

# TRANSFORM



“

In the context of challenging trading conditions our overall performance for the year was in line with the expectations we set out in July 2015. It was a year of considerable change for Rolls-Royce: in our management, in some market conditions and in our near-term outlook. At the same time, there were some important constants: the underlying growth of our long-term markets, the quality of our mission-critical technology and services, and strength of customer demand for these, which are reflected in our growing order book. While we have some near-term challenges, these constants provide us with confidence in a strong, profitable, cash-generative future.”

**Warren East**  
Chief Executive

Welcome to my first Chief Executive's review for Rolls-Royce. My intention is that this report will share with you all, in a clear and open way, how we performed last year, the opportunities ahead of us and the clear goals and priorities we are setting ourselves to maximise value creation.

We are now taking great steps to transform the business, adding pace and simplicity to what we do, a process we started in November 2015. This will be covered extensively in next year's report. In the meantime, we have significantly enhanced the disclosure in this year's report to present our performance in a more transparent and understandable way. I hope you find it informative.

**In this Strategic Report, I will describe the business in depth and we will provide further information on our financial position and business performance.**

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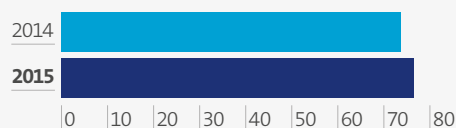
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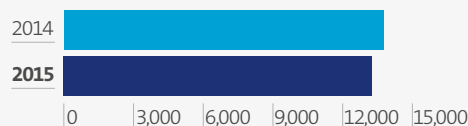
How financial and non-financial indicators are used to measure the Group

# REVIEW OF 2015 AND BUSINESS TRANSFORMATION

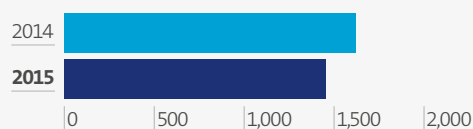
## Order book (£bn)



## Underlying revenue (£m)



## Underlying profit before tax (£m)



## Performance in 2015

Our performance in 2015 was broadly in line with our early expectations, with Marine markets causing most of the weakness. 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 £76.4bn at the year end, up 4% on 2014.

Group revenue was broadly unchanged on a constant currency basis with good growth in Civil Aerospace offsetting weaknesses in Marine. The combination of some difficult market conditions, sustained engineering investment and high fixed costs led to underlying profit before finance charges and tax 11% being lower at £1,492m.

Civil Aerospace delivered an underlying profit before finance charges and tax of £812m (2014: £942m). Defence Aerospace delivered £393m (2014: £366m), Power Systems £194m (2014: £253m) and Marine £15m (2014: £138m). Nuclear delivered £70m (2014: £50m). More detail on each business is included in the Business review.

After underlying financing costs of £60m (2014: £61m), underlying profit before tax was £1,432m (2014: £1,620m). Excluding the benefit of a one-off intellectual property settlement of £58m, triggered by the third-party acquisition of a former business partner, and a favourable £19m R&D credit benefiting our Nuclear business, underlying profit before tax would have been £1,355m, in line with the lower half of the 2015 guidance range set out in July 2015.

After an underlying tax charge of £351m (2014: £388m) and adjusting for non-controlling interests, underlying profit for the year was £1,080m (2014: £1,226m). With an average 1,839 million shares in issue, underlying earnings per share were 58.7p (2014: 65.4p).

Reported profit before tax was £160m (2014: £67m), compared to an underlying profit before tax of £1,432m (2014: £1,620m). A full reconciliation of headline to underlying profit can be found in note 2 to the Consolidated Financial Statements.

Free cash flow of £179m was materially higher than our third quarter expectations, reflecting strong cash collections at the end of the year from a number of key customers, a better than expected overall working capital performance and the non-recurring cash settlement arising from the intellectual property agreement mentioned above. Some of this positive variance is likely to reverse early in 2016.

A more detailed review of financial performance is included in the Financial review.



FINANCIAL REVIEW P42

## Our strategic priorities in 2015

### Customer

Placing the customer at the heart of our organisation is key. We listen to our customers, share ideas, really understand their needs and then relentlessly focus on delivering our promises.

### Innovation

This is our lifeblood. We continually innovate to remain competitive. To drive innovation, we create the right environment – curious, challenging, unafraid of failure, disciplined, open-minded and able to change with pace. Most importantly, we ensure our innovation is relevant to our customers' needs.

### Profitable growth

By focusing on our customers and offering them a competitive portfolio of products and services, we create the opportunity to grow our market share. We have to make sure that we are not just growing, but growing profitably. That means ensuring our costs are competitive. We look after our cash and we win right.

## Performance in 2015

Trent XWB completes exemplary first year in service with Qatar Airways.

Gulfstream G650 corporate jet with BR725 engines enters service.

F-35B Lightning II with Rolls-Royce LiftSystem® declared operational by US Marine Corps.

US Air Force, Boeing and Embraer all name Rolls-Royce in their top supplier categories.

Testing of Trent 1000 TEN and Trent XWB-97 development engines is progressing well.

MTU signs agreement with Daimler to jointly develop EU Stage 5, emissions compliant diesel engines for off-highway applications.

We produce the world's largest 3D component for the aerospace industry.

We are leading an international research programme into remote and autonomous ship control.

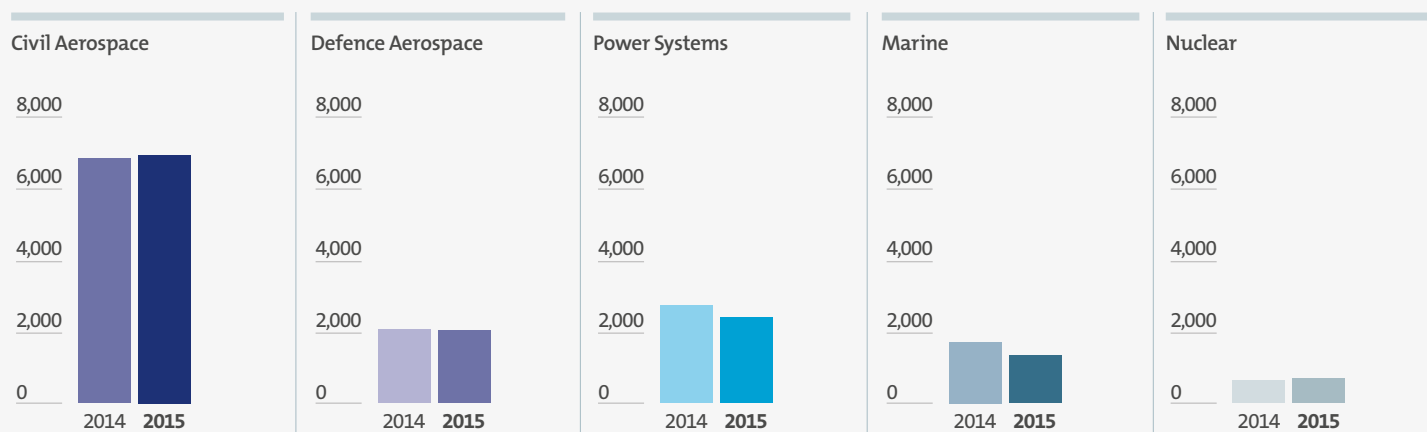
Our largest ever order secured: US\$9.2bn from Emirates for Trent 900s.

We expand TotalCare® service offering range and our maintenance, repair and overhaul (MRO) network.

€100m order for MTU engines to power rail locomotives for Dalian of China.

US\$600m investment announced for re-developing our production facilities in Indianapolis, US.

### Underlying revenue (£m)



## Positive market developments continue to drive long-term growth

The long-term positive market trends for our leading power systems remain unchanged despite some near-term uncertainties that are expected to impact small aerospace engine production volumes and service activity on older widebody engines over the next couple of years. The trends driving demand for growth in large passenger aircraft, corporate jets and maritime activity remain strong; in particular a growing aspirational and mobile middle-class, particularly in Asia, and globalisation in business, trade and tourism. In addition, capacity constraints at the airframe manufacturers and a strong underlying demand for newer, more fuel efficient aircraft, should provide resilience to manufacturing schedules over the next few years as the industry transitions to new airframes during a strong replacement cycle.

The most significant short-term challenge that has emerged in 2015 relates to the changing demand for our Trent 700 engine as Airbus transitions production from old to

new airframes. This has had a knock on effect on both demand for and pricing of the remaining engines to be delivered. Once completed, we will benefit from an exclusive position with the new Trent 7000 on the A330neo. In the near-term the profit impact of this transition is negative; the impact of lower pricing and gross margin is exacerbated by the accounting effects of changes within our large engine aerospace product mix as we transition to a portfolio increasingly comprising 'unlinked' platform positions. However, the roll-out of new engines will significantly grow our market share and the installed base of new engines will deliver strong aftermarket revenues for decades to come.

We recognise that these changes have been exacerbated by market uncertainty as to the impact of TotalCare accounting on our financial statements. As a result, we are increasing our financial disclosure to present a simpler narrative that will more clearly describe how the key drivers of performance translate into our financial results and aid transparency and understanding. These are included in the Business review.



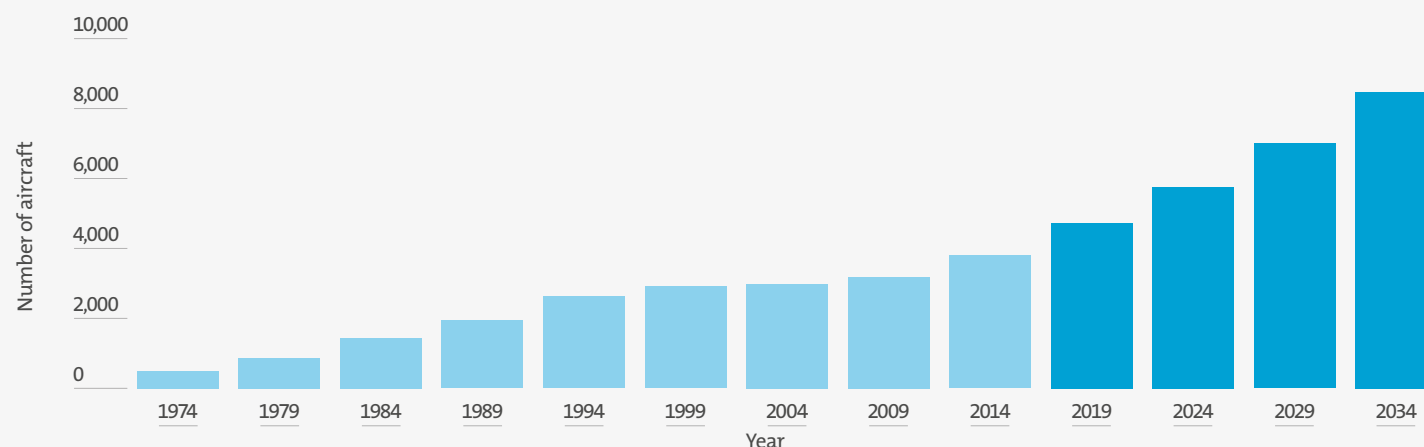
BUSINESS REVIEW P22

## Announced initial findings of a detailed operational review

Our strategic priorities for 2015 remained largely consistent throughout the year, with a clear focus on the customer, innovation and on driving long-term profitable growth. However, with short-term market conditions around us changing, it has been appropriate to review these priorities as we look to the next three or four years.

Since July 2015, we have been conducting a review of operations and presented the initial conclusions in November 2015. As part of this we shared our views on the strengths and weaknesses of our business portfolio and updated management's future focus and priorities around delivery and transformation.

## Strong growth expected in installed widebody fleet



■ Company estimates



## Clear areas for business improvement

The review of operations also highlighted a number of opportunities to drive further performance improvements over and above the extensive restructuring programmes already underway. As we grew as an organisation we embedded costs and complexity in the business which, in periods of significant investment and product transition like now, are impacting our performance. But the higher costs also present a significant opportunity; to simplify what we do and sustainably reduce the cost of management, creating a more streamlined, resilient and sustainable business.

## Strategic focus going forward

The review has led us to recast our priorities for 2016 onwards. As before, the overarching theme continues to be developing our products, services and order book to drive long-term profitable growth. We will do this by focusing on three common themes across all our businesses:

- investing in and developing engineering excellence;
- driving a manufacturing and supply chain transformation which will embed operational excellence in lean, lower-cost facilities and processes; and
- leveraging our installed base, product knowledge and engineering capabilities to provide customers with outstanding service through which we can capture aftermarket value long into the future.

