally healthcare) are accounted for under IAS19 *Employee Benefits*. For defined benefit plans, obligations are measured at discounted present value whilst plan assets are recorded at fair value. Surpluses in schemes are recognised as assets only if they represent economic benefits available to the Company in the future. A liability is recognised to the extent that the minimum funding requirements in respect of past service will give rise to an unrecognisable surplus.

The service and financing costs of such plans are recognised separately in the income statement; service costs are spread systematically over the lives of employees and financing costs are recognised in the periods in which they arise.

Actuarial gains and losses and movements in unrecognised surpluses and minimum funding liabilities are recognised immediately in OCI.

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

1 Accounting policies continued

Share-based payments

The Company participates in Rolls-Royce Holdings plc employee share-based payment arrangements. These are 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, based on the Company's estimate of shares or options that will eventually vest. The costs of these share-based payments are treated as a capital contribution from the parent company. Any payments made by the Company to its parent company, in respect of these arrangements, are treated as a return of this capital contribution.

The fair values of the share-based payment arrangements are measured as follows:

i) ShareSave – using the binomial pricing method;

ii) Performance Share Plan – using a pricing model adjusted to reflect non-entitlement to dividends (or equivalent) and the Total Shareholder Return market based condition;

iii) Annual performance Related Award plan and free shares under the Share Incentive Plan – share price on the date of the award.

See note 17 for further description of the share-based payment plans.

2 Emoluments of Directors

	2016		2015	
	Highest paid Director £000	**Other Directors £000**	Highest paid Director £000	Other Directors £000
Aggregate emoluments excluding deferred share plans	**2,089**	**3,721**	826	4,374
Aggregate amounts relating to deferred share plans	**–**	**–**	395	1,621
Aggregate value of Company contributions to Company defined contribution pensions schemes	**–**	**–**	–	203

	2016 Number	2015 Number
Number of Directors with accruing retirement benefits:		
Defined contribution schemes	**–**	2
Defined benefit schemes[1]	**1**	1
Number of Directors receiving shares as part of long-term incentives schemes	**–**	3

[1] In 2015 one Director was a contributing member of both defined contribution and defined benefit schemes. This was not the case in 2016.

3 Intangible assets

	Development costs £m	Contractual aftermarket rights (CARs) £m	Certification costs and participation fees £m	Software and other £m	Total £m
Cost					
At 1 January 2016	**995**	**2,160**	**992**	**720**	**4,867**
Additions	**86**	**505**	**132**	**110**	**833**
Acquisition of business	**12**	**–**	**–**	**3**	**15**
Disposals	**–**	**–**	**–**	**(6)**	**(6)**
At 31 December 2016	**1,093**	**2,665**	**1,124**	**827**	**5,709**
Accumulated amortisation					
At 1 January 2016	**420**	**880**	**353**	**345**	**1,998**
Charge for the year	**54**	**130**	**57**	**74**	**315**
At 31 December 2016	**474**	**1,010**	**410**	**419**	**2,313**
Net book value					
At 31 December 2016	**619**	**1,655**	**714**	**408**	**3,396**
At 31 December 2015	575	1,280	639	375	2,869

Notes to the Company financial statements continued

4 Property, plant and equipment

	Land and buildings £m	Plant and equipment £m	Aircraft and engines £m	In course of construction £m	Total £m
Cost or valuation					
At 1 January 2016	**605**	**1,897**	**81**	**292**	**2,875**
Exchange differences	**–**	**3**	**–**	**–**	**3**
Reclassification of joint ventures to joint operations	**1**	**29**	**–**	**–**	**30**
Additions - purchased	**6**	**82**	**9**	**190**	**287**
Additions - arising from TotalCare Flex contracts (non-cash)	**–**	**–**	**75**	**–**	**75**
Reclassifications	**20**	**85**	**–**	**(105)**	**–**
Acquisition of business	**–**	**19**	**–**	**12**	**31**
Disposal of business	**–**	**(1)**	**–**	**–**	**(1)**
Disposals	**(5)**	**(33)**	**(14)**	**–**	**(52)**
At 31 December 2016	**627**	**2,081**	**151**	**389**	**3,248**
Accumulated depreciation					
At 1 January 2016	**207**	**1,235**	**44**	**–**	**1,486**
Exchange differences	**–**	**1**	**–**	**–**	**1**
Reclassification of joint ventures to joint operations	**–**	**20**	**–**	**–**	**20**
Charge for the year	**22**	**178**	**11**	**–**	**211**
Disposal of business	**–**	**(1)**	**–**	**–**	**(1)**
Disposals	**(5)**	**(28)**	**(5)**	**–**	**(38)**
At 31 December 2016	**224**	**1,405**	**50**	**–**	**1,679**
Net book value					
At 31 December 2016	**403**	**676**	**101**	**389**	**1,569**
At 31 December 2015	398	662	37	292	1,389

Tangible fixed assets include:	2016 £m	2015 £m
Net book value of finance leased assets	**7**	8
Non-depreciable land	**65**	74
Land and buildings at cost or valuation comprise:		
Cost	**481**	454
Valuation at 31 December 1996	**146**	151
	627	605
On an historical cost basis the net book value of land and buildings would have been as follows:		
Cost	**605**	580
Depreciation	**(219)**	(194)
	386	386
Capital expenditure commitments	**150**	72

5 Investments

	Subsidiary undertakings[1]	Joint ventures and associates			Other investments
	Shares at cost[2] £m	Shares at cost £m	Loans £m	Total £m	
At 1 January 2016	**1,430**	**36**	42	**78**	**1**
Reclassification of joint ventures to joint operations	**–**	**(8)**	**–**	**(8)**	**–**
Impairment[3]	**(6)**	**–**	**–**	**–**	**–**
At 31 December 2016	**1,424**	**28**	**42**	**70**	**1**

[1] The subsidiary and joint venture undertakings are listed on pages 134 to 139.
[2] The Company has guaranteed the uncalled share capital of Nightingale Insurance Limited, one of its subsidiaries. At 31 December 2016, this guarantee was £25m (2015 £25m).
[3] The impairment in the year relates to subsidiary undertakings where the carrying value was found to be less than the recoverable amount of the investment.

6 Inventories

	2016 £m	2015 £m
Raw materials	**93**	65
Work in progress	**610**	363
Long-term contracts work in progress	**1**	1
Finished goods	**835**	782
Payments on account	**10**	7
	1,549	1,218

7 Trade and other receivables

	Current		Non-current		Total	
	2016 £m	2015 £m	2016 £m	2015 £m	2016 £m	2015 £m
Trade receivables	**564**	344	**–**	–	**564**	344
Amounts recoverable on contracts	**–**	6	**408**	189	**408**	195
Amounts owed by – subsidiary undertakings	**5,316**	3,042	**–**	–	**5,316**	3,042
– joint ventures and associates	**284**	235	**–**	–	**284**	235
– parent undertaking	**503**	2,196	**–**	–	**503**	2,196
Other receivables	**655**	668	**1**	10	**656**	678
Prepayments and accrued income	**75**	88	**55**	43	**130**	131
	7,397	6,579	**464**	242	**7,861**	6,821

8 Cash and cash equivalents

	2016 £m	2015 £m
Cash at bank and in hand	**165**	28
Money-market funds	**547**	739
Short-term deposits	**1,244**	1,655
	1,956	2,422

9 Other financial assets and liabilities

Details of the Company's policies on the use of financial instruments are given in the accounting policies on page 121.

The fair values of other financial instruments held by the Company are as follows:

	Foreign exchange contracts £m	Commodity contracts £m	Interest rate contracts £m	Derivative financial instruments £m	Financial RRSAs £m	TotalCare Flex £m	Total £m
At 31 December 2016							
Current assets	**175**	**1**	**–**	**176**	**–**	**–**	**176**
Non-current assets	**41**	**5**	**364**	**410**	**–**	**–**	**410**
Current liabilities	**(582)**	**(24)**	**–**	**(606)**	**(35)**	**–**	**(641)**
Non-current liabilities	**(5,006)**	**(38)**	**(6)**	**(5,050)**	**(125)**	**(15)**	**(5,190)**
	(5,372)	**(56)**	**358**	**(5,070)**	**(160)**	**(15)**	**(5,245)**
At 31 December 2015							
Current assets	137	–	–	137	–	–	137
Non-current assets	43	–	80	123	–	–	123
Current liabilities	(252)	(37)	–	(289)	(33)	–	(322)
Non-current liabilities	(1,429)	(65)	(67)	(1,561)	(118)	–	(1,679)
	(1,501)	(102)	13	(1,590)	(151)	–	(1,741)

Notes to the Company financial statements continued

9 Other financial assets and liabilities continued

DERIVATIVE FINANCIAL INSTRUMENTS

The Company uses various financial instruments to manage its exposure to movements in foreign exchange rates. The Company uses commodity swaps to manage its exposure to movements in the price of commodities (jet fuel and base metals). To hedge the currency risk associated with a borrowing denominated in US dollars, the Company has currency derivatives designated as part of a fair value hedge. The Company uses interest rate swaps, forward rate agreements and interest rate caps to manage its exposure to movements in interest rates. Where the effectiveness of the hedge relationship in a cash flow hedge is demonstrated, changes in the fair value that are deemed effective are included in the hedging reserve and released to match actual payments on the hedged item.