Our ability to deliver these priorities will be enhanced by a major transformation of our organisation; to simplify our processes and management structure, to add pace to our decision making and execution, and to provide space to develop our people and create a stronger, high performance culture.

These themes will become the cornerstones of our operational priorities going forward.



Rolls-Royce is in... growing markets. We are strongly positioned and... growing market share.”

**Warren East**

24 November 2015

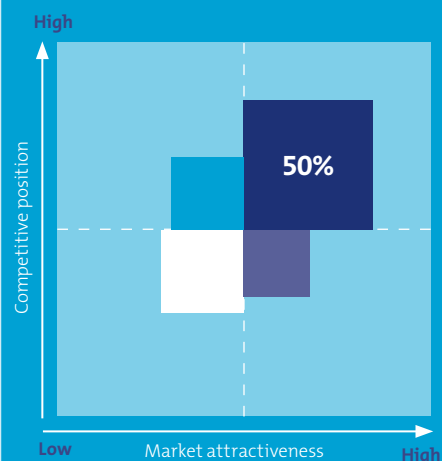
## Portfolio analysis

“We have a strong portfolio of products and services with strong competitive positions and many in sustainably attractive markets. We have the opportunity to strengthen products, routes to market or to reduce their costs so they can be more competitive in the future.”

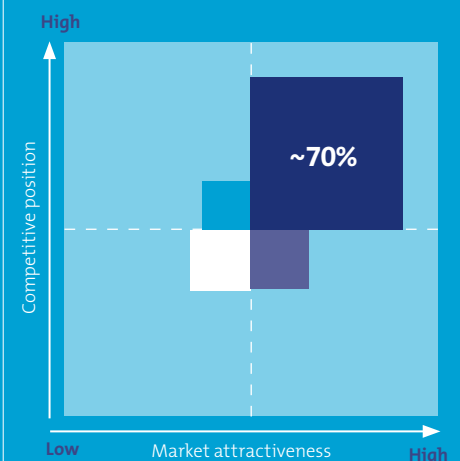
**Warren East**

24 November 2015

Group portfolio 2015



Group portfolio 2020



## Major new transformation programme creating meaningful cost savings

The objective of our new transformation programme is to simplify the organisation, streamline senior management, reduce fixed costs and add greater pace and accountability to decision making. Our target is to deliver incremental gross cost savings of between £150m and £200m per annum, with the full benefits accruing from the end of 2017 onwards.

In the last two months, we have already announced a 20% reduction in the top two layers of senior management with further reductions planned for 2016 and onwards. This has included removal of the divisional structure. To date we have already identified around 50%, or £75-100m, of targeted cost savings with a related exceptional restructuring charge of £75-100m. Around £30-50m of the initial savings should be achieved in 2016 with the full run rate benefiting 2017. Further actions are underway to quantify the additional savings needed to reach our goals, together with the related costs which we expect to take in 2017.

To ensure we remain focused, we have set up a transformation team which will drive change to simplify processes and activities across the Group to deliver sustainable performance improvements. The new team will ensure other restructuring programmes maintain progress. They will also help develop the comprehensive range of key performance indicators needed to support the changes we are looking to make inside the business. Several measures around site level productivity and aerospace engine unit costs have already been adopted within the business. These and other measures will be important indicators of the changing culture around productivity, cost reduction, investment efficiency and process waste. Details on new measures will be set out in further announcements.

## Restructuring initiatives started prior to November continue to make good progress

During 2014 and 2015 restructuring initiatives were started, largely focused on our operational footprint within Aerospace and Marine.

In 2015, we consolidated our Civil Aerospace repair and overhaul activities, enabling the closure of sites in Brazil and the UK, along with further rationalisation of our UK manufacturing footprint. To date, nearly 80% of the targeted 2,600 Civil and Defence Aerospace headcount reductions have been completed, with an 11% reduction in our 2013 operational footprint.

In May 2015, we announced a Marine restructuring programme to make significant reductions in both manufacturing footprint and headcount (by 600) and generate £25m in annual savings from 2016 onwards. This included work to consolidate our footprint and increase lower-cost country sourcing. At the start of October 2015, we announced an additional programme of restructuring, focused largely on back-office administrative functions. This will lead to a further 400 reduction in headcount.

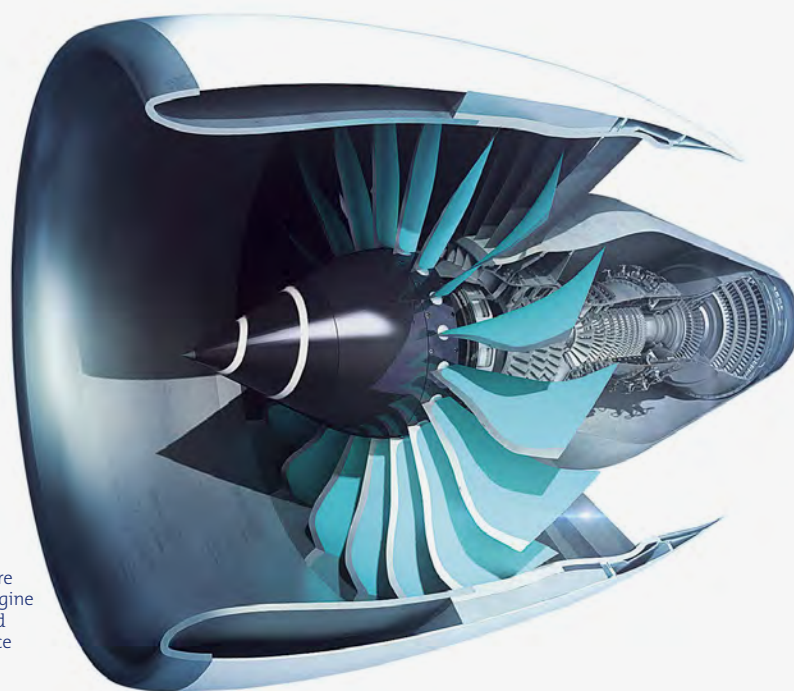
Good progress has been made overall, with related headcount reductions across Aerospace and Marine totalling 2,500 by the end of 2015.



We have significant opportunities to improve our operating performance and our pace, customer delivery, programme delivery, project delivery, lean manufacturing, as well as reducing our footprint.”

**David Smith**  
Chief Financial Officer  
24 November 2015

**Right**  
UltraFan is a future civil aerospace engine concept that could be ready for service from 2025.



# HOW WE ARE TRANSFORMING THE BUSINESS



My review... has highlighted a number of areas where we can simplify the way we work and inject pace into our decision making”

**Warren East**

24 November 2015

## RESTRUCTURING PROGRAMMES ANNOUNCED PRIOR TO NOVEMBER 2015

Incremental changes (as previously announced)*	2015	2016	2017		2015	2020	
<b>Aerospace</b>					<b>Aerospace</b>		
Net improvement	£0m	£80m	£0m		Footprint	1.4 million sqm 1.1 million sqm	↓ 20%
Headcount reduction	2,200**	400	—		Output – number of widebody engines	~330 ~600	↑ 80%
<b>Marine</b>							
Net improvement	£(10)m	£35m	£40m				
Headcount reduction	600	400	—				
* Overall benefits expected to be broadly in line with previously announced estimates							
**Includes 545 who left the business in 2014							

## NOVEMBER 2015: NEW TRANSFORMATION PROGRAMME TO CREATE SIGNIFICANT INCREMENTAL SAVINGS

Focus and deploy resources to maximise value to customers and add pace and simplicity to the business

Engineering excellence

Operational excellence

Capturing aftermarket value

### £150–200m

initial saving targeted with maximum 1-2 year payback

Primarily senior level, corporate and divisional fixed costs



## Transforming our US operations

In October 2015, we confirmed the decision to invest nearly US\$600m in modernising our manufacturing base in Indianapolis, US.

This investment is the largest by Rolls-Royce in the US since we purchased the Allison Engine Company in 1995.

The new facility is part of a five-year modernisation plan and the investment is in line with the Group's ongoing commitment to consolidate operations and significantly reduce operational costs. The new facility will be a state-of-the-art manufacturing centre that combines modern production systems and machinery together with a highly-skilled workforce.

We currently employ around 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.

### Below

Our re-developed facilities in Indianapolis will cover 1.5 million square feet when complete.



## Outlook for 2016

Our outlook for 2016 is unchanged from that set out in November 2015. On a constant currency basis, Group revenue for 2016 is expected to be marginally lower than that achieved in 2015, partially reflecting the pricing and volume effects in Civil Aerospace and the continued weakness in offshore marine markets. Overall, the net profit trading headwinds discussed in previous announcements are unchanged at around £650m compared to our underlying profit before financing, excluding £58m intellectual property settlement included in 'Other' and £19m research and development (R&D) credit which benefited Nuclear.

Individual outlooks are provided for each business in the Business review.



BUSINESS REVIEW P22

## Looking further ahead

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 next ten years as we build toward a 50% plus share of the installed widebody passenger market. While the impact of the transition to the Trent 7000 has reduced Trent 700 deliveries, and will hold back Civil Aerospace profit in the near term, we are confident that the important investments we are making to transition our production will create a strong platform to drive customer service, improved margins and strong cash flows.

Our 2014 and 2015 initiatives to reduce manufacturing and back office costs within Aerospace and Marine are on track to reduce costs by £145m by the end of 2017.

In addition, we have made a good start to the transformation programme that will add pace and simplify our business, and create incremental enduring cost savings of between £150m and £200m per annum from the end of 2017 onwards. These initiatives will make us a more efficient and resilient business. At the same time, we will continue to invest appropriately to strengthen our engineering and operational excellence and aftermarket products and services. We have started the journey that will return the Company to its long-term trend of profitable growth.

# OUR STRATEGIC PRIORITIES GOING FORWARD

## VISION – BETTER POWER FOR A CHANGING WORLD

'...to be the market leader in high-performance power systems where our engineering expertise, global reach and deep industry knowledge deliver outstanding customer relationships and sustainable solutions.'

## STRATEGIC FOCUS – OUR PRIORITIES FOR DEVELOPING THE BUSINESS

'...focus on differentiated, mission-critical power systems which create high barriers to entry in our chosen markets. Leverage world-leading engineering, operational and customer service excellence to drive growing market shares, capture long-term aftermarket value and deliver profitable growth.'

# 1

### Engineering excellence

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

# 2

### Operational excellence

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

# 3

### Capturing aftermarket value

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

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

# OUR BUSINESS MODEL

Our business model is 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.

Our long-life products operate in challenging environments where they are expected to deliver sustained levels of differentiated performance. They deliver value to customers through outstanding power or other performance capabilities, together with greater fuel efficiency and mission-critical reliability. This is often combined with a flexible service offering to best suit each customer's operating needs.

We make significant investments in advanced technology and engineering programmes to deliver market-leading products. We seek to recoup our investment through developing superior products, many of which are selected for use on major multi-year programmes. We benefit from increasingly cost-efficient manufacturing as production levels rise, and by securing strong aftermarket revenues. In certain markets we strengthen our customer relationships typically 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.

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



**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 and make world-class products**  
We differentiate on performance. We win and retain customers by developing and delivering products 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.



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

## 1 Engineering excellence

- Industry-leading R&D
- Proven mission-critical reliability
- Exceptional long-life products
- Differentiated product performance

## 2 Operational excellence

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

## 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 service footprint



**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.



**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.



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



**Secure and maximise service 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.

# ENGINEERING OUR FUTURE

## CREATING WORLD-CLASS TECHNOLOGY

In 2015, we invested £1.2bn in gross R&D, which includes funding from governments and other bodies. £831m was from our own funds. As a result, we applied for 626 patents during the year. It is this investment that creates the intellectual property we then develop and embed in our products.

We leverage our own scientific and engineering talent globally to create world-class technology and also partner with leading academic institutions. This ensures we benefit from the knowledge of renowned experts in their fields, and get the best value from our investment.



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## INVESTING IN PEOPLE AND SKILLS



Our investment in technology and skilled people is vital for a company that has advanced engineering at its core. Ultimately it delivers the differentiated, high-technology products that attract our customers.”

**Colin Smith**  
Group President

Director – Engineering & Technology throughout 2015

We seek to attract and retain the best and brightest engineers. We then create a culture of innovation that allows them to develop their skills. We encourage all employees to contribute to our Innovation Portal via the Company intranet. In 2015, this generated well over 1,000 ideas from which we conducted dozens of challenges.

Graduates recruited in 2015

# 228

Apprentices recruited in 2015

# 277



# £1.2bn

Gross R&D investment in 2015

## RESEARCH AND TECHNOLOGY CENTRES

We have a network of 31 University Technology Centres (UTCs) dedicated to advancing our understanding in specialist science and technologies that are core to our business. 2015 marked the 25th anniversary of our UTC network.

University Technology Centres

# 31

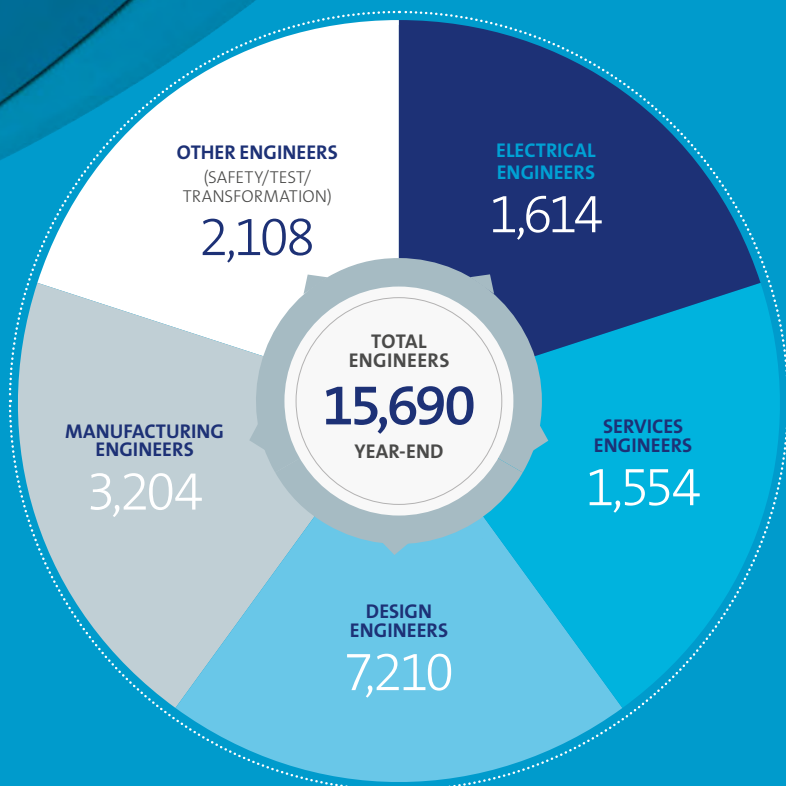
➔ SCIENCE & TECHNOLOGY COMMITTEE REPORT P104

## EXPERT KNOWLEDGE

Within our engineering community, we have some of the world's most knowledgeable people in specialist disciplines. There are over 100 members of the Rolls-Royce Fellowship (fellows and associate fellows) – each recognised as an expert in a particular field of science and technology.

## STEM SUPPORT

We are actively engaged in supporting the study and teaching of science, technology, engineering and mathematics (STEM) subjects. The Rolls-Royce Science Prize is a prime example. This is an annual award programme that rewards excellence in science teaching – this year, we received 2,000 entries.





# ENGINEERING EXCELLENCE

## ...THROUGH DESIGN

### Structured development

Our latest Product Development System, introduced in 2015, provides an even more rigorous and structured method for developing game-changing capabilities and embedding these across the Group. It allows us to substantially improve our performance.

### Lean thinking

We further increased focus on lean thinking and behaviours during 2015, with the aim of transforming our business into a true lean enterprise. By a relentless pursuit of efficiency and continuous improvement we are seeking to empower our people to reduce waste in all its forms and deliver products and services efficiently.

Our Vision 20 approach to research and development of technology over a 20-year horizon

VISION

5

Near-term technologies ready to embed into new products

VISION

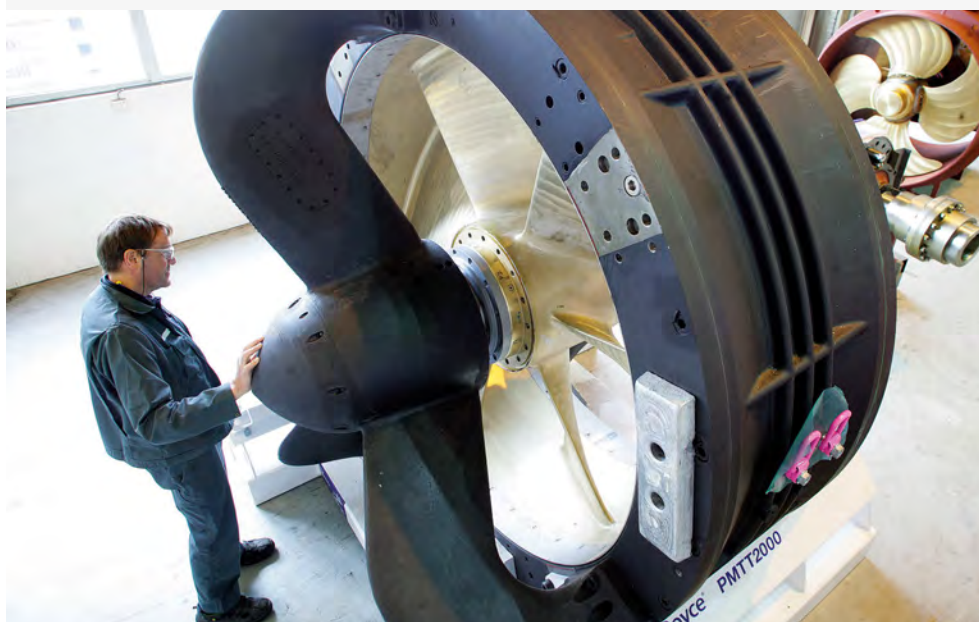
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Leading-edge and validated technologies

VISION

20

Emerging and as yet unproven technologies



### LATEST MARINE THRUSTERS

Permanent magnet tunnel thrusters are now entering service. These improve efficiency and response, while reducing vibration, noise and emissions.



A Trent fan disc being manufactured at our new facility in Washington, Tyne and Wear, UK.

# FUTURE MAKING

## ...THROUGH MANUFACTURING

An important part of the design process is to consider the most effective way of manufacturing the often complex components that go into our products. These considerations are an intrinsic part of design engineering for any Rolls-Royce product. Teams of design and manufacturing engineers work closely on the development of future products.

### Advanced Manufacturing Research Centres (AMRCs)

Our growing network of seven AMRCs forms a unique resource to bridge the gap between early research and industrial application, delivering step-change improvements in product competitiveness and business performance. The network supports all our key manufacturing process technologies including additive layer manufacturing (3D printing) and advanced composites.

These highly collaborative public/private partnerships are a national asset, supported by long-term government commitment and delivering benefits through the entire supply chain for both original equipment and aftermarket activities.

### Advanced Manufacturing Research Centres

# 7

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# BUSINESS REVIEW

## Summary

The Civil Aerospace business is a major manufacturer of aero engines for the commercial large 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 up 3%; solid growth in aftermarket revenues offset lower new engine sales.
- Underlying profit before financing 14% lower than 2014; largely reflecting lower gross margins, due to adverse mix effects and higher R&D charges, partially offset by the impact of life-cycle cost improvements, retrospective long-term contract accounting benefits, a reversal of impairment of contractual aftermarket rights and lower restructuring costs.
- £3.8bn order book growth; led by Trent 900 and Trent XWB orders – Trent XWB now nearly 50% of order book.
- New Trent engines, 1000 TEN, XWB-97 and 7000, on track for entry into service in 2017 and 2018.
- Good progress modernising supply chain to reduce costs and increase capacity for Trent XWB ramp up over next four years.

## Underlying revenue mix



■ OE revenue	47%
■ Services revenue	53%

## Underlying revenue by sector



■ Large engines	63%
■ Small & medium	37%



## CIVIL AEROSPACE

## OPERATIONAL REVIEW

Overall, underlying revenue for Civil Aerospace grew 3% on a constant currency basis (up 1% at actual rates) with steady growth in services (up 9% at constant rates, including a £189m one-off benefit discussed below) which more than offset the reduction in original equipment (down 3% at constant rates). Second-half growth was particularly strong as the business improved original equipment delivery performance on a number of programmes, notably in corporate jets.

Original equipment revenues from widebody engines: linked and other reduced 11% reflecting a slow-down in linked Trent 700 deliveries for the Airbus A330 ahead of the introduction of the Trent 7000 for the A330neo, together with reduced sales of linked Trent 900 engines for the Airbus A380, partly offset by increased linked Trent 1000 engine sales for the Boeing 787 Dreamliner. In addition, sales of spare engines to joint ventures generated revenue of £189m (2014: £138m).

Original equipment revenues from unlinked widebody engines increased by 29%, largely a result of an increase in unlinked Trent XWB and other Trent engine deliveries.

The 17% increase in widebody services revenue was mainly driven by increased flying hours from our growing fleet of installed Trent 700, Trent 900 and Trent 1000 engines and a £189m one-off benefit resulting from refining the basis for taking account of risk in our forecasts of future revenue on long-term contracts. This was partially offset by lower utilisation of some of our more mature engine types, notably the Trent 500 and Trent 800.

Within our corporate engine business we had good revenue growth from our BR725 engine which powers the Gulfstream G650 and G650ER. This was offset by lower volumes for our other products due to weaker demand from Chinese, Russian and Brazilian customers. As a result, corporate original equipment revenues declined 1%. Despite a reduction in new corporate engine deliveries, our installed base of corporate jet engines continued to grow, contributing to a 13% increase in services revenues from these products.

Services revenues from our regional jet engines declined 14%, reflecting retirements and reduced utilisation of relevant fleets by North American operators.

On the V2500 programme, original equipment revenues declined 9% due to reduced demand from International Aero Engines (IAE) for V2500 modules to power the Airbus A320ceo, reflecting a mix change in engine types powering the aircraft ahead of the introduction of the A320neo. Despite continued growth in the installed base of engines, services revenues on the V2500 were down 1% overall reflecting a combination of fewer overhauls, lower spare parts sales and reduced engine flying hours.

Overall gross margins for Civil Aerospace were 22.0% (2014: 24.5%). The year-on-year reduction in margin of £139m reflected the lower

proportion of linked Trent 700 engine sales, weaker corporate jet engine volumes and a declining regional aftermarket, partially offset by £16m higher gross margin contribution from sales of spare engines to joint ventures (£67m in 2015 compared to £51m in 2014).

In addition, these factors were partially offset by a number of contract accounting adjustments and reversals of impairments and provisions.

The in-year benefit of retrospective long-term contract accounting adjustments as expected was a net positive of £222m (2014: total benefit of £150m). Of this, £189m was a one-off benefit resulting from refining the basis for taking account of risk in our forecasts of future revenue. In 2012, it was agreed with the Group Audit Committee that a comprehensive review would be completed during 2015. The new enhanced methodology should better reflect risk, current experience and expected long-term performance. Other long-term contract accounting adjustments totalled a net benefit of £33m (2014: total benefit of £150m). This comprised a retrospective charge of £107m (2014: benefit of £90m), reflecting reduced customer fleet utilisation, mainly in respect of the Trent 500 and Trent 800, other commercial changes and technical risks, offset by the benefit of £140m (2014: benefit of £60m) from life-cycle cost improvements.

Full-year performance also benefited from the reversal of previously recognised impairments on contractual aftermarket rights (CARs) and release of a related provision with a profit of £65m being recognised (2014: impairment charge of £19m). This reflected a significantly more positive outlook for future maintenance costs for a Trent 1000 launch customer which enabled the reversal of a previous impairment. This also resulted in the capitalisation of £22m of 2015 CARs that would otherwise have been impaired.

Costs below gross margin were £5m lower than the previous year. Within this, R&D charges were £64m higher, reflecting increased spend on key programmes, particularly in respect of the Trent 1000 TEN, the Trent 7000 and the Trent XWB-97. These engines, now in their final stages of preparation before flight testing, are due to enter service in 2017 and 2018. They represent a significant advance on previous Trent designs, providing substantial fuel burn improvements. The Trent 7000 and Trent XWB-97 programmes have yet to reach a point at which their costs can be capitalised. In addition, following its successful entry into service, continuing investment in the Trent XWB-84 engine can no longer be capitalised. Investment also increased to develop future corporate jet engine technology.