Movements in the fair values of derivative financial instruments were as follows:

	Foreign exchange instruments	Commodity instruments	Interest rate instruments	Total
	£m	£m	£m	£m
At 1 January 2015	(539)	(43)	51	(531)
Currency options at inception[1]	(20)	–	–	(20)
Movements in fair value hedges	1	–	(36)	(35)
Movements in other derivative contracts	(1,016)	(88)	–	(1,104)
Contracts settled	73	29	(2)	100
At 1 January 2016	**(1,501)**	**(102)**	**13**	**(1,590)**
Currency options at inception[1]	**(33)**	**–**	**–**	**(33)**
Movements in fair value hedges	**–**	**–**	**345**	**345**
Movements in other derivative contracts	**(4,430)**	**15**	**–**	**(4,415)**
Contracts settled	**592**	**31**	**–**	**623**
At 31 December 2016	**(5,372)**	**(56)**	**358**	**(5,070)**

[1] Loss on related hedged items £345m (2015 £35m gain).

Where applicable, market values have been used to determine fair values. Where market values are not available, fair values have been calculated by discounting expected future cash flows at prevailing interest rates and translating at prevailing exchange rates.

FINANCIAL RISK AND REVENUE SHARING ARRANGEMENTS (RRSAS)

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

The amortised cost values of financial RRSAs were as follows:

	TotalCare Flex	Financial RRSAs	
	2016 £m	2016 £m	2015 £m
At 1 January 2016	**–**	**(151)**	(200)
Additions	**(14)**	**–**	–
Cash paid to partners	**–**	**33**	42
Financing charge	**(1)**	**(11)**	(11)
Exchange adjustments	**(3)**	**(13)**	(3)
Changes in forecast payments	**–**	**(18)**	21
Other	**3**	**–**	–
At 31 December 2016	**(15)**	**(160)**	(151)

10 Borrowings

	Current		Non-current	
	2016 £m	2015 £m	**2016 £m**	2015 £m
Unsecured				
Overdrafts	**–**	–	**–**	–
Bank loans	**98**	114	**243**	243
7.375% Notes 2016 £200m	**–**	200	**–**	–
6.75% Notes 2019 £500m[2]	**–**	–	**534**	536
2.375% Notes 2020 US$500m[1]	**–**	–	**403**	333
2.125% Notes 2021 €750m[1]	**–**	–	**682**	576
3.625% Notes 2025 US$1,000m[1]	**–**	–	**814**	668
3.375% Notes 2026 £375m[2]	**–**	–	**417**	390
	98	314	**3,093**	2,746
Repayable – other than by instalments				
Between one and two years			**–**	–
Between two and five years			**1,819**	1,069
After five years			**1,274**	1,677
			3,093	2,746

[1] These notes are the subject of interest rate swap agreements under which the Company has undertaken to pay floating rates of interest, and currency swaps which form a fair value hedge.
[2] These notes are the subject of interest rate swap agreements under which the Company has undertaken to pay floating rates of interest which form a fair value hedge.

11 Trade and other payables

	Current		Non-current		Total	
	2016 £m	2015 £m	**2016 £m**	2015 £m	**2016 £m**	2015 £m
Payments received on account[1]	**482**	746	**1,029**	462	**1,511**	1,208
Trade payables	**1,203**	697	**–**	–	**1,203**	697
Amounts owed to – subsidiary undertakings	**4,880**	3,910	**–**	–	**4,880**	3,910
– joint ventures and associates	**265**	193	**3**	2	**268**	195
– parent undertaking	**10**	28	**–**	–	**10**	28
Corporate taxation	**73**	95	**–**	–	**73**	95
Other taxation and social security	**30**	30	**–**	–	**30**	30
Other payables	**1,510**	1,193	**638**	227	**2,148**	1,420
Accruals and deferred income	**1,111**	1,044	**473**	520	**1,584**	1,564
	9,564	7,936	**2,143**	1,211	**11,707**	9,147
[1] Includes payments received from joint ventures	**48**	79	**17**	35	**65**	114

12 Provisions for liabilities and charges

	At 1 January 2016 £m	Acquisition of business £m	Unused amounts reversed £m	Charged to profit and loss account £m	Utilised £m	At 31 December 2016 £m
Warranties and guarantees	**23**	**19**	**(3)**	**49**	**(5)**	**83**
Contract loss	**9**	**–**	**–**	**7**	**–**	**16**
Customer financing	**19**	**–**	**–**	**5**	**(5)**	**19**
Restructuring	**29**	**–**	**(7)**	**3**	**(10)**	**15**
Other	**9**	**–**	**(6)**	**–**	**–**	**3**
	89	**19**	**(16)**	**64**	**(20)**	**136**
Current liabilities	**57**					**78**
Non-current liabilities	**32**					**58**

Provisions for warranties and guarantees primarily relate to products sold and generally cover a period of up to three years.

Provisions for contract loss and restructuring are generally expected to be utilised within two years.

Customer financing provisions cover guarantees provided for asset values and/or financing as described in note 18. Timing of utilisation is uncertain.

Notes to the Company financial statements continued

13 Deferred taxation

	2016 £m	2015 £m
At 1 January	**(121)**	(479)
Amount credited to income statement	**774**	90
Amount (charged)/credited to statement of comprehensive income	**(178)**	273
Amount charged to equity	**(2)**	(5)
Acquisition of business	**(6)**	–
At 31 December	**467**	(121)

The analysis of the deferred tax position is as follows:

	2016 £m	2015 £m
Fixed asset timing differences	**(44)**	(67)
Other temporary differences	**(300)**	(330)
Pensions and other post-retirement scheme benefits	**(470)**	(365)
Foreign exchange and commodity financial assets and liabilities	**927**	306
Losses	**326**	320
Research and development expenditure credit withholding tax	**28**	15
	467	(121)

There are other deferred tax assets totalling £162m (2015 £162m) that have not been recognised on the basis that their future economic benefit is uncertain.

Following announcements in the Summer Budget 2015 and the Budget 2016, the UK corporation tax rate will reduce to 19% from 1 April 2017 and 17% from 1 April 2020. The Summer Budget 2015 had originally announced that the rate would reduce to 18% from 1 April 2020. This reduction was substantively enacted on 26 October 2015 and so the prior year deferred tax assets and liabilities were calculated at this rate. The subsequent announcement in the Budget 2016 that the rate will reduce to 17% from 1 April 2020 was substantively enacted on 6 September 2016. As this reduction was substantively enacted prior to the year end, the closing deferred tax assets and liabilities have been calculated at this rate.

The temporary differences associated with investments in subsidiaries, joint ventures and associates, for which a deferred tax liability has not been recognised, aggregate to £276m (2015 £347m). No deferred tax liability has been recognised on the potential withholding tax due to the remittance of undistributed profits as the Company is able to control the timing of such remittances and it is probable that consent will not be given in the foreseeable future.

14 Post-retirement benefits

DEFINED BENEFIT SCHEMES

The Company operates a funded UK defined benefit scheme, with the assets held in a separate trustee administered fund. Employees are entitled to retirement benefits based on either their final or career average salaries and length of service.

During the year, the Company has restructured its UK defined benefit arrangements. Three of the five previous UK schemes have been merged into a fourth scheme, renamed the Rolls-Royce UK Pension Fund (RRUKPF), which will accrue all future benefits for current employees and which will simplify future administration. As part of this merger, the three merging schemes are being wound up. Members of these schemes with benefits below statutory limits have been offered lump sums in exchange for their existing benefits, which has resulted in a settlement charge of £301m.

The liabilities of the fifth scheme, the Vickers Group Pension Scheme have been fully insured with a UK insurance company Legal & General Assurance Company Limited, resulting in a settlement charge of £301m. This scheme is expected to be wound up in 2017.

Neither of these transactions required any additional funding by the Company.

The valuation of the RRUKPF is based on the most recent funding valuations of the predecessor schemes and where relevant, updated by the scheme actuary to 31 December 2016.