#### CIVIL AEROSPACE / KEY FINANCIAL DATA

	2014	Underlying change	Acquisitions & disposals	Foreign exchange	2015
<b>Order book</b>	<b>63,229</b>	3,800	—	—	<b>67,029</b>
Engine deliveries	739	(27)	—	—	712
<b>Underlying revenue</b>	<b>6,837</b>	201	—	(105)	<b>6,933</b>
<i>Change</i>		+3%	—	-2%	+1%
Underlying OE revenue*	3,463	(117)	—	(88)	3,258
<i>Change</i>		-3%	—	-3%	-6%
Underlying services revenue*	3,374	318	—	(17)	3,675
<i>Change</i>		+9%	—	+1%	+9%
<b>Underlying gross margin</b>	<b>1,675</b>	(139)	—	(10)	<b>1,526</b>
<i>Gross margin %</i>	<i>24.5%</i>	<i>-270 bps</i>	—	—	<i>22.0%</i>
Commercial and administrative costs	(283)	(14)	—	1	(296)
Restructuring costs	(82)	75	—	—	(7)
Research and development costs	(461)	(65)	—	11	(515)
Joint ventures and associates	93	8	—	3	104
<b>Underlying profit before financing</b>	<b>942</b>	(135)	—	5	<b>812</b>
<i>Change</i>		-14%	—	—	-14%
<b>Underlying operating margin</b>	<b>13.8%</b>	<i>-230 bps</i>	—	—	<b>11.7%</b>

\* The methodology basis for the allocation of Civil Aerospace revenues on linked TotalCare contracts between original equipment and aftermarket has been reviewed and amendments made to reflect better the commercial substance of the combined contracts. Historically, the allocation has resulted in original equipment revenue and aftermarket revenue reflecting the contractual terms rather than the commercial substance of the contracts. The 2014 figures have been restated on the same basis; the impact was an increase in original equipment revenue of £198m and an equal decrease in aftermarket revenue.

The R&D charge was reduced by £94m (2014: £71m) by the recognition of entry fees receivable from risk and revenue sharing arrangements (RRSA).

Underlying corporate, administration and other costs were £14m higher. Restructuring costs were £75m lower reflecting the significant charges taken in 2014.

As a result, profit before financing and tax was 14% down, reflecting a combination of lower overall gross margins, increased R&D and reduced restructuring costs. Taking account of foreign exchange effects, underlying profit before financing and tax was £812m (2014: £942m).

Trading cash flow before working capital movements improved year-on-year by £48m, despite the headline drop in underlying profit before financing of £130m and the higher level of CARs additions. This is largely due to a reduced level of property, plant and

equipment additions and a lower spend on certification costs and participation fees. The £286m year-on-year difference in working capital movements was largely due to differences in the timing of payments to suppliers and increased draw down of deposits in 2015.

### Investment and business development

Order intake of £12.8bn in 2015 for Civil Aerospace was £1.1bn up on the previous year. As a result, the order book closed at £67.0bn, up £3.8bn or 6% on the previous year.

Significant orders during the year included our largest ever order by value to provide Trent 900 engines and TotalCare service support for 50 Airbus A380s for Emirates worth \$9.2bn of which \$6.1bn is recognised within the order book. Other major orders included Trent 1000 engines to power 21

Boeing 787 Dreamliner aircraft and long-term TotalCare support for Air China and Ethiopian Airlines, and a \$2.4bn order for engines and services with HNA Group.

### Engineering excellence remains the cornerstone of our value to Civil Aerospace customers

Several important engineering milestones were achieved during 2015. For widebody engines, the focus has been on completing the development and testing of the new Trent 1000 TEN and the Trent XWB-97. The results of initial tests on both engines are broadly in line with expectations. In December 2015, the Trent XWB-97 flew for the first time and has since undergone rigorous testing in a number of conditions. The Trent 1000 TEN has also completed several major milestones. In addition, a hybrid Trent 7000, produced to de-risk the development programme, ran for the first

#### CIVIL AEROSPACE / NEW DISCLOSURE ON REVENUE SEGMENTATION

	2014		Underlying change	Foreign exchange	2015	
	%	£m			%	£m
<b>Underlying revenue</b>	<b>100%</b>	<b>6,837</b>	<b>201</b>	<b>(105)</b>	<b>100%</b>	<b>6,933</b>
<b>Underlying OE revenue</b>	<b>51%</b>	<b>3,463</b>	<b>(117)</b>	<b>(88)</b>	<b>48%</b>	<b>3,258</b>
<i>Widebody engines: linked and other</i>	<i>26%</i>	<i>1,766</i>	<i>(191)</i>	<i>(5)</i>	<i>23%</i>	<i>1,570</i>
<i>Widebody engines: unlinked installed</i>	<i>6%</i>	<i>392</i>	<i>114</i>	<i>(2)</i>	<i>7%</i>	<i>504</i>
<i>Corporate (and other small engines)</i>	<i>14%</i>	<i>974</i>	<i>(9)</i>	<i>(62)</i>	<i>14%</i>	<i>903</i>
<i>V2500</i>	<i>5%</i>	<i>331</i>	<i>(31)</i>	<i>(19)</i>	<i>4%</i>	<i>281</i>
<b>Underlying services revenue</b>	<b>49%</b>	<b>3,374</b>	<b>318</b>	<b>(17)</b>	<b>52%</b>	<b>3,675</b>
<i>Widebody engines</i>	<i>30%</i>	<i>2,029</i>	<i>336</i>	<i>6</i>	<i>34%</i>	<i>2,371</i>
<i>Corporate</i>	<i>6%</i>	<i>383</i>	<i>50</i>	<i>(8)</i>	<i>6%</i>	<i>425</i>
<i>Regional</i>	<i>6%</i>	<i>427</i>	<i>(61)</i>	<i>(6)</i>	<i>5%</i>	<i>360</i>
<i>V2500</i>	<i>7%</i>	<i>535</i>	<i>(7)</i>	<i>(9)</i>	<i>7%</i>	<i>519</i>

#### CIVIL AEROSPACE / NEW DISCLOSURE ON TRADING CASH FLOW

£m	2015	2014	Change
<b>Underlying profit before financing</b>	<b>812</b>	<b>942</b>	<b>(130)</b>
Depreciation and amortisation	410	381	29
<b>Sub-total</b>	<b>1,222</b>	<b>1,323</b>	<b>(101)</b>
CARs additions	(161)	(86)	(75)
Property, plant, equipment and other intangibles	(502)	(748)	246
Other timing differences*	(75)	(53)	(22)
<b>Trading cash flow pre-working capital movements</b>	<b>484</b>	<b>436</b>	<b>48</b>
Net long-term contract debtor movements	(406)	(463)	57
Other working capital movements	(78)	208	(286)
<b>Trading cash flow**</b>	<b>0</b>	<b>181</b>	<b>(181)</b>

\* 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

\*\* 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



time and is now being put through its paces with a series of rigorous tests.

For corporate jets, developments in the year were more modest. Strong orders for the BR725 have sustained steady original equipment volumes as the new Gulfstream G650ER entered service, despite a weakening market. Failure in past years to secure new positions on some important new corporate jet platforms contributed to a weak order intake in the year which will impact future volumes and revenues adversely. As part of our technology strategy, investments are being made to secure future opportunities and regain its position as the leading provider to the important market of large-cabin, long-range corporate jets.

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

As part of the supply chain transformation underway in the business, several important new facilities were completed during the year. These included the opening of our Advanced Blade Casting Facility in Rotherham, UK, which will halve the time it takes to manufacture turbine blades, and an expansion of our Trent XWB production centre in Derby. We also announced plans to invest in our facility in Inchinnan to create a new Centre of Competence for manufacturing aerofoils and established a joint venture with Liebherr to develop manufacturing capability and capacity for the power gearbox for our UltraFan™ demonstrator programme.

### Strengthening our aerospace aftermarket service offering

During 2015, we broadened our service offering and strengthened our support network to provide customers with greater choice, flexibility and capability at all stages of the engine lifecycle, supporting a growing installed base.

This included making improvements to our Trent service network which will result in increased competition among our Approved Maintenance Centres (AMCs) and the announcement of our first independent AMC, Delta TechOps. We have also set up a global network of Customer Service Centres,

bringing us closer to our customers, working in their time-zones.

We launched a new service, SelectCare™, which fits between our comprehensive TotalCare and general maintenance, repair and overhaul services, where customers contract for individual shop visit support. At the same time, we announced American Airlines as the launch customer. We also announced our first customers for TotalCare Flex®, a new service targeting owners and operators of more mature engines. Cathay Pacific, AerCap, South African Airways and BMI Regional chose the service for Trent 800, Trent 500 and AE 3007 engines.

### Civil Aerospace outlook

As we set out in November 2015, we believe the long-term outlook for Civil Aerospace remains very good, led by a strong widebody order book for fuel efficient engines. Key to the long-term success of the business is converting this exceptional order book into a large installed base of engines that meet customer demands for safe, reliable, efficient operation while driving profitable engine flying hour revenues. The next few years will be very important as we ramp up production of new engines – in new, efficient facilities – and invest in the development of future engine platforms that will benefit the order book from 2020 onwards. As a result, until we gain additional aftermarket scale, or complete our industrial transformation and improve unit costs and cash margins, the business will continue to be a net investor of cash.

Over the next few years the transition from 'linked' to 'unlinked' contracts creates a headwind to reported profit but no change to cash flows.

In the future, an increasing proportion of our new engines will be sold to the airframer on a sole-source basis, in particular the new Trent XWB and Trent 7000 for use on the Airbus A350 and A330neo respectively. As a result, a significantly larger proportion of our sales in the future will be accounted for on an 'unlinked' basis. While this does not change cash flows, it does change the timing of when profit is recognised across the OE and aftermarket contracts. Under 'unlinked' accounting, the engine sale and aftermarket contracts are accounted for separately.

### Engines delivered in 2015

# >700

This typically results in lower upfront profit recognition on engine delivery, with significantly higher proportion of profit in the aftermarket period. This is in comparison to 'linked' accounting, where a blended margin is applied across the engine sale and aftermarket contracts.

Near-term conditions in some segments remain challenging. We continue to expect our Civil Aerospace business to underperform 2015 underlying profit before finance and tax by around £550m. The significant headwinds related to Trent 700 volume reductions and the non-recurrence of a number of one-off benefits seen in 2015 remain broadly unchanged. In addition, we still expect to see weaker demand for new corporate jets and declines in demand within our regional jet aftermarket. The aftermarket benefit of higher levels of engine deliveries and increased installed thrust is expected to be largely offset by the underutilisation of older large engines. However, the business will benefit from reduced costs from the restructuring initiatives started in 2014.

We now expect the TotalCare net asset to grow from £2.2bn and peak at around £2.5bn, allowing for a more positive demand outlook for our 'linked' accounted engines and the benefit of further life-cycle cost improvements now being seen in engine performance.

## 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 are market leaders in the large business jet fleet market powering aircraft from most of the main airframers. We have a strong market position on widebody aircraft produced by the world's two major airframers: Boeing and Airbus, who are broadly consistent in forecasting traffic growth (Revenue Passenger Kilometres) of approximately 5% CAGR 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.

### Potential for OE and services over the next 20 years

#### Civil Aerospace – all sectors

**\$1,720bn**

#### Original equipment

**\$1,110bn**

#### Aftermarket

**\$610bn**

## Market dynamics

- Overall there has been a slowdown in all major geographical markets for new aircraft orders reflecting a period of higher than normal order placement for new airframe products in recent years (principally Airbus A350 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.
- Asia and the Middle East are strong drivers of growth, correlating to their regional GDP growth.
- Historically, growth has recovered quickly following major economic shocks.
- Our current share in the widebody engine market is at 31% of the installed widebody passenger fleet and is expected to reach 50% early in the next decade.
- Older widebody aircraft are experiencing reduced utilisation by certain airlines, in particular Boeing 777s and Airbus A340s.
- The re-engining of the A330, announced in summer 2014, reduced Trent 700 sales ahead of the new Trent 7000 entering service in 2017 as the sole source engine for A330neo.
- Over 90% of Rolls-Royce large engine fleet is covered by our TotalCare service agreements.
- We are the market leader in large business jet aircraft engines, with 55% market share of the large/very large business jet market in 2015.
- Over 65% of Rolls-Royce business jet engines are covered by our CorporateCare® service agreements.
- 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 current 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. Overall, this sector is expected to grow faster than global GDP in the long term.
- In the regional sector, aftermarket demand for engines on 50-70 seat aircraft is reducing as aircraft approach the end of their lives.