The defined benefit scheme exposes the Company to actuarial risks such as longevity, interest rate, inflation and investment risks. The Trustee has adopted investment policies to mitigate some of these risks. This involves investing a significant proportion of the scheme's assets in Liability Driven Investment portfolios, which hold investments designed to offset interest rate and inflation rate risks. In addition, a longevity swap is held to offset longevity risks in respect of approximately two thirds of current pensioners.

Discount rates are determined by reference to the market yields on AA rated corporate bonds. For the main schemes, the rate is determined by using the profile of forecast benefit payments to derive a weighted average discount rate from the yield curve.

14 Post-retirement benefits continued

The inflation assumption is determined by the market implied assumption based on the yields of long-term indexed linked government securities and increases in salaries are based on actual experience, allowing for promotion, of a real increase above inflation.

The mortality assumptions are derived from the SAP actuarial tables, with future improvements in line with the CMI 2016 Proposed 2015 core projections and long-term improvements of 1.5%.

Other demographic 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 principal actuarial assumptions used at the balance sheet date were as follows:

	2016 £m	2015 £m
Discount rate	**2.70%**	3.6%
RPI inflation assumption[1]	**3.50%**	3.2%
Rate of increase in salaries	**4.25%**	4.0%
Male life expectancy from age 65 – current pensioner	**22.7 years**	22.8 years
– future pensioner currently aged 45	**24.3 years**	24.8 years
Female life expectancy from age 65 – current pensioner	**24.1 years**	24.2 years
– future pensioner currently aged 45	**26.4 years**	27.0 years

[1] The Consumer Price Index is assumed to be 1.1% lower.

Amounts recognised in the balance sheet	2016 £m	2015 £m
Present value of funded obligations	**(12,013)**	(10,802)
Fair value of scheme assets	**13,349**	11,839
Net asset recognised in the balance sheet	**1,336**	1,037
Post-retirement scheme surpluses	**1,336**	1,052
Post-retirement scheme deficits	**–**	(15)

[1] The surplus is recognised as, on ultimate wind-up when there are no longer any remaining beneficiaries, any surplus would be returned to the Company, which has the power to prevent the surplus being used for other purposes in advance of this event.

Amounts recognised in OCI	2016 £m	2015 £m
Actuarial gains and losses arising from demographic assumptions	**561**	(183)
Actuarial gains and losses arising from financial assumptions	**(2,338)**	(70)
Actuarial gains and losses arising from experience adjustments	**(16)**	53
Return on plan assets excluding financing income	**2,302**	(589)
	509	(789)

Changes in present value of defined benefit obligations	2016 £m	2015 £m
At 1 January 2016	**(10,802)**	(10,505)
Current service cost	**(155)**	(154)
Past-service cost	**22**	16
Finance cost	**(383)**	(371)
Contributions by employees	**(3)**	(3)
Benefits paid out	**430**	415
Actuarial losses	**(1,793)**	(200)
Transfer from other Group company	**(135)**	–
Settlement	**806**	–
At 31 December 2016	**(12,013)**	(10,802)
Active participants	**(5,279)**	(4,182)
Deferred plan participants	**(2,146)**	(1,940)
Pensioners	**(4,588)**	(4,681)
Weighted average duration	**20**	17

Notes to the Company financial statements continued

Changes in fair value of scheme assets	2016 £m	2015 £m
At 1 January 2016	**11,839**	12,232
Administrative expenses	**(9)**	(5)
Financing	**424**	436
Return on plan assets excluding financing	**2,302**	(589)
Contributions by employer	**179**	177
Contributions by employees	**3**	3
Benefits paid out	**(430)**	(415)
Transfer from other Group company	**149**	–
Settlement	**(1,108)**	–
At 31 December 2016	**13,349**	11,839
Actual return on plan assets	**2,726**	(153)

The fair value of the scheme assets and the expected rates of return at 31 December were as follows:

	2016 £m	2015 £m
Sovereign debt	**7,574**	7,283
Derivatives on sovereign debt	**–**	(5)
Corporate debt instruments	**3,061**	1,977
Interest rate swaps	**2,063**	1,868
Inflation swaps	**(420)**	(477)
Cash and similar instruments	**(51)**	117
LDI portfolio[1]	**12,227**	10,763
Longevity swap[2]	**(175)**	(142)
Listed equities	**969**	788
Equities	**214**	232
Sovereign debt	**–**	42
Cash	**25**	67
Other	**89**	89
	13,349	11,839

[1] A portfolio of gilt and swap contracts, backed by LIBOR generating assets, that is designed to hedge the majority of the interest rate and inflation risks associated with the schemes' obligations.
[2] Under the longevity swap the scheme has agreed an average life expectancy with a counterparty. If pensioners live longer than expected the counterparty will make payments to the scheme to offset the additional cost of paying pensions. If the reverse applies the cost of paying pensions will be reduced but the scheme will be required to make payments to the counterparty.

Investment strategy for the UK scheme is controlled by the Trustee in consultation with the Company. The scheme assets do not include any of the Group's own financial instruments, nor any property occupied by, or other assets used by, the Group. The longevity swap is valued by the scheme actuaries based on the difference between the agreed longevity assumptions at inception and actual longevity experience. All other fair values are provided by the fund managers. Where available, the fair values are quoted prices (eg. listed equity, sovereign debt and corporate bonds). Unlisted investments (private equity) are included at values provided by the fund manager in accordance with relevant guidance. Other significant assets are valued based on observable inputs such as yield curves.

Future contributions
The Company expects to contribute approximately £180m to its defined benefit scheme in 2017.

Sensitivities
The investment strategies are designed to hedge the risks from interest rates and inflation on an economic basis. The impacts of the principal sensitivities are:

	2016 £m	2015 £m
Defined benefit obligations – 0.25% reduction in discount rate[1]	**(625)**	(517)
Defined benefit assets – 0.25% reduction in interest rates[1]	**630**	561
Defined benefit obligations – 0.25% increase in inflation	**(320)**	(245)
Defined benefit assets – 0.25% increase in inflation	**272**	225
Defined benefit obligations – 0.25% increase in rate of increase in salaries	**(115)**	(87)
Defined benefit obligations – longevity increases by one year	**415**	(305)

[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. On a UK Government bond yield basis the correlation is approximately 86% for discount rates and 89% for inflation.

DEFINED CONTRIBUTION SCHEMES
The Company operates a number of defined contribution schemes. The total expense recognised in the profit and loss account was £22m (2015 £26m).

15 Share capital

	Equity ordinary shares of 20p each Millions	Nominal value £m
Authorised		
At 1 January and 31 December 2016	**2,000**	**400**
Issued and fully paid		
At 1 January and 31 December 2016	**1,631**	**326**

16 Operating lease annual commitments

	2016 £m	2015 £m
Leases as lessee		
Non-cancellable operating lease rentals are payable as follows:		
Within one year	**15**	15
Between one and five years	**50**	39
After five years	**88**	115
	153	169
Leases as lessor		
Non-cancellable operating lease rentals are receivable as follows:		
Within one year	**–**	–
Between one and five years	**–**	6
After five years	**–**	–
	–	6

During the year £17m was recognised as an expense in the income statement in respect of operating leases (2015 £ 70m) .

17 Share-based payments

EFFECT OF SHARE-BASED PAYMENT TRANSACTIONS ON THE COMPANY'S RESULTS

	2016 £m	2015 £m
Total expense recognised for equity-settled share-based payment transactions	**19**	7

SHARE-BASED PAYMENT PLANS IN OPERATION DURING THE YEAR

During the year, the Company participated in the following share-based payment plans operated by Rolls-Royce Holdings plc:

Performance Share Plan (PSP)
This plan involves the award of shares to participants subject to performance conditions. Vesting of the performance shares is based on the achievement of both non-market based conditions (EPS and cash flow per share) and a market based performance condition (Total Shareholder Return - TSR) over a three-year period.

ShareSave share option plan
Based on a three or five year monthly savings contract, eligible employees are granted share options with an exercise price of up to 20% below the share price when the contract is entered into. Vesting of the options is not subject to the achievement of a performance target. The plan is HM Revenue & Customs approved.

Executive Share Option Plan (ESOP)
This plan involved the grant of market value share options to participants. It terminated in 2009 and no further grants may be made. Remaining options under the plan are subject to a non-market based performance condition (growth in EPS) and have a maximum contractual life of ten years.

Annual Performance Related Award (APRA) plan deferred shares
A proportion of the APRA annual incentive scheme is delivered in the form of a deferred share award. The release of deferred share awards is not dependent on the achievement of any further performance conditions other than that participants remain employed by the Company for two years from the date of the award in order to retain the full number of shares. During the two year deferral period, participants are entitled to receive dividends, or equivalent, on the deferred shares.

Notes to the Company financial statements continued

17 Share-based payments continued

MOVEMENTS IN THE COMPANY'S SHARE-BASED PAYMENT PLANS DURING THE YEAR

	Number Millions	ShareSave Weighted average exercise price Pence	PSP Number Millions	APRA Number Millions
Outstanding at 1 January 2015	15.0	646p	5.8	1.4
Granted	8.2	617p	1.8	–
Additional entitlements arising from TSR performance	–	–	0.4	–
Forfeited	(3.1)	929p	(1.6)	(0.1)
Exercised	(6.1)	436p	(1.0)	(0.8)
Outstanding at 1 January 2016	**14.0**	**656p**	**5.4**	**0.5**
Granted	**–**	**–**	**4.3**	**–**
Forfeited	**(1.0)**	**743p**	**(2.1)**	**–**
Exercised	**–**	**–**	**(0.5)**	**(0.5)**
Outstanding at 31 December 2016	**13.0**	**651p**	**7 .1**	**–**

As share options are exercised throughout the year, the weighted average share price during the year of 682p (2015 820p) is representative of the weighted average share price at the date of exercise. The closing price at 31 December 2016 was 668p, (2015 575p). There were no exercisable options as at 31 December 2016.

FAIR VALUES OF SHARE-BASED PAYMENT PLANS

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

	2016 £m	2015 £m
PSP – 25% TSR uplift	**714p**	1,015p
PSP – 30% TSR uplift	**731p**	n/a
PSP – 50% TSR uplift	**795p**	1,036p
ShareSave – 3 year grant	**n/a**	192p
ShareSave – 5 year grant	**n/a**	219p
APRA	**n/a**	n/a

Expected volatility is based on the historical volatility of Rolls-Royce Holdings plc's share price over the seven years prior to the grant or award date. Expected dividends are based on Rolls-Royce Holdings plc's payments to shareholders in respect of the previous year.

PSP

The fair value of shares awarded under the PSP is calculated using a pricing model that takes account of the non-entitlement to dividends (or equivalent) during the vesting period and the market-based performance condition based on expectations about volatility and the correlation of share price returns in the group of FTSE 100 companies and which incorporates into the valuation the interdependency between share price performance and TSR vesting. This adjustment increases the fair value of the award relative to the share price at the date of grant.

ShareSave

The fair value of the options granted under the ShareSave plan is calculated using a binomial pricing model that assumes that participants will exercise their options at the beginning of the six month window if the share price is greater than the exercise price. Otherwise it assumes that options are held until the expiration of their contractual term. This results in an expected life that falls somewhere between the start and end of the exercise window.

APRA

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

18 Contingent liabilities

On 6 December 2012, the Company announced that it had passed information to the Serious Fraud Office (SFO), following a request from the SFO for information about allegations of malpractice in overseas markets. On 23 December 2013, the Company announced that it had been informed by the SFO that it had commenced a formal investigation. Since the initial announcement, the Company has continued its investigations and is engaging with the SFO and other authorities in the UK, the USA and elsewhere in relation to the matters of concern.

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 which are described on page 6. Prosecutions of individuals may follow and investigations may be commenced in other jurisdictions. In addition, we could still be affected by actions from customers and customers' financiers. We cannot currently assess the potential impact of any future actions.

18 Contingent liabilities continued

In connection with the sale of its products the Company will, on some occasions, provide financing support for its customers. The Company's contingent liabilities relating to financing arrangements are spread over many years and relate to a number of customers and a broad product portfolio.

Contingent liabilities are disclosed on a discounted basis. As the directors consider the likelihood of these contingent liabilities crystallising to be remote, this amount does not represent a value that is expected to crystallise. However, the amounts are discounted at the Company's borrowing rate to reflect better the time span over which these exposures could arise. The contingent liabilities are denominated in US dollars. As the Company does not adopt cash flow hedge accounting for forecast foreign exchange transactions, this amount is reported together with the sterling equivalent at the reporting date spot rate.

The discounted value of the total gross contingent liabilities relating to financing arrangements on all delivered aircraft less insurance arrangements and relevant provisions were:

	2016		2015	
	£m	*$m*	£m	*$m*
Gross contingent liabilities	**238**	***293***	269	*399*
Value of security[1]	**(103)**	***(126)***	(136)	*(201)*
Indemnities	**(74)**	***(91)***	(79)	*(118)*
Net commitments	**61**	***76***	54	*80*
Net commitments with security reduced by 20%[2]	**86**	***106***	78	*115*
[1] Security includes cash collateral of:	**38**	***47***	35	*52*

[2] Although sensitivity calculations are complex, the reduction of the relevant security by 20% illustrates the sensitivity of the contingent liability to this assumption.

In connection with the sale of its products the Company will, on some occasions, provide financing support for its customers – generally in respect of civil aircraft. The Company's commitments relating to these financing arrangements are spread over many years, relate to a number of customers and a broad product portfolio and are generally secured on the asset subject to the financing. These include commitments of US$3.2bn to provide borrowing facilities to enable customers to purchase aircraft (of which approximately US$421m could be called in 2017). 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.

Contingent liabilities exist in respect of guarantees provided by the Company in the ordinary course of business for product delivery, performance and reliability. The Company has, in the normal course of business, entered into arrangements in respect of export finance, performance bonds, countertrade obligations and minor miscellaneous items. The Company is party to legal actions and claims which arise in the ordinary course of business, some of which are for substantial amounts. As a consequence of the insolvency of an insurer as previously reported, the Company is no longer fully insured against known and potential claims from employees who worked for certain of the Company's UK based businesses for a period prior to the acquisition of those businesses by the Company. While the outcome of some of these matters cannot precisely be foreseen, the directors do not expect any of these arrangements, legal actions or claims, after allowing for provisions already made, to result in significant loss to the Company.

Where the Company enters into financial guarantee contracts to guarantee the indebtedness of other companies within its group, the Company considers these to be insurance arrangements, and accounts for them as such. In this respect, the Company treats the guarantee contract as a contingent liability until such time as it becomes probable that the Company will be required to make a payment under the guarantee. At 31 December 2016, these guarantees amounted to **£102m** (2015 £178m). At 31 December 2016, there were Company guarantees in respect of joint ventures amounting to **£2.5m** (2015 £9m)

The Company participates in a Cash Pooling Arrangement. Under the Pooling Arrangement the Company benefits from more favourable interest rates than would be available outside of the Pooling Arrangement as well as more streamlined treasury functions. As part of the Pooling Arrangement, the Company cross-guarantees the borrowings of other pooling participants. At 31 December 2016 these guarantees amounted to **£19m** (2015 (£11m)).

19 Acquisitions and disposals

During 2016, the Company acquired part of the trade and assets of Rolls-Royce Controls and Data Services Limited for £96m. During 2016, the Company completed the sale of its rigid pipe business in the UK, which gave rise to a loss of £1m.

20 Related party transactions

The Company is a wholly owned subsidiary of Rolls-Royce Group plc and therefore has taken advantage of the exemption in FRS 101 not to disclose related party transactions with its parent company and other wholly owned group companies. There are no significant related party transactions with non wholly owned group companies. The aggregated balances with joint ventures are shown in notes 7 and 11.

21 Ultimate holding company

The ultimate holding company is Rolls-Royce Holdings plc, incorporated in Great Britain. The financial statements for Rolls-Royce Holdings plc may be obtained from the Company Secretary, Rolls-Royce Holdings plc, 62 Buckingham Gate, London SW1E 6AT.