## Business risks

- If we experience a major product failure in service, then this could result in loss of life and critical damage to our reputation.
- If an external event or severe economic downturn significantly reduces air travel, then our financial performance may be impacted.
- If our airframer 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.

## Competition

- GE is the main competitor supplying engines in the widebody sector. In 2015, deliveries of engines for widebody passenger aircraft were split Rolls-Royce 38%, GE 54%, Pratt & Whitney 2%, and Engine Alliance 6%.
- 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 775 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; in 2015 the GE-Honda joint venture entered the market in very low thrust engines.
- Rolls-Royce has 3,100 powered business jets flying, representing 55% market share of the large/very large business jet fleet.

## Opportunities

- Our position and long-term prospects in the widebody sector are strong across our Trent family.
- The Trent XWB has successfully completed its first year in service and the new Trent XWB-97 engine made its first test flight in November 2015 and is on schedule to enter into service in 2017.
- The new Trent 7000 is scheduled to enter into service in 2017 on the A330neo. We have sole source on this platform which will replace the A330, on which we are one of three engine providers.
- We will be introducing the new Trent 1000 TEN in 2017 for the Boeing 787. On the 787, Rolls-Royce engines have been selected for 42% of the current order book.
- A potential significant new entrant into the civil sector is China's COMAC which is developing a narrowbody aircraft for entry into service towards the end of the decade. 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.

## Key Rolls-Royce differentiators

- Barriers to entry are extremely high in the civil sector. 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 customer relationships.



### Exemplary year for Trent XWB

On 15 January 2016, the world's most efficient aero engine completed its first year in service. The Trent XWB on the A350 XWB airliner achieved the milestone in style having delivered outstanding performance over its first 12 months of operation, with launch customer Qatar Airways.

The engine lived up to its credentials in terms of being the most efficient engine ever and the Trent XWB also managed to claim the crown of being the most reliable engine with a dispatch rate of 99.83%.

Designed as the next generation of medium-/long-haul airliners, the A350 is an all-new family of aircraft from Airbus.

The Trent XWB engine represents the largest single element of our £76.4bn order book by some margin. Over 1,500 of the engines have been ordered by more than 40 airlines, from important existing customers and from new Rolls-Royce customers all over the world.



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## Summary

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

## Key highlights

- Underlying revenue 5% lower; revenues impacted by weaker helicopter and trainer volumes, partially offset by higher combat original equipment sales.
- Underlying profit before financing up 4%; steady gross margin and lower restructuring costs offset higher R&D charges.
- Strong positions in transport and patrol, and combat underpin outlook for a steady performance in 2016.
- Major five-year \$600m investment in Indianapolis, US, to improve cost base and benefit long-term growth.

### F-35B Lightning II

The F-35B aircraft, which employs the Rolls-Royce LiftSystem, was declared operational in 2015.



## Underlying revenue mix



OE revenue	39%
Services revenue	61%

## Underlying revenue by sector



Combat	36%
Transport and patrol	43%
Other	21%

# DEFENCE AEROSPACE

## OPERATIONAL REVIEW

Underlying revenue at £2,035m was 5% lower on a constant currency basis (down 2% at actual exchange rates). Lower original equipment volumes for helicopters and trainers were partially offset by growth in LiftSystem™ volumes. Aftermarket revenues reflected lower volumes on helicopter spares partially offset by higher revenues related to long-term service agreements for UK combat aircraft.

Despite the reduced revenues, gross margin improved to 28.5%. Lower helicopter volumes and lower margins on some transport contract extensions were offset by higher LiftSystem volumes and increased retrospective margin improvements of £101m (2014: £53m) on existing long-term contracts. These relate to various combat platforms, where overall profitability has been improved by changed flying patterns and lower service costs, including approximately £40m (2014: £nil) due to one-off contract and scope variations.

Overall R&D costs were £20m higher in 2015 reflecting increased investment in new programmes. Restructuring costs were lower due to reduced level of severance costs and lower costs related to changing our operational footprint.

Underlying profit before financing of £393m was 4% up on the prior year on a constant currency basis, reflecting the lower volumes, the one-off margin improvements, increased R&D charges and lower restructuring charges. As a result, operating margin improved by 170 basis points to 19.3%.

## Investments and business development

Overall, the Defence order book declined 5%, in large part reflecting the 2014 benefit of the significant multi-year order for engines to power C-130J aircraft. With a major focus within defence budgets on cost control, 2015 saw significant interest in availability-based service contracts and also on offering efficiency upgrades. New contracts included an extension of the UK's Hercules Integrated Operational Support contract and commitment to the UK's Future Combat Air System (FCAS) programme. After successful first flights on US 'Hurricane Hunter' P-3 aircraft in May, we received strong international interest including an initial USAAF order for the T56 3.5 technology insertion kit upgrade delivering both fuel saving and performance benefits for an engine programme which has been in existence for over 50 years.

Outside the UK and US markets, our particular focus has been on positioning ourselves to be competitive for forthcoming combat programmes. We had success in South Korea in conjunction with Airbus, with the contract being awarded to power the A330 tanker fleet with Trent 700 engines, as well as agreeing an order for our largest ever number of engines – a ten-year order with Robinson to supply at least 1,000 RR300 engines.

Long term, it remains essential that we have a cost-efficient supply chain to support the profitable growth of our business in a competitive market. To support future business competitiveness we initiated a major \$600m investment in the upgrading of our Indianapolis facility, which will bring a combination of cost reductions, operational efficiencies and greater development capabilities for defence technologies. This investment recognises the importance of the US market and our strong position there.

## Defence Aerospace outlook

The long-term outlook for Defence Aerospace remains positive with good opportunities to capitalise on its strong positions in transport and patrol and combat. Investment in developing new advanced technologies will be a feature of R&D for the next few years as the business ensures it can compete for new opportunities.

The outlook for revenues in 2016 remains steady. Operating profit will be adversely impacted by the lower level of expected long-term contract benefits in 2016, together with higher R&D and operational restructuring costs.

Free cash flow from Defence Aerospace is expected to remain strong in the longer term, reflecting the high proportion of aftermarket revenues. However, in the coming year free cash flow is expected to be lower reflecting the increased cost of investment and the run out of costs on key UK programmes where deposits have been received in advance of delivery.

## Investment in US facilities

# \$600m

## DEFENCE AEROSPACE / KEY FINANCIAL DATA

£m	2014	Underlying change	Acquisitions & disposals	Foreign exchange	2015
<b>Order book</b>	<b>4,564</b>	(248)	—	—	<b>4,316</b>
Engine deliveries	744	(95)	—	—	649
<b>Underlying revenue</b>	<b>2,069</b>	(101)	—	67	<b>2,035</b>
<i>Change</i>		-5%	—	+3%	-2%
Underlying OE revenue	816	(45)	—	30	801
<i>Change</i>		-6%	—	+4%	-2%
Underlying services revenue	1,253	(56)	—	37	1,234
<i>Change</i>		-5%	—	+3%	-2%
<b>Underlying gross margin</b>	<b>567</b>	(9)	—	21	<b>579</b>
<i>Gross margin %</i>	<i>27.4%</i>	<i>+90bps</i>	—	—	<i>28.5%</i>
Commercial and administrative costs	(112)	(7)	—	(5)	(124)
Restructuring costs	(55)	48	—	(1)	(8)
Research and development costs	(50)	(20)	—	(3)	(73)
Joint ventures and associates	16	3	—	—	19
<b>Underlying profit before financing</b>	<b>366</b>	15	—	12	<b>393</b>
<i>Change</i>		+4%	—	—	+7%
<b>Underlying operating margin</b>	<b>17.7%</b>	<b>+170bps</b>	—	—	<b>19.3%</b>



## MARKET REVIEW

Rolls-Royce is a market leader in defence aero engines for military transport aircraft and has strong positions in other sectors, including combat, 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.

Potential for OE and services over the next 20 years

Defence Aerospace – all sectors

**\$400bn**

Original equipment

**\$125bn**

Aftermarket

**\$275bn**

## 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 purchases, 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 original equipment and services spend.
- Revenue has historically been broadly balanced between original equipment 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 critical damage to 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 the main competition 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 support/lead sales campaigns globally on behalf of Eurojet for export sales opportunities of Eurofighter Typhoon.
- Barriers to entry are high and we do not envisage the competitive landscape changing significantly in the near future.

## Opportunities

- The UK's FCAS potentially a joint programme with France, presents a longer-term combat opportunity to Rolls-Royce.
- Our LiftFan™ system for the F-35B is only just entering service and we expect to deliver over 400 systems in the next 20 years.
- Emerging markets, such as India, Turkey and South Korea 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®.

## 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.



### World leader in transport engines

A KC-130J tanker-transport aircraft is seen here (above left) preparing to refuel a V-22 tiltrotor Osprey transporter. Both aircraft are in service with the US Marine Corps and both are powered by Rolls-Royce.

The Lockheed Martin C-130J is one of the most reliable and versatile transport aircraft in the world (the KC-130J being the tanker version).

Powered by the Rolls-Royce AE 2100 engine, the C-130J family of aircraft follows on from the original, venerable, C-130, which is still giving sterling service all over the world with its Rolls-Royce T56 powerplants.

In fact, Rolls-Royce has breathed further life into the T56 by developing a new version of the engine which is delivering significant fuel savings and which the Group believes will see the T56 continue in service for many years to come. In December 2015, we announced that Rolls-Royce was one of three companies to benefit from a £369m contract to support the RAF's C-130 fleet.

The C-130J has also seen developments beyond its transport and refuelling role. One of the lessons learned in Afghanistan was the constant demand for airborne video surveillance and the requirement for a 'quick strike' weapon to help protect troops

on the ground. The US Marine Corps turned to the KC-130J. The aircraft can loiter in the air for over ten hours thanks to the performance of its AE 2100 engines and so they armed it with a quick strike weapon that would not affect the core mission of aerial refuelling.

In its tanker role, the aircraft has the ability to refuel both low-speed helicopters and high-speed jet aircraft by changing the basket on the drogue system. The aerial refuelling pods can deliver more than 12,000 US gallons of fuel and can refuel two aircraft simultaneously.

In addition to the V-22 and C-130J families, Rolls-Royce also powers the Airbus A330 Voyager tanker/transport with Trent 700 engines and we are a major partner in the Europrop International consortium responsible for the design and build of the TP400 engine for the new A400M military transport aircraft. The first A400M began active service with the RAF during 2015.

## Summary

Power Systems is a leading provider of high- and medium-speed reciprocating engines, complete propulsion and drive systems, distributed energy solutions and fuel injection systems. The business serves the marine, naval, land defence, rail, mining, oil & gas, construction & agriculture and power generation markets through its core brands MTU, MTU Onsite Energy, Bergen and L'Orange.

## Key highlights

- Underlying revenue 3% lower; weaker original equipment partially offset by good growth in services.
- Underlying profit before financing 15% lower; led by lower gross margin.
- Positive outlook for 2016; healthy closing order book with good positions in key market segments.
- Long-term R&D investments to increase cost competitiveness in higher volume engine applications.

### MTU diesel engine

Our MTU brand is a world leader in high-speed diesel engine power.

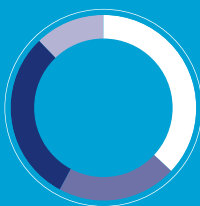


## Underlying revenue mix



■ OE revenue	68%
■ Services revenue	32%

## Underlying revenue by sector



■ Marine	37%
■ Industrial	21%
■ Energy	30%
■ Defence and other	12%

# POWER SYSTEMS

## OPERATIONAL REVIEW

Underlying revenue of £2,385m was 3% lower on a constant currency basis (12% lower at actual rates). Original equipment revenue was 5% lower, reflecting weaker oil & gas markets and weaker governmental demand which peaked in 2014. This was partially offset by an improved luxury yacht demand and some recovery in our sections of the construction and agriculture market where new emissions regulations increased demand. Underlying service revenues were up 3% despite some weakness in spare parts sales in North America and Europe.