Subsidiaries

Company name	Address	Class of shares	% of class held
A. F. C. Wultex Limited*	Derby[1]	Ordinary	90
A.P.E. – Allen Gears Limited*	Derby[1]	Ordinary	100
Allen Power Engineering Limited*	Derby[1]	Ordinary	100
Amalgamated Power Engineering Limited*	Derby[1]	Deferred	100
		Ordinary	100
Bergen Engines AS	Hordvikneset 125, N-5108, Hordvik, Bergen 1201, Norway	Ordinary	100
Bergen Engines Bangladesh Private Limited	Green Granduer, 6th Floor, Plot n.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	Værftsvej 23, 9000 Ålborg, Denmark	Ordinary	100
Bergen Engines India Private Limited	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.	13 Via Castel Morrone, 16161, Genoa, Italy	Social capital	100
Bristol Siddeley Engines Limited*	Derby[1]	Ordinary	100
Brooks Inspection Solutions Limited*	Derby[1]	Ordinary	100
Brown Brothers & Company Limited*	Taxiway, Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, Scotland, KY11 9JT	Ordinary	100
C.A. Parsons & Company Limited*	Derby[1]	Ordinary	100
Composite Technology and Applications Limited	Derby[1]	Ordinary	100
Croydon Energy Limited*	Derby[1]	Ordinary	100
Data Systems & Solutions, LLC	Wilmington[2]	Partnership	100
Deeside Titanium Limited*	Derby[1]	Ordinary	82.5
Derby Cogeneration Limited*	Derby[1]	Ordinary	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
Exeter Power Limited*	Derby[1]	Ordinary	100
Fluid Mechanics LLC	Wilmington[2]	Partnership	100
Heartlands Power Limited*	Derby[1]	Ordinary	100
Heaton Power Limited*	Derby[1]	Ordinary	100
John Thompson Cochran Limited*	Taxiway, Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, Scotland, KY11 9JT	6% Cumulative preference	100
		Ordinary	100
John Thompson Limited*	Derby[1]	Ordinary	100
Kalvet Engineering (Proprietary) Limited*	Corner Marconi Road and 3rd Street Montague Gardens, Western Cape, 7441, South Africa	Ordinary	100
Kamewa AB*	Box 1010, S-68129, Kristinehamn, Sweden	Ordinary	100
Kamewa do Brazil Equipmentos Maritimos Limitada*	401 Rua Visconde de Pitaja 433, Rio de Janeiro, Brazil	Quotas	100
Kamewa Holding AB*	Box 1010, S-68129, Kristinehamn, Sweden	Ordinary	100
Kamewa UK Limited*	Derby[1]	Deferred Preference	100
		Ordinary	100
Karl Maybach-Hilfe GmbH	Maybachplatz 1, 88045, Friedrichshafen, Germany	Capital Stock	100
L'Orange Fuel Injection (Ningbo) Co, Limited	#3 Hall, No.55 South Qihang Road, Yinzhou Economic Development Zone, Ningbo City, 315145, China	Capital Stock	100
L'Orange Fuel Injection Trading (Suzhou) Co. Limited	No. 88 Suhong Middle Road, Suzhou Industrial Park, Suzhou 215000, China	Capital Stock	100
L'Orange GmbH	Porschestrasse 30, 70435 Stuttgart, Germany	Capital Stock	100
L'Orange Unterstützungskasse GmbH	Rudolph-L'Orange-Strasse 1, 72293 Glatten, Germany	Capital Stock	100
MTU America Inc.	Wilmington[2]	Ordinary	100
MTU Asia PTE Limited	112 Robinson Road, #05-01, The Corporate Office, 068902, Singapore	Ordinary	100
MTU Benelux B.V.	Merwedestraat 86, 3313 CS, Dordrecht, Netherlands	Ordinary	100
MTU China Company Limited	Room 1801 - 1803 18/F Ascendas Plaza, No.333 Tian Yao Qiao Road, Xuhai District, Shanghai, 200030, China	Ordinary	100
MTU do Brasil Limitada	Via Anhanguera, KM 29203, 05276-000 Sao Paulo - SP, Brazil	Ordinary	100
MTU Engineering (Suzhou) Company Limited	9 Long Yun Road, Suzhou Industrial Park, Suzhou 215024, Jiang Su, China	Ordinary	100
MTU France S.A.S.	281 Chaussée Jules César, 95250 Beauchamp, France	Ordinary	100
MTU Friedrichshafen GmbH	Maybachplatz 1, 88045, Friedrichshafen, Germany	Capital Stock	100
MTU Hong Kong Limited	36/F Tower Two, Time Square, 1 Matheson Street, Causeway Bay, 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	HM Geneva House, Unit No. 303, 3rd Floor, No. 14 Cunningham Road, Bangalore, KA 560052, India	Ordinary	100

* Dormant entity.
[1] Moor Lane, Derby, DE24 8BJ, England.
[2] Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington, DE19808, United States.
[3] 62 Buckingham Gate, London, SW1E 6AT, England.

Company name	Address	Class of shares	% of class held
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	Takanawa-Meiko Building, 2-Chome 15-19, Takanawa, Minato-ku, 108-0074 Tokyo, 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, 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 Corporation	100 Power Drive, Mankato, Minnesota 56001, United States	Common Stock	100
MTU Onsite Energy GmbH	Dasinger Strasse 11, 86165, Augsburg, Germany	Capital Stock	100
MTU Onsite Energy Systems GmbH	Rotthofer Strasse 8, 94099 Ruhstorf a.d. Rott, Germany	Capital Stock	100
MTU Polska Sp. Z o.o.	Ul. Śląska, Nr 9. Raum, Ort: Stargard Szczeciński, Plz: 73-110, Poland	Ordinary	100
MTU Reman Technologies GmbH	Friedrich-List-Strasse 8, 39122 Magdeburg, Germany	Capital Stock	100
MTU Rus Limited Liability Company	Vashutinskoye Sh. 24 B, Khimki, 141402, Moscow, Russian Federation	Ordinary	100
MTU South Africa (Proprietary) Limited	Corner Marconi Road and 3rd Street Montague Gardens, Western Cape, 7441, South Africa	Ordinary	100
MTU UK Limited	Derby[1]	Ordinary	100
Navis Consult d.o.o.	Ul. Bartola Kašića 5/4, HR-51000, Rijeka, Croatia	Ordinary	75
NEI Combustion Engineering Limited*	Derby[1]	A Ordinary B Ordinary Deferred	100 100 100
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 Overseas Holdings 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
NEI Services Limited*	Derby[1]	Ordinary	100
Nightingale Insurance Limited	Maison Trinity, Trinity Square, St. Peter Port, Guernsey, GY1 4AT	Ordinary	100
Optimized Systems and Solutions (US) LLC	Wilmington[2]	Partnership Redeemable non-cumulative preference	100 100
PKMJ Technical Services, Inc.	Wilmington[2]	Ordinary	100
Powerfield Limited*	Derby[1]	Ordinary	100
Powerfield Specialist Engines Limited*	Derby[1]	Ordinary	100
Prokura Diesel Services (Proprietary) Limited	Corner Marconi Road and 3rd Street Montague Gardens, Western Cape, 7441, South Africa	Ordinary	100
PT MTU Indonesia	Secure Building Blok B, Jl. Raya Protokol Halim, Perdanakusuma, Jakarta, 13610, Indonesia	Ordinary	100
PT Rolls-Royce	Mid Plaza 2 , Lantai 16 Jl. Jenderal Sudirman 10-11, Jakarta, Pusat, 10220, Indonesia	Ordinary	100
R.O.V. Technologies, Inc.	Corporation Service Company, 100 North Main Street, Suite 2, Barre, VT 05641, United States	Ordinary	100
Rallyswift Limited*	Derby[1]	Ordinary	100
Reyrolle Belmos Limited*	Taxiway, Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, Scotland, KY11 9JT	Ordinary	100
Rolls-Royce (Ireland) Unlimited Company*	Ulster International Finance, 1st Floor, IFSC House, IFSC, Dublin 1, Ireland	Ordinary	100
Rolls-Royce (Thailand) Limited	900, 11th Floor Tonson Tower, Ploenchit Road, Lumpini, Pathumwan, Bangkok, Thailand	Ordinary	100
Rolls-Royce AB	Box 1010, S-68129, Kristinehamn, Sweden	Ordinary	100
Rolls-Royce Aero Engine Services Limited*	Derby[1]	Ordinary	100
Rolls-Royce Australia 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 dr Cincinato Braga 47, Planalto, 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 Capital Limited*	London[3]	Ordinary	100
Rolls-Royce Civil Nuclear Canada Limited	597 The Queensway, Peterborough ON K9J7J6, Canada	Class A Preferred Common Shares	100 100
Rolls-Royce Civil Nuclear S.A.S.	23 Chemin du Vieux Chêne, 38240, Meylan, France	Ordinary	100
Rolls-Royce Commercial (Beijing) Co., Limited	305-306 Indigo Building 1, 20 Jiuxianqiao Road, Beijing, 100016, China	Registered capital	100

* Dormant entity.
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[2] Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington, DE19808, United States.
[3] 62 Buckingham Gate, London, SW1E 6AT, England.