Gross margins were slightly lower at 26.6% (2014: 27.3%) reflecting a change in product mix and lower overall volumes as expected.

Underlying profit declined 15% as a result of the lower gross margins. On a constant currency basis costs below gross margin were unchanged.

## Investment and business development

Our Power Systems business serves a variety of markets ranging from marine, industrial, construction & agriculture to defence and power generation. This diversity enabled the business to mitigate some of the weak environment, particularly that linked to oil and commodities.

2015 order intake was £2.5bn (2014: £2.6bn) with the closing order book broadly unchanged at £1.9bn. Within this, the defence sector demonstrated greater resilience with a combination of a higher proportion of long-term service contracts together with the winning of the first order worth approximately €80m from the British Army for 589 MTU diesel engines for the new Scout Specialist Vehicle.

Within the broad range of industrial applications, while a number of markets deteriorated through the year, there was positive news. This included contract wins from a Chinese company for 232 MTU Series 4000 engines for freight locomotives bound for South Africa, and further orders for luxury yacht engines. An extension to our longstanding co-operation with Daimler was also agreed for the development of a new range of industrial engines, which comply with new EU off-highway regulations for reduced soot emissions.

The energy segment generated an increased order intake in 2015 reflecting good growth in gas gensets, particularly in Asia. In addition, the easing of the trading embargo with Iran is enabling the business to secure a good foothold in the country. As a result, we enjoy a strong market position within back-up power, particularly for larger mission-critical applications, which is a growing market. Recent notable orders came from Kuwait, Turkey and Bangladesh for the provision of back-up power for hospital modernisations and continuous power for a steel mill.

## Power Systems outlook

The outlook for Power Systems remains steady. The business finished the year with a healthy order book for many of its key markets. As a result, while some markets remain difficult, we continue to expect the business to deliver modest growth in revenue and profit in 2016.

## Closing order book

# £1.9bn

## POWER SYSTEMS / KEY FINANCIAL DATA

£m	2014	Underlying change	Acquisitions & disposals	Foreign exchange	2015
<b>Order book</b>	<b>1,971</b>	(43)	—	—	<b>1,928</b>
<b>Underlying revenue</b>	<b>2,720</b>	(72)	—	(263)	<b>2,385</b>
<i>Change</i>		-3%	—	-10%	-12%
Underlying OE revenue	1,893	(97)	—	(178)	1,618
<i>Change</i>		-5%	—	-9%	-15%
Underlying services revenue	827	25	—	(85)	767
<i>Change</i>		+3%	—	-10%	-7%
<b>Underlying gross margin</b>	<b>742</b>	(37)	—	(70)	<b>635</b>
<i>Gross margin %</i>	27.3%	-70bps	—	—	26.6%
Commercial and administrative costs	(296)	(9)	—	30	(275)
Restructuring costs	(7)	3	—	—	(4)
Research and development costs	(183)	3	—	18	(162)
Joint ventures and associates	(3)	3	—	—	—
<b>Underlying profit before financing</b>	<b>253</b>	(37)	—	(22)	<b>194</b>
<i>Change</i>		-15%	—	—	-23%
<b>Underlying operating margin</b>	<b>9.3%</b>	-110bps	—	—	<b>8.1%</b>



## MARKET REVIEW

The markets served by Power Systems are driven by global megatrends such as increasing population growth, rising energy, resource and food demand, increasing and stricter emissions legislation and government defence budgets. Despite the current market downturn in some of our markets, most noticeably in oil & gas and offshore, we expect long-term recovery in these and continuous growth in all of our markets. We estimate that Power Systems 'off-highway' reciprocating engine markets offer an opportunity of £650bn.

Potential for OE and services over the next 20 years

Power Systems – all sectors

**£650bn**

## Market dynamics

- Population growth and increasing urbanisation are driving rising demands for energy, resources and food and continuous infrastructure developments.
- Global GDP development with particular growth in Asia.
- Increasing global and regional trade and transport of goods.
- Geopolitics and an increasing multipolar world are driving modest defence budget growth (1-2%) in NATO countries with more growth in emerging markets.
- Increasing focus on renewable energy sources requires decentralised and clean energy solutions (eg. continuous gas and back-up power generation solutions).
- Increasing environmental legislation and efficiency requirements drive emission and efficiency technologies.
- Current weak environment in certain markets (eg. oil & gas and mining), due to current low oil and commodity price levels.

## Business risks

- Economic: some markets are currently affected by low oil and commodity prices (oil & gas, mining) while some regional markets show challenges due to the current economic situation.
- Political: increasing political tensions and sanctions might limit levels of global trade and customer access.
- Competitive: upcoming competitors from Asia and new entrants into our existing markets can potentially put pressure on volumes and margins.
- Technological: complementary technologies might replace existing solutions eg. energy storage for back-up power.

## Competition

- Fragmented competitor landscape in 'off-highway' engine markets which varies depending on specific market segments – many 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, eg. Asia, through leveraging partner companies.
- Continuous development into clean propulsion and energy solutions which are compliant with new emissions regulations.
- Development of efficiency solutions, eg. e-drive/hybrid drives and fuel diversification towards gas/dual-fuel.
- Enhancement of system competence and solutions to create customer value through optimised total system functionality and performance.
- Expansion of service portfolio, customised offerings and intelligent applications and services.

## Key Rolls-Royce differentiators

- Technology leadership and reputation with market-leading performance and system approach especially in mission-critical applications; new product innovation (eg. hybrid/e-drive); and high level of customisation.



## High-efficiency power for trains

Hybrid rail technology is the energy-saving combination of a conventional diesel engine and an electric drive system.

During 2015, Rolls-Royce completed further trials on its hybrid drive power system, the result of five years of pioneering work.

A conventional MTU railway PowerPack combines all the individual elements needed for power and efficiency into a single functional unit mounted on a supporting frame. MTU has delivered more than 6,000 of these PowerPacks to the rail industry.

The MTU hybrid PowerPack combines the benefits of a conventional diesel system with an electric propulsion module, energy storage and propulsion control system.

The basic idea of hybrid rail technology is that the kinetic energy initially generated by the diesel engine is recovered via an electric motor operating as an electric brake. This energy is stored chemically in a powerful battery for later use.

The recovery of the kinetic energy in braking mode is extremely energy- and cost-efficient, particularly in stop-and-go situations on local public transport lines where there are a large number of stops and on inclined rail sections on hilly terrains.

In 2015, for the first time, MTU performed its own tests on a hybrid train. During the tests, fuel consumption was shown to be reduced by more than 23% compared to straightforward diesel mode. Under optimum conditions, MTU believes fuel savings of 25% or more are possible.



READ MORE AT [ROLLS-ROYCE.COM](http://ROLLS-ROYCE.COM)



## Summary

Marine is a leading provider of complex and integrated propulsion and handling systems to the maritime offshore, merchant and naval markets. The product offering ranges from individual items of equipment to integrated systems and flexible mission-critical solutions, including complete vessel designs. The business has more than 4,000 customers. Seventy naval forces and over 30,000 commercial vessels use our equipment.

## Key highlights

- Underlying revenue down 16%; weak offshore markets impacting both OE and aftermarket revenues.
- Underlying profit before financing down 94%; significant reduction in gross margin, led by lower volumes, and higher restructuring costs only partially offset by reduced commercial and administration costs.
- Challenging outlook for 2016; led by reduced demand in offshore oil & gas markets.
- Launched two restructuring programmes in 2015 focused on manufacturing footprint and back-office functions; expected benefits to start to accrue from 2016 onwards.

### Latest bridge designs

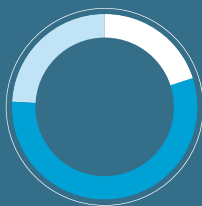
Our Unified Bridge is ergonomically designed to be intuitive for crews.

## Underlying revenue mix



■ OE revenue	58%
■ Services revenue	42%

## Underlying revenue by sector



■ Merchant	24%
■ Offshore	56%
■ Naval	20%

# MARINE

## OPERATIONAL REVIEW

Underlying revenue of £1,324m was 16% lower on a constant currency basis (down 23% at actual rates). Within this, original equipment revenues were 19% down at £773m. Service revenues were more robust, although still declined 10%. This reflected weaknesses in offshore and merchant, as ship owners deferred overhaul and maintenance on the back of reduced utilisation of their vessels.

As a result of the revenue weaknesses, price pressure and cost under-recovery, gross margins declined 500 basis points to 19.6% and overall gross margin was £260m, £139m lower than in 2014. As a result, with only modest reductions to date being achieved in corporate, administration and other costs, underlying profit was £15m, 94% down on a constant currency basis.

Around £15m of restructuring charges were incurred in 2015 and excluding these, underlying profit declined 83%. In the first half we took a non-underlying charge of £69m for the impairment of goodwill on two of our businesses owing to a less favourable business outlook, partly driven by the impact of market deteriorations on our offshore businesses.





## Investment and business development

The focus in 2015 has been on repositioning the Marine business to reflect the very challenging market environment and outlook. During the year, we also announced a number of restructuring programmes that will in total lead to the loss of around 1,000 employees in operations and back-office functions as we shrink our Northern European footprint, reduce indirect headcount, and consolidate manufacturing activity. This will deliver projected cost savings of £65m per annum from 2017 onwards and create a business better able to compete in an increasingly cost-conscious market place which is geographically shifting towards Asia.

Overall, the Marine order book declined 26% during the year, mainly reflecting a very weak offshore market, particularly in Northern Europe. Orders for new vessels, projects and services were all sharply lower than 2014 and as a result order intake was only £997m, 45% down on the previous year.

The offshore market was extremely weak reflecting a low oil price and reduced capital expenditure within the upstream oil exploration and related services sectors. Targeted investment in R&D and improving our Asian position saw progress later in the year with two major orders from China. These comprised an equipment contract for nine tug supply vessels and a package of advanced

ship equipment for a dive support vessel. We also saw demand from non-oil related sectors such as wind farm support and fishing trawlers.

Activity within our target merchant sectors was subdued, but we made progress in our strategy of developing markets for offshore derived technologies within specialist areas such as azimuth propulsion systems for double-ended ferries. We also delivered Asia's first LNG-powered tug and the first of two all-gas powered cargo vessels for a Norwegian transport company.

The naval business was focused on further development work and deliveries against contracts in both the UK and US. These included the first DDG 1000 multi-mission destroyer class for the US Navy and the world's largest, gas turbine engines, the MT30 for the UK's two new aircraft carriers. We also signed a contract to supply MT30s for operation on the first three of the Royal Navy's new Type 26 Global Combat Ship.

Product development work within the business included expanding the range of permanent magnet-based propulsion systems, as well as spearheading research into our pioneering ship intelligence technology focused on data-driven value-added services.

## Closing order book

✓26%

## Marine outlook

Overall the outlook for Marine remains cautious. We expect that the market will continue to be hit by low oil prices which will impact on demand for our products and services. As a result we will sustain our cost reduction programmes, focusing on manufacturing facilities, supply chain and overhead costs, in order to drive a more competitive business while also adapting to volume risks.

As set out in November 2015, we expect the net impact of weak trading conditions and cost saving initiatives to result in 2016 profits being between £75m and £100m lower than those achieved in 2015. As a result, the business is expected to be significantly loss making in 2016.

## MARINE / KEY FINANCIAL DATA

£m	2014	Underlying change	Acquisitions & disposals	Foreign exchange	2015
<b>Order book</b>	<b>1,567</b>	(403)	—	—	<b>1,164</b>
<b>Underlying revenue</b>	<b>1,709</b>	(269)	—	(116)	<b>1,324</b>
<i>Change</i>		-16%	—	-7%	-23%
Underlying OE revenue	1,070	(204)	—	(93)	773
<i>Change</i>		-19%	—	-9%	-28%
Underlying services revenue	639	(65)	—	(23)	551
<i>Change</i>		-10%	—	-4%	-14%
<b>Underlying gross margin</b>	<b>425</b>	(139)	—	(26)	<b>260</b>
<i>Gross margin %</i>	24.9%	-500bps	—	—	19.6%
Commercial and administrative costs	(254)	27	—	26	(201)
Restructuring costs	(4)	(16)	—	4	(16)
Research and development costs	(29)	(2)	—	3	(28)
<b>Underlying profit before financing</b>	<b>138</b>	(130)	—	7	<b>15</b>
<i>Change</i>		-94%	—	—	-89%
<b>Underlying operating margin</b>	<b>8.1%</b>	-750bps	—	—	<b>1.1%</b>

## MARKET REVIEW

In Marine, where we offer integrated ship solutions (including design, propulsion, deck machinery, automation and control, and power electrics), we forecast the market opportunity across the offshore, merchant and naval market segments to be £250bn.

Potential for OE and services over the next 20 years

Marine – all sectors

**£250bn**

## Market dynamics

- Increasing environmental legislation and system efficiency requirements.
- Population growth is leading to an increasing energy and resources demand for cargo and passenger transportation in the long term.
- Increasing global and regional trade and transport of goods with effects on short-sea shipping.
- Strong shift from traditional markets towards Asia, both in shipbuilding and operation.
- Geopolitics and an increasing multipolar world results in increasing defence expenditures especially in emerging markets which stimulates demand for naval vessels.
- Increased technology requirements for harsher environments, eg. deepwater.
- Currently significant challenges in offshore markets due to low oil prices and weak investment signals.

## Business risks

- Markets: significant reduction in oil price creates pressure in the offshore market with all customer groups seeking to reduce costs and capital commitments.
- Order delays and cancellations impact our revenue, cash and profit but also put our supply chain under financial stress.
- Competition: competitors react to a depressed market by cutting costs, pricing aggressively and partnering with other players.
- Business continuity: the main risk is our key suppliers remaining solvent. We monitor and manage this to ensure no supplier has critical mass and maintain business continuity plans for these risks and other operational risks such as IT.
- Technology: failure to invest in the right technologies to meet customer demand in the future.
- Risk of product failure in the field resulting in the need for intervention to rectify the issue with financial consequences.

## Competition

- Major competitors fall into two groups – focus on strengthening systems capability or focus on product and technology.
- Industry consolidation within recent years has resulted in the establishment of large market players.
- Increasing competition from Asia, especially China.
- Increasing competition from industrial and electric companies driven by more focus on efficiency and electrification.

## Opportunities

- Capture value on more advanced vessels in offshore.
- Grow in tugs, ferries and workboats and short-sea shipping in merchant segments.
- Continue to leverage the joint value proposition in naval markets together with MTU.
- Continue to develop clean propulsion solutions which are emission compliant to new regulations, including alternative fuels (eg. gas/dual-fuel).
- Grow in integrated propulsion and electric systems.
- Establish a leading position in ship intelligence.
- Leverage local partnerships to generate regional growth in Asia, especially China.

## Key Rolls-Royce differentiators

- Unique domain knowledge; unique system portfolio including vessel design; joint value proposition within naval together with MTU; continuous innovation and technology leadership; and leadership in ship intelligence.



### Waterjets for fast cats

These Watercat M18 multi-purpose vessels use Rolls-Royce Steel Series Kamewa waterjets to propel them at speeds of over 40 knots. These lightweight, agile boats from Marine Alutech of Finland are ideal for fast patrol and troop transportation roles.

➔ [READ MORE AT ROLLS-ROYCE.COM](http://ROLLS-ROYCE.COM)



## 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 9% higher; strong service revenues led by increased submarine work.
- Underlying profit before financing unchanged, excluding the benefit from a £19m R&D credit; volume benefit offset by lower margins.
- 2016 outlook steady; focus on improving delivery performance and developing civil nuclear opportunities.
- Investing in the business to extend systems offering and increase service scope.

Potential for OE and services  
in civil nuclear over the next 20 years

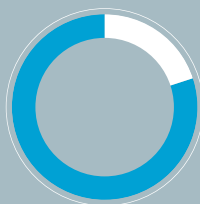
# £360bn

## Underlying revenue mix



OE revenue	37%
Services revenue	63%

## Underlying revenue by sector



Submarines	80%
Civil	20%

### Submarine nuclear power

The Royal Navy Astute class is the latest to enter service with a Rolls-Royce designed nuclear propulsion plant.



# NUCLEAR

## OPERATIONAL REVIEW

Underlying revenue increased 9% on a constant currency basis, led by growth in both original equipment and services. In particular, growth in submarine activities was strong. Revenue growth for our instrumentation and controls businesses was also good, particularly in Europe.

Despite the growth in revenue, gross margin declined by 240 basis points to 16.2% or £111m. This was largely due to increased costs on a number of projects with lower margin. Gross margin was also impacted by a reclassification of site costs from commercial, administration and other of around £7m. This favourably benefited costs below gross margin which also benefited from lower R&D charges as a result of an R&D credit of £19m which covered the current and the two previous years. Excluding this, underlying profit before tax was £50m, in line with the prior year. After the release, underlying profit of £70m is 40% up on the prior year.

## Investment and business developments

The order book fell around 13%, reflecting delivery of our long-term contracts across both submarines and civil nuclear businesses. New orders were biased to the second half of the year, benefiting from the expansion of our business reach and capabilities.

Our civil nuclear business focuses on multi-year projects and specialist services for what is a growing global industry. We were selected as preferred bidder by EDF to work on heat exchangers and waste treatment for the Hinkley Point C project in the UK and we were selected by Hitachi to be part of the Wylfa power station delivery team, the second nuclear power station scheduled in the UK's new-build programme. We also won a contract to supply safety measurement systems for the entire French fleet of 900MW reactors. These mandates help to further consolidate our significant position in the European marketplace and position us well to seek further opportunities for partnerships in growing nuclear markets.



In the US our acquisition of R.O.V. Technologies Inc. in March 2015 expanded our nuclear services portfolio, bringing complementary Boiling Water Reactor expertise and broadening our existing Pressurised Water Reactor remote inspection capability.

Our submarine activities have concentrated on delivering against long-term contracts for the Royal Navy's nuclear submarine fleet, including delivery of the nuclear propulsion system to power HMS Artful, the third Astute-class submarine, which was launched in August 2015. Our work on the Vanguard class included work on a refuelling programme and also the first successful upgrade to the reactor control and instrumentation update for HMS Vengeance. At the Naval Reactor Test Establishment, HMS Vulcan, the PWR2 test facility reactor was safely shut down having completed its prototyping role. Development work on the new PWR3 power plant for the Successor submarine fleet continues with contract extensions agreed in preparation ahead of the government final investment decision.

## Nuclear outlook

The outlook for Nuclear remains steady. Both submarines and civil nuclear enjoy long-term secure aftermarket revenues. While business development opportunities remain modest in the near-term, new power plants for the Successor together with long-term opportunities to develop relevant products for civil nuclear applications should provide incremental growth.

## MARKET REVIEW

**All respected global energy forecasts predict that nuclear power will continue to play a significant role in providing low-carbon, continuous and secure power. The demand for mission-critical equipment, systems and engineering services and the associated reactor support services for the civil nuclear market is forecast to be £360bn over the next 20 years.**

### 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.
- Growth in nuclear power generation is predominantly driven by non-OECD countries; strong growth is expected especially in China.
- Solid growth in mature markets based on current operations and plant life extensions.

### Competition

- In civil nuclear the competitor landscape is fragmented and comprises reactor vendors, original equipment manufacturers, multi-skilled companies and nuclear operators in service.
- Plant operators increasingly outsource service activities.

### Business risks

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

### 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.

### 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.

## NUCLEAR / KEY FINANCIAL DATA

£m	2014	Underlying change	Acquisitions & disposals	Foreign exchange	2015
<b>Order book</b>	<b>2,499</b>	(331)	—	—	<b>2,168</b>
<b>Underlying revenue</b>	<b>638</b>	56	—	(7)	<b>687</b>
<i>Change</i>		+9%	—	-1%	+8%
<b>Underlying OE revenue</b>	<b>230</b>	27	—	(6)	<b>251</b>
<i>Change</i>		+12%	—	-3%	+9%
<b>Underlying services revenue</b>	<b>408</b>	29	—	(1)	<b>436</b>
<i>Change</i>		+7%	—	—	+7%
<b>Underlying gross margin</b>	<b>119</b>	(6)	—	(2)	<b>111</b>
<i>Gross margin %</i>	<i>18.7%</i>	<i>-240bps</i>	—	—	<i>16.2%</i>
<b>Commercial and administrative costs</b>	<b>(61)</b>	6	—	2	<b>(53)</b>
<b>Restructuring costs</b>	<b>(1)</b>	(1)	—	—	<b>(2)</b>
<b>Research and development costs</b>	<b>(7)</b>	21	—	—	<b>14</b>
<b>Underlying profit before financing</b>	<b>50</b>	20	—	—	<b>70</b>
<i>Change</i>		+40%	—	—	+40%
<b>Underlying operating margin</b>	<b>7.8%</b>	+230bps	—	—	<b>10.2%</b>

# DELIVER

Consistent with the plans we laid out in November 2015, we have enhanced the financial disclosures for all our reporting segments to include gross margin, R&D and other costs below gross margin, as well as restructuring charges. In addition, within Civil Aerospace we have provided additional revenue segmentation and a trading cash flow breakdown. These disclosures apply to both 2014 and 2015 and should help further analysis of trading performance.

## Order book and order intake

During the year our order book increased by £2.7bn to £76.4bn. Key orders included our record single order from Emirates for 200 Trent 900 engines which contributed \$6.1bn to the order book. Throughout the year new order intake in our Marine business was very weak, driven by significant market deterioration in offshore. Overall, orders were lower in Defence 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 1% in 2015 compared to 2014 on a constant currency basis. This reflects a 5% decline in revenue from original equipment, partially offset by a 4% increase in services revenue, led by Civil Aerospace. By business on a constant currency basis, Civil Aerospace revenue increased 3%, Defence Aerospace revenue decreased 5%, Power Systems revenue decreased 3%, Marine revenue decreased 16% and Nuclear revenue increased 9%.

Underlying profit before financing of £1,492m (2014: £1,681m) was 11% lower on a constant currency basis, led by a significant reduction in Marine profit, driven by weak offshore markets in particular. Civil Aerospace was down year-on-year, although performance was helped by around £222m of retrospective benefits (2014: £150m) led by refining the basis for taking account of risk in our forecasts of

“

We have significantly enhanced this year's Annual Report with additional disclosures to increase transparency and understanding.”

**David Smith**

Chief Financial Officer



## GROUP TRADING SUMMARY

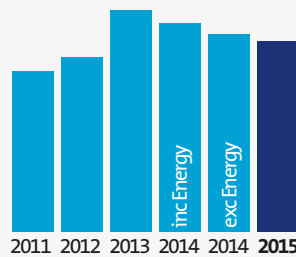
£m	2014	Underlying change	Acquisitions & disposals	Foreign exchange	2015
<b>Order book</b>	<b>73,674</b>	<b>2,725</b>	—	—	<b>76,399</b>
<b>Underlying revenue</b>	<b>13,864</b>	<b>(96)</b>	—	<b>(414)</b>	<b>13,354</b>
<i>Change</i>		<i>-1%</i>	—	<i>-3%</i>	<i>-4%</i>
Underlying OE revenue	7,418	(363)	—	(331)	6,724
<i>Change</i>		<i>-5%</i>	—	<i>-5%</i>	<i>-9%</i>
Underlying services revenue	6,446	267	—	(83)	6,630
<i>Change</i>		<i>+4%</i>	—	<i>-1%</i>	<i>+3%</i>
<b>Underlying gross margin</b>	<b>3,523</b>	<b>(251)</b>	—	<b>(90)</b>	<b>3,182</b>
<i>Gross margin %</i>	<i>25.4%</i>	<i>-160bps</i>	—	—	<i>23.8%</i>
Corporate and administrative costs	(1,069)	11	—	54	(1,004)
Restructuring costs	(149)	107	—	3	(39)
Research and development costs	(730)	(64)	—	29	(765)
Joint ventures and associates	106	10	—	2	118
<b>Underlying profit before financing</b>	<b>1,681</b>	<b>(187)</b>	—	<b>(2)</b>	<b>1,492</b>
<i>Change</i>		<i>-11%</i>	—	—	<i>-11%</i>
<b>Underlying operating margin</b>	<b>12.1%</b>	<b>-130bps</b>	—	—	<b>11.2%</b>



## Underlying revenue

# £13,354m

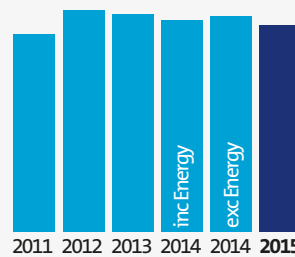
2014 exc	£13,864m
2014 inc	£14,588m
2013	£15,505m
2012	£12,209m
2011	£11,277m



## Underlying operating margin

# 11.2%

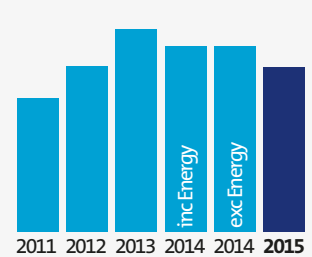
2014 exc	12.1%
2014 inc	11.5%
2013	11.8%
2012	12.0%
2011	10.7%



## Underlying profit before financing

# £1,492m

2014 exc	£1,681m
2014 inc	£1,678m
2013	£1,831m
2012	£1,495m
2011	£1,206m



future revenue on long-term contracts, and the reversal of previously recognised impairment on contractual aftermarket rights (CARs) and release of a related provision. Defence Aerospace delivered an improved year-on-year profit which included one-time contract benefits, led by contract extensions and reduced long-term costs. Power Systems was down year-on-year in line with our expectations on a constant currency basis as the business managed well within a number of weaker markets. Marine, as expected, was sharply lower, reflecting the weak oil & gas offshore sector and Nuclear was in line, after excluding the positive R&D credit.

The R&D charge increased 11% over 2014 on a constant currency basis, largely reflecting ongoing investments in Civil Aerospace for the Trent 1000 TEN and Trent XWB-97, together with higher spending on the Trent 7000 and corporate jet programmes. In addition, we increased investment in future technology demonstrator programmes and improved emissions solutions for Power Systems applications. In addition, capitalisation of R&D declined significantly largely due to the entry

into service of the Trent XWB-84 in January 2015 and increased recognition of entry fees.

Underlying financing charges were £60m (2014: £61m). Underlying profit before tax was £1,432m (2014: £1,620m). The underlying tax charge was £351m, with an effective tax rate of 24.5% (2014: 24.0%).

## Free cash flow

Cash capital expenditure in 2015 reduced to £479m (2014: £616m), largely reflecting lower spend on new aerospace facilities. Cash taxes were £160m (2014: £265m excluding Energy). The cash cost of defined benefit pension schemes in excess of the earnings charge was £46m (2014: £154m excluding Energy).

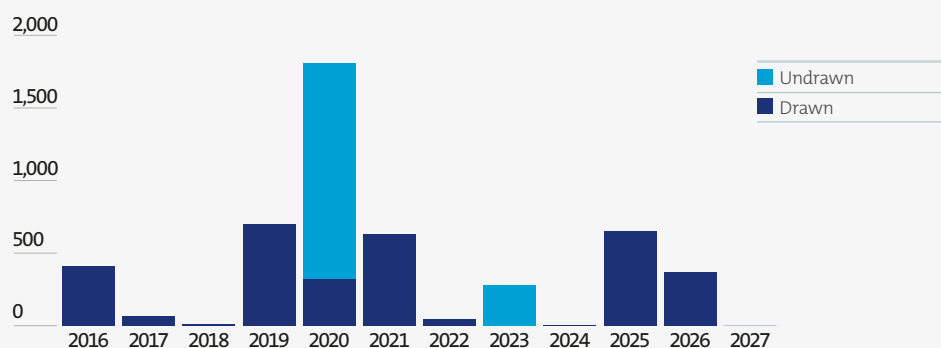
Overall, the free cash inflow for the year was £179m (2014: inflow of £447m, adjusted for Energy). The significant decline from 2014 primarily reflects lower trading margins and adverse working capital movements. The TotalCare net asset movement year-on-year was slightly higher than expectations.

## Net debt

The Group is committed to maintaining a robust balance sheet and a strong, investment-grade credit rating, which it believes are important when selling products which will be in service for decades. Standard & Poor's updated its rating in January 2016 to A/negative outlook and Moody's maintained a rating of A3/stable.

At the end of 2015, the Group's net cash balance reduced from £666m to a net debt position of £111m, reflecting the £179m positive free cash inflow, share repurchases totalling £414m and shareholder payments of £421m. Other items include residual payments related to the divestment of the Energy business and non-cash foreign exchange movements. On 6 July 2015, we announced that we had curtailed the share buyback associated with the Energy business sale at the to-date total of £500m, including the shares purchased in 2014. During the year we refinanced our revolving credit facility, increasing it to £1.5bn, and issued two new US bonds, totalling US\$1.5bn.

## Debt retirement (£m)



# FINANCIAL REVIEW CONTINUED

Results broadly in line with the expectations set out in July 2015

## UNDERLYING INCOME STATEMENT

£m	2015	2014	Change
Revenue	13,354	13,864	-510
Gross profit	3,182	3,523	-341
Commercial and administrative costs	(1,004)	(1,069)	+65
Restructuring	(39)	(149)	+110
Research and development costs	(765)	(730)	-35
Share of results of joint ventures and associates	118	106	+12
Profit before financing	1,492	1,681	-189
Net financing	(60)	(61)	+1
Profit before tax	1,432	1,620	-188
Tax	(351)	(388)	+37
Profit for the year	1,081	1,232	-151
Earnings per share (EPS)	58.73p	65.42p	-6.69p
Payment to shareholders	16.37p	23.10p	-6.73p
Gross R&D investment	(1,240)	(1,249)	+9
Net R&D charge	(765)	(730)	-35

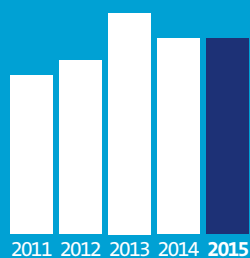
## SEGMENTAL ANALYSIS

£m	Revenue			Gross profit			Profit before financing		
	2015	2014	Change	2015	2014	Change	2015	2014	Change
Civil	6,933	6,837	+96	1,526	1,675	-149	812	942	-130
Defence	2,035	2,069	-34	579	567	+12	393	366	+27
<b>Aerospace Division</b>	<b>8,968</b>	<b>8,906</b>	<b>+62</b>	<b>2,105</b>	<b>2,242</b>	<b>-137</b>	<b>1,205</b>	<b>1,308</b>	<b>-103</b>
Power Systems	2,385	2,720	-335	635	742	-107	194	253	-59
Marine	1,324	1,709	-385	260	425	-165	15	138	-123
Nuclear	687	638	+49	111	119	-8	70	50	+20
Other	96	46	+50	64	8	+56	52	(2)	+54
Intra-segment	(106)	(155)	+49	7	(13)	+20	7	(13)	+20
<b>Land &amp; Sea Division</b>	<b>4,386</b>	<b>4,958</b>	<b>-572</b>	<b>1,077</b>	<b>1,281</b>	<b>-204</b>	<b>338</b>	<b>426</b>	<b>-88</b>
Central costs							(51)	(53)	+2
<b>Group</b>	<b>13,354</b>	<b>13,864</b>	<b>-510</b>	<b>3,182</b>	<b>3,523</b>	<b>-341</b>	<b>1,492</b>	<b>1,681</b>	<b>-189</b>

Reported revenue

**£13,725m**

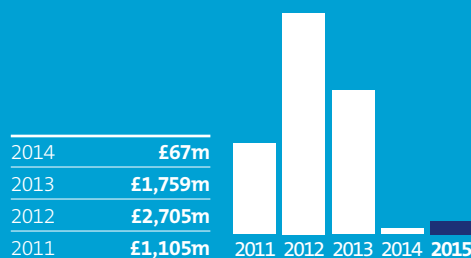
2014	£13,736m
2013	£15,513m
2012	£12,161m
2011	£11,124m



Reported profit before taxation

**£160m**

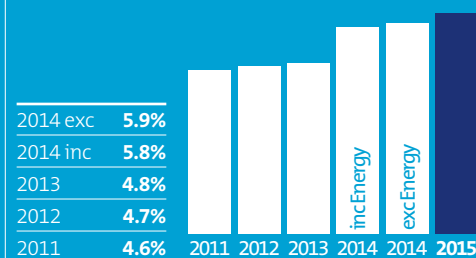
2014	£67m
2013	£1,759m
2012	£2,705m
2011	£1,105m



Net R&D as a proportion of underlying revenue

**6.2%**

2014 exc	5.9%
2014 inc	5.8%
2013	4.8%
2012	4.7%
2011	4.6%



## Underlying income statement

The 'Other' category in the segmental analysis includes residual retained assets relating to the Energy business which were not included in the sale to Siemens in 2014 and a one-off intellectual property settlement of £58m. The value of these is not material to the Group.

Underlying profit before financing and taxation is discussed in the Business review on pages 22 to 41.

Underlying financing costs were stable versus 2014. An increase in net interest of £13m was offset by changes in other underlying financing costs. An underlying foreign exchange gain of £34m is included, arising from realised gains on foreign exchange contracts settled to translate overseas dividends into sterling.

Underlying taxation was £351m, an underlying tax rate of 24.5% compared with 24.0% in 2014.

Underlying EPS was lower reflecting the reduction in underlying profit after tax, partially offset by a reduction in the average number of shares as a result of the share buyback.

At the Annual General Meeting on 5 May 2016, the Directors will recommend an issue of 71 C Shares with a total nominal value of 7.1p for each ordinary share. Together with the interim issue on 4 January 2016 of 92.7 C Shares for each ordinary share with a total nominal value of 9.27p; this is the equivalent of a total annual payment to ordinary shareholders of 16.37p for each ordinary share. Further details are included on page 178.

## Reported results

Consistent with past practice and IFRS accounting standards, the Group provides both reported and underlying figures. We believe underlying figures are more representative of the trading performance, by excluding the impact of year-end mark-to-market adjustments, principally the GBP:USD hedge book. In addition, financing of post-retirement benefits, effects of acquisition accounting and impairment of goodwill are also excluded. Adjustments between underlying profit and reported profit in the income statement are set out in more detail in note 2 to the Consolidated Financial Statements. This basis of presentation has been applied consistently.

## PROFIT BEFORE TAXATION

£m	2015	2014
<b>Underlying profit before tax</b>	<b>1,432</b>	1,620
Mark-to-market of derivatives and related adjustments	(1,065)	(1,258)
Movements on other financial instruments	8	(87)
Effects of acquisition accounting	(124)	(142)
Exceptional restructuring	(49)	(39)
Acquisitions and disposals	2	8
Impairment of goodwill	(75)	—
Post-retirement scheme financing	32	(29)
Other	(1)	(6)
<b>Reported profit before tax from continuing operations</b>	<b>160</b>	67

Mark-to-market adjustments are principally driven by movements in the GBP:USD exchange rate which moved from 1.56 to 1.48 during 2015.

Movements in other financial instruments relate entirely to financial risk and revenue sharing arrangements. The put option on the non-controlling interest in Power Systems was exercised in 2014, so this had no impact in 2015.

The effects of acquisition accounting in accordance with IFRS 3 are excluded from underlying profit so that all businesses are measured on an equivalent basis. Impairment of goodwill principally relates to the Marine business.

Costs associated with the substantial closure, or exit from, a site, facility or activity are classified as exceptional restructuring and excluded.

Profits and losses arising on acquisitions and disposals during the year are excluded.

Net financing on post-retirement schemes is excluded from underlying profit.

Appropriate tax rates are applied to these adjustments, the net effect of which was an increase of £275m in the reported tax charge (2014: £237m increase, including a £64m reduction in the amount of recoverable advance corporation tax recognised).

The 2014 reported results also included £142m relating to discontinued operations.

## Balance sheet

Intangible assets (note 9) represent long-term assets of the Group. These assets decreased by £159m in the year, with additions of £408m being more than offset by amortisation of £407m, impairments to goodwill of £75m (including £69m Marine impairment reported in the first half) and exchange losses of £134m (largely relating to euro-denominated intangible assets arising from the acquisition of Rolls-Royce Power Systems AG).

The CARs balance increased by £156m to £405m. The increase included £50m arising from the reversal of previously recognised impairments. During the year, following analysis of the first major overhauls of Trent 1000 engines, the recoverable amount of certain CARs has been reassessed. This demonstrated that aftermarket cash flows from these engines are better than originally assumed