Subsidiaries continued

Company name	Address	Class of shares	% of class held
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	Level 7 Bayleys Building, 36 Brandon Street, Wellington, 6011, New Zealand	Ordinary	100
Rolls-Royce Controls and Data Services Controls and Data Services (UK) Limited	Derby[1]	Ordinary	100
Rolls-Royce Controls and Data Services Inc.	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 Côte d'Ivoire Sarl	7 Boulevard Latrille, Abidjan-Cocody, 25 BP 945, Abidjan 25, Côte d'Ivoire	Ordinary	100
Rolls-Royce Crosspointe LLC	Wilmington[2]	Partnership	100
Rolls-Royce de Venezuela SA*	Avenida 3E, entre Calles 78 y 79, Torre Empresarial Claret, Piso 10, Oficina 10-3, Sector Valle Frio, Maracaibo, Estado Zulia, Venezuela	Registered shares	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	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 Controls Holdings Limited	Derby[1]	Ordinary	100
Rolls-Royce Engine Services – Oakland Inc.	Corporation Service Company, 2710 Gateway Oaks Dr., Suite 150N, Sacramento, CA 95833, United States	Common Stock	100
Rolls-Royce Engine Services Holdings Co	Wilmington[2]	Common Stock	100
Rolls-Royce Engine Services Limitada Inc.*	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	100
		Ordinary	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 High Temperature Composites Inc.	Corporation Service Company, 2710 Gateway Oaks Dr., Suite 150N, Sacramento, CA 95833, United States	Ordinary	100
Rolls-Royce Holdings Canada Inc.	9500 Côte de Liesse, Lachine, Québec H8T 1A2, Canada	Common C shares	100
Rolls-Royce India Limited*	Derby[1]	Ordinary	100
Rolls-Royce India Private Limited	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*	Derby[1]	Ordinary	100
Rolls-Royce Industrial Power (Overseas Projects) Limited*	Derby[1]	Ordinary	100
Rolls-Royce Industrial Power Engineering (Overseas Projects) Limited	Derby[1]	Ordinary	100
Rolls-Royce Industrial Power Investments Limited*	Derby[1]	2.8% cumulative redeemable preference stock	100
		4.9% cumulative preference stock	100
		Ordinary	100
Rolls-Royce Industries Limited*	Derby[1]	Ordinary	100
Rolls-Royce International Limited	Derby[1]	Ordinary	100
Rolls-Royce International LLC	Office 41N, Lit. A, 32-34 Nevsky Prospect, St. Petersburg, 19186, Russia	Ordinary	100
Rolls-Royce International s.r.o.	Pobřežní 620/3, postal code 186 00, Karlín - Prague 8, Czech Republic	Ordinary	100
Rolls-Royce Italia S.r.l.	13 Via Castel Morrone, 16161, Genoa, Italy	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 JSF Holdings Inc.	Wilmington[2]	Common Stock	100
Rolls-Royce Leasing Limited	Derby[1]	Ordinary	100
Rolls-Royce Malaysia Sdn. Bhd.	Suite 13.03, 13th Floor, Menara Tan & Tan, 207 Jalan Tun Razak, 50400 Kuala Lumpur, Malaysia	Ordinary	100
Rolls-Royce Marine A/S	Værftsvej 23, 9000 Ålborg, Denmark	Ordinary	100
Rolls-Royce Marine AS	Borgundvegen 340, Ålesund, 6009, Norway	Ordinary	100
Rolls-Royce Marine Asia Limited	G/F, No 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong	Ordinary	100
Rolls-Royce Marine Australia PTY. Limited	Unit 2/8 Wallace Way, Fremantle WA 6160, Australia	Ordinary	100
Rolls-Royce Marine Benelux BV	Werfdijk 2, 3195 HV Pernis, Rotterdam, Netherlands	Ordinary	100
Rolls-Royce Marine Chile S.A.	Alcantara 200, 6th floor, office 601, Las Condes, Santiago, Chile	Ordinary	100

* Dormant entity.
[1] Moor Lane, Derby, DE24 8BJ, England.
[2] Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington, DE19808, United States.
[3] 62 Buckingham Gate, London, England, SW1E 6AT.

Company name	Address	Class of shares	% of class held
Rolls-Royce Marine Deutschland GmbH	Fährstieg 9, 21107, Hamburg, Germany	Ordinary	100
Rolls-Royce Marine Electrical Systems Limited*	Derby[1]	Ordinary	100
Rolls-Royce Marine Espana S.A.	Calle Dinamarca s/n (esquina Calle Alemania), Poligono Industrial de Constanti, 43120 Constanti, Tarragona, Spain	Ordinary	100
Rolls-Royce Marine France SARL	122 avenue Charles de Gaulle, 92200 Neuilly sur Seine, France	Ordinary	100
Rolls-Royce Marine Hellas S.A.	25 Atki Poseidonos str. & Makrigianni str., Moschato, Athens, GR-18344, Greece	Ordinary	100
Rolls-Royce Marine Hong Kong Limited	G/F, Chung Shun Knitting Centre, No.'s 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong	Ordinary	100
Rolls-Royce Marine India Private Limited	Plot D-505, TTC Industrial Area, MIDC, Turbhe, Navi Mumbai, 400703 Maharashtra, India	Ordinary	100
Rolls-Royce Marine Korea Limited	197 Noksan SanEop Buk-Ro, (Songjeong-dong) Gangseo-gu, Busan 46753, Republic of Korea	Ordinary	100
Rolls-Royce Marine Manufacturing (Shanghai) Limited	No.1 Xuanzhong Road, Xuanqiao Town, Pudong New Area, Shanghai, 201399, China	Ordinary	100
Rolls-Royce Marine North America Inc.	Wilmington[2]	Common Stock	100
Rolls-Royce Marine Power Operations Limited	Derby[1]	A Ordinary	100
		B Ordinary	100
Rolls-Royce Mechanical Test Operations Centre GmbH	Kiefernstrasse 1, 15827 Blankenfelde-Mahlow OT, Dahlewitz, Germany	Ordinary	100
Rolls-Royce Mexico Administration S de RL de CV	Boulevard Adolfo Ruiz Cortinez 3642-403, Fracc Costa de Oro, Verzcruz CP 94299 6, Mexico	Ordinary	100
Rolls-Royce Mexico S de RL de CV	Boulevard Adolfo Ruiz Cortinez 3642-403, Fracc Costa de Oro, Verzcruz CP 94299 6, Mexico	Ordinary	100
Rolls-Royce Militiary Aero Engines Limited*	Derby[1]	Ordinary	100
Rolls-Royce Namibia (Proprietary) Limited	2nd Floor, Unit 4, LA Chambers, Ausspann Plaza, Dr Agostinho Neto Road, Ausspannplatz, Windhoek, Namibia	Ordinary	100
Rolls-Royce New Zealand Limited	Level 7 Bayleys Building, 36 Brandon Street, Wellington, 6011, New Zealand	Ordinary	100
Rolls-Royce Nigeria Limited*	7th Floor Marble House, 1 Kingsway Road, Falomo, Ikoyi, Lagos, Nigeria	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	ZA Notre-Dame, 84430, Mondragon, France	Ordinary	100
Rolls-Royce Nuclear Field Services Inc.	Corporation Service Company, 80 State Street, Albany, NY 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, Sultanate of Oman, PO Box 20, Postal Code 103	Ordinary	100
Rolls-Royce Operations (India) Private Limited	RMZ-NXT, Campus 2A, Unit 001 Ground Floor, Near to SAP, Whitefield Road, EPIP Zone, Mahadevapura, Bangalore 560066, Karnataka, India	Ordinary	100
Rolls-Royce Overseas Holdings Limited	Derby[1]	Ordinary	100
Rolls-Royce Overseas Investments Limited	Derby[1]	Ordinary	100
Rolls-Royce Oy Ab	PO Box 220, Suojantie 5, 26101, Rauma, Finland	A Shares	100
Rolls-Royce Placements Limited	Derby[1]	Ordinary	100
Rolls-Royce Poland Sp. z.o.o.	Gniew 83-140, ul. Kopernika 1, Poland	Ordinary	99.9
Rolls-Royce Power Development Limited	Derby[1]	Ordinary	100
Rolls-Royce Power Engineering plc	Derby[1]	Ordinary	100
Rolls-Royce Power Systems AG	Maybachplatz 1, 88045, Friedrichshafen, Germany	Ordinary	100
Rolls-Royce Saudi Arabia Limited	PO Box 88545, Riyadh, 11672, Saudi Arabia	Cash shares	100
Rolls-Royce Singapore Pte. Limited	1 Marina Boulevard, #28-00 One Marina Boulevard, Singapore, 018989	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	Meclis-i Mebusan Cad No 1, Ekemen Han, 34427 Kabataş Istanbul, Turkey	Cash shares	100
Rolls-Royce UK Pension Fund Trustees Limited*	Derby[1]	Ordinary	100
Rolls-Royce Vietnam Limited	Dông Xuyên Industrial Zone, Rach Dùa Ward, Vũng Tàu City, Bà Ria-Vũng Tàu Province, Vietnam	Capital Stock	100
Rolls-Royce Zweite Beteiligungs GmbH	Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany	Capital Stock	100
Ross Ceramics Limited	Derby[1]	Ordinary	100
Scandinavian Electric Gdansk Sp. z.o.o.	ul. Reja No.3, 80-404, Gdansk, Poland	Ordinary	67
Scandinavian Electric Systems do Brazil Limitada	Rua Sao Jose 90, salas 1406 e 1407, Centro, Rio De Janeiro, Brazil	Quotas	66
Sharing in Growth UK Limited**	Derby[1]	Limited by Guarantee	100
Spare IPG (AGL) Limited*	Derby[1]	Ordinary	100
Spare IPG 4 Limited*	Derby[1]	Ordinary	100

* Dormant entity.
[1] Moor Lane, Derby, DE24 8BJ, England.
[2] Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington, DE19808, United States.
[3] 62 Buckingham Gate, London, England, SW1E 6AT.

Subsidiaries continued

Company name	Address	Class of shares	% of class held
Spare IPG 15 Limited*	Derby[1]	Ordinary	100
Spare IPG 18 Limited*	Derby[1]	Ordinary	90
Spare IPG 20 Limited*	Derby[1]	Ordinary	100
Spare IPG 24 Limited*	Derby[1]	Ordinary	100
Spare IPG 27 Limited*	Taxiway, Hillend Industrial Estate, Dalgety Bay, Dunfermline, Fife, Scotland, KY11 9JT	Ordinary	100
Spare IPG 32 Limited*	Derby[1]	7.25% cumulative preference	100
		Ordinary	100
Stone Vickers 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, 66050 San Salvo, Italy	Ordinary	100
Ulstein Holdings AS	Sjøgata 80, 6065 Ulsteinvik, Norway	Ordinary	100
Ulstein Maritime Limited	96 North Bend Street, Coquitlam, British Columbia V3K 6H1 Canada	Common	100
Vessel Lifter Inc.*	Corporation Service Company, 1201 Hays Street, Tallahassee, FL32301, United States	Common Stock	100
Vickers Pension Trustees Limited*	Derby[1]	Ordinary	100
Vickers Pressings Limited*	Derby[1]	Ordinary	100
Viking Power Limited*	Derby[1]	Ordinary	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
Wultex Machine Company Limited*	Derby[1]	Ordinary	100

The following companies were dissolved on 3 January 2017 - NEI Allen Limited, NEI Limited, Oxygenaire Limited, R-R Industrial Controls Limited, Rolls-Royce Industrial & Marine Gas Turbines Limited, Rolls-Royce Industrial Power Systems Limited, Rolls-Royce Transmission & Distribution Limited, Spare IPG (CEL) Limited, Spare IPG 3 Limited, Spare IPG 11 Limited, Spare IPG 22 Limited, Spare IPG28 Limited and Spare IPG 30 Limited. Crossley-Premier Engine (Sales) Limited was dissolved on 10 January 2017. John Hastie of Greenock (Holdings) Limited and Spare RRPD (BEL) Limited were dissolved on 17 January 2017.

Joint ventures and associates

Company name	Address	Class of shares	% of class held	Group interest held %
Aero Gearbox International SAS***	18 boulevard Louis Seguin, 92700 Colombes, France	Ordinary	50	50
Aerospace Transmission Technologies GmbH***	Adelheidstrasse 40, D-88046, Friedrichshafen, Germany	Capital Stock	50	50
Airtanker Holdings Limited	One London Wall, London, England EC2Y 5EB	Ordinary	20	20
Airtanker Services Limited	Airtanker Hub, RAF Brize Norton, Carterton, Oxfordshire, England OX18 3LX	Ordinary	22	22
Alpha Leasing (US) LLC, Alpha Leasing (US) (No.2) LLC, Alpha Leasing (US) (No.4) LLC, Alpha Leasing (US) (No.5) LLC, Alpha Leasing (US) (No.6) LLC, Alpha Leasing (US) (No.7) LLC, Alpha Leasing (US) (No.8) LLC	Wilmington[2]	Partnerships (no equity held)	–	50
Alpha Partners Leasing Limited	London[3]	A Ordinary	100	50
Anecom Aerotest GmbH	122 Freiheitstrasse, Wildau, D-15745, Germany	Capital Stock	24.9	24.9
CFMS Limited	Victoria House, 51 Victoria Street, Bristol, England, BS1 6AD	Limited by guarantee	n/a	50
Clarke Chapman Portia Port Services Limited	Maritime Centre, Port of Liverpool, Liverpool, England, L21 1LA	A Ordinary	100	50
Egypt Aero Management Services	EgyptAir Engine Workshop, Cairo International Airport, Cairo, Egypt	Ordinary	50	50

* 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.
*** As at 31 December 2016, these entities are accounted for as joint operations (see note 1 accounting policies).
[1] Moor Lane, Derby, DE24 8BJ, England.
[2] Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington, DE19808, United States.
[3] 62 Buckingham Gate, London, England, SW1E 6AT.

Company name	Address	Class of shares	% of class held	Group interest held %
EPI Europrop International GmbH	Dachauer Strasse 655, 80995 Munich, Germany	Capital Stock	28	Effective 35.5
Eurojet Turbo GmbH	Lilienthalstrasse 2b, 85399 Hallbergmoos, Germany	Capital Stock	33	Effective 39
GE Rolls-Royce Fighter Engine Team LLC	The Corporation Trust Company, 1209, Orange Street, Wilmington, DE19801, United States	Partnership (no equity held)	–	40
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
Hovden Klubbhus AS	Stålhaugen 5, Ulsteinvik, 6065 Norway	Ordinary	69	69
Industria De Turbo Propulsores SA	Parque Technológico Edificio 300, 48170 Zamudio, Vizcaya, Spain	Ordinary	46.9	46.9
International Aerospace Manufacturing Private Ltd**	Survey No.3 Kempapura Village, Varthur Hobli, Bangalore, KA 560037, India	Ordinary	50	50
LG Fuel Cell Systems Inc.	Wilmington[2]	Common Stock	25	25
Light Helicopter Turbine Engine Company (unincorporated partnership)	Suite 119, 9238 Madison Boulevard, Madison, AL35758, USA	Partnership (no equity held)	–	50
Metlase Limited	Unipart House, Garsington Road, Cowley, Oxford, England, OX4 2PG	Ordinary B	100	20
MTU Turbomeca Rolls-Royce GmbH	Am Söldnermoos 17, 85399 Hallbergmoos, Germany	Capital Stock	33.3	33.3
MTU Turbomeca Rolls-Royce ITP GmbH	Am Söldnermoos 17, 85399 Hallbergmoos, Germany	Capital Stock	25	Effective 37
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
Offshore Simulator Centre AS	Borgundvegen 340, 6009, Ålesund, Norway	Ordinary	25	25
Rolls Laval Heat Exchangers Limited*	Derby[1]	Ordinary A	100	50
Rolls-Royce & Partners Finance (US) LLC, Rolls-Royce & Partners Finance (US) (No.2) LLC	Wilmington[2]	Partnerships (no equity held)	–	50
Rolls-Royce Snecma Limited	Derby[1]	Ordinary B	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
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, DE19801, United States	Partnership (no equity held)	–	50
TRT Limited	Derby[1]	Ordinary B	100	49.5
Turbine Surface Technologies Limited**	Derby[1]	Ordinary B	100	50
Turbo-Union Limited	Derby[1]	Shares A Ordinary	37.5 40	40
UK Nuclear Restoration Limited*	Booths Park, Chelford Road, Knutsford, Cheshire, England, WA16 8QZ	Ordinary	20	20
Viking Reisebyra AS	Stålhaugen 10, 6065 Ulsteinvik, Norway	Ordinary	50	50
Xian XR Aero Components Co., Limited**	Xujiawan, Beijiao, PO Box 13, Xian 710021, Shaanxi China	Ordinary	49	49

* Dormant entity.
** As at 31 December 2016, these entities are accounted for as joint operations (see note 1 accounting policies).
[1] Moor Lane, Derby, DE24 8BJ, England.
[2] Corporation Service Company, 2711 Centerville Road, Suite 400, Wilmington, DE19808, United States.

Independent Auditor's report

to the members of Rolls-Royce plc only

We have audited the financial statements of Rolls-Royce plc for the year ended 31 December 2016 set out on pages 62 to 139. The financial reporting framework that has been applied in the preparation of the group financial statements is applicable law and International Financial Reporting Standards (IFRSs) as adopted by the EU. The financial reporting framework that has been applied in the preparation of the parent company financial statements is applicable law and UK Accounting Standards (UK Generally Accepted Accounting Practice), including FRS 101 *Reduced Disclosure Framework*.

This report is made solely to the company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the company and the company's members, as a body, for our audit work, for this report, or for the opinions we have formed.

Respective responsibilities of directors and auditor

As explained more fully in the Directors' responsibilities statement set out on pages 59 and 60, the directors are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view. Our responsibility is to audit, and express an opinion on, the financial statements in accordance with applicable law and International Standards on Auditing (UK and Ireland). Those standards require us to comply with the Auditing Practices Board's Ethical Standards for Auditors.

Scope of the audit of the financial statements

A description of the scope of an audit of financial statements is provided on the Financial Reporting Council's website at www.frc.org.uk/auditscopeukprivate.

Opinion on financial statements

In our opinion:

- the financial statements give a true and fair view of the state of the group's and of the parent company's affairs as at 31 December and of the group's profit for the year then ended;
- the group financial statements have been properly prepared in accordance with IFRSs as adopted by the EU;
- the parent company financial statements have been properly prepared in accordance with UK Generally Accepted Accounting Practice;
- the financial statements have been prepared in accordance with the requirements of the Companies Act 2006.

Opinion on other matter prescribed by the Companies Act 2006

In our opinion the information given in the Strategic Report and the Directors' Report for the financial year is consistent with the financial statements.

Based solely on the work required to be undertaken in the course of the audit of the financial statements and from reading the Strategic report and the Directors' report:

- we have not identified material misstatements in those reports; and.
- in our opinion, those reports have been prepared in accordance with the Companies Act 2006.

Matters on which we are required to report by exception

We have nothing to report in respect of the following matters where the Companies Act 2006 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept by the parent company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent company financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of directors' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit.

JIMMY DABOO (SENIOR STATUTORY AUDITOR)
for and on behalf of KPMG LLP, Statutory Auditor

Chartered Accountants
15 Canada Square
London E14 5GL
13 February 2017

Additional financial information

Foreign exchange

Foreign exchange rate movements influence the reported income statement, the cash flow and closing net cash balance. The average and spot rates for the principal trading currencies of the Group are shown in the table below:

		2016	2015	Change
USD per GBP	Year end spot rate	**1.23**	1.48	-17%
	Average spot rate	**1.36**	1.53	-11%
EUR per GBP	Year end spot rate	**1.17**	1.36	-14%
	Average spot rate	**1.22**	1.38	-12%

The Group's approach to managing its tax affairs

Introduction

Rolls-Royce is committed to (i) complying with laws in a responsible manner and (ii) building and maintaining professional and constructive working relationships with tax authorities based on principles of mutual transparency and trust.

These commitments, which are explained in more detail below, apply to all countries and all employees.

1. Tax planning

The Group manages tax costs through maximising the tax efficiency of business transactions which includes taking advantage of available tax incentives and exemptions. This must be done in a way which is aligned with the Group's commercial objectives and meets its legal obligations and ethical standards. It must also be done in a way that gives a tax result the Group reasonably believes is not contrary to the clear intentions of the legislation concerned.

2. Relationships with tax authorities

The Group is committed to building constructive working relationships with tax authorities based on a policy of full disclosure in order to remove uncertainty in its business transactions and allow the authorities to review possible risks.

Where appropriate and possible, the Group enters into consultation with tax authorities to help shape proposed legislation and future tax policy.

3. Transfer pricing

The Group seeks to price transactions between Rolls-Royce group companies as if they were between unrelated parties, in compliance with the OECD Transfer Pricing Guidelines and the laws of the relevant jurisdictions.

4. Governance

The Board has approved this approach.

The Audit Committee of the Company's parent company, Rolls-Royce Holdings plc, oversees the Group's tax affairs and risks through periodic reviews.

The Group's Governance Framework is used to manage tax risks, establish controls and monitor their effectiveness.

The Group Tax Director is responsible for ensuring that appropriate policies, processes and systems are in place and that the global tax team has the required skills and support to implement this approach.

The Group's global corporate income tax contribution

Around 85% of the Group's underlying profit before tax (excluding joint ventures and associates) is generated in the UK, the US, Germany, Norway, Finland and Singapore. This is lower than 2015 (95%) due to losses in the Marine businesses. The remaining profits are generated across more than 40 other countries. This reflects the fact that the majority of the Group's business is undertaken, and employees are based, in the above 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 profit before tax reported on page 62. 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 Group's total corporation tax payments in 2016 were £157m. 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, which excluding joint ventures and associates would be 37.5% (2015: 26.6%). The underlying tax rate including joint ventures and associates can be found on page 34. This is due to deferred tax accounting, details of which can be found in note 5 to the Consolidated Financial Statements. The impact of (iii) will often be permanent depending on the relevant tax law.

Further information on the tax position of the Group can be found as follows:

- Note 1 to the Consolidated Financial Statements (pages 71 and 73) – Details of key areas of uncertainty and accounting policies for tax;
- Note 5 to the Consolidated Financial Statements (pages 84 to 86) – Details of the tax balances in the Consolidated Financial Statements together with a tax reconciliation on continuing operations. This explains the main drivers of the tax rate.

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 volatility of significant items in reported profits, in particular the net unrealised fair value changes to derivative contracts.

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 life cycles. Discounted cash flow analysis of the remaining life of projects is performed on a regular basis.

Sales of engines in production are assessed against criteria in the original development programme to ensure that overall value is enhanced.

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 16. The Frc is chaired by the Chief Financial Officer. The Group has a comprehensive financial risk policy that advocates the use of financial instruments to manage and hedge business operations risks that arise from movements in financial, commodities, credit or money markets. The Group's policy is not to engage in speculative financial transactions. The Frc sits quarterly to review and assess the key risks and agree any mitigating actions required.

Capital structure

£m	**2016**	2015
Total equity	**3,457**	6,289
Cash flow hedges	**107**	100
Group capital	**3,564**	6,389
Net debt	**(225)**	(111)

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 £1,500m committed bank borrowing facility from 2020 to 2021. The Group also added a further £500m committed bank borrowing facility with a maturity of 2019. Both of these facilities were undrawn at the period end. At the year end, the Group retained aggregate liquidity of £5.1bn, including cash and cash equivalents of £2.8bn and undrawn borrowing facilities of £2.3bn. Circa £170m of the facilities mature in 2017.

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 10.

Credit rating

	Rating	Outlook	Grade
Moody's Investors Service	A3	Stable	Investment
Standard & Poor's	BBB+	Stable	Investment

The Group's holding company, Rolls-Royce Holdings plc, subscribes to both Moody's Investors Service and Standard & Poor's for independent long-term credit ratings. At the date of this report, it maintained investment grade ratings from both agencies.

As a capital-intensive business making long-term commitments to our 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.

No new accounting standards had a material impact in 2016. The impact of changes to IFRS, in particular IFRS 15 Revenue from Contracts with Customers which have not been adopted in 2016 is included within the accounting policies in note 1.

Glossary

ABC	anti-bribery and corruption
AMC	Approved Maintenance Centre
AMRCs	Advanced Manufacturing Research Centres
APRA	annual performance related award plan
Articles	Articles of Association of Rolls-Royce Holdings plc
ASC	Authorised Service Centres
Brexit	UK exit from the European Union
C&A	commercial and administrative
CARs	contractual aftermarket rights
CEO	chief executive officer
CFO	chief financial officer
Company	Rolls-Royce plc
CPS	cash flow per share
DARPA	Defense Advanced Research Projects Agency
DoJ	US Department of Justice
DPA	Deferred Prosecution Agreements
EASA	European Aviation Safety Agency
ELT	Executive Leadership Team
EU	European Union
EUR	euro
FCA	Financial Conduct Authority
FCAS	UK-France Unmanned Combat Air System
FRC	Financial Reporting Council
FX	foreign exchange
GBP	Great British pound or pound sterling
GHG	greenhouse gas
Global Code	Global Code of Conduct
Group	Rolls-Royce plc and its subsidiaries
HPC	high performance culture
HS&E	health, safety and environment
IAS	International accounting standards
IASB	International Accounting Standards Board
IFRS	International financial reporting standards
KPIs	key performance indicators
ktCO$_2$e	kilotonnes carbon dioxide equivalent
LIBOR	London inter-bank offered rate
LTIP	long-term incentive plan
LTPR	long-term planning exchange rate
LTSA	long-term service agreement
MPF	Ministério Público Federal, Brazil
MRO	maintenance repair and overhaul
MTC	Manufacturing Technology Centre
NCI	non-controlling interest
OCI	other comprehensive income
OE	original equipment
OECD	Organisation for Economic Co-operation and Development
P&L	profit and loss
PBT	profit before tax
PPE	property, plant and equipment
PSP	performance share plan
R&D	research and development
R&T	research and technology
RMS	risk management system
RRSAs	risk and revenue sharing arrangements
SFO	UK Serious Fraud Office
SMR	small modular reactors
SMS	safety management system
SSA	Special Security Agreement
STEM	science, technology, engineering and mathematics
Trent 1000 TEN	Thrust, Efficiency and New Technology
TRI	total reportable injuries
TSR	total shareholder return
USD/US$	United States dollar
UTCs	University Technology Centres

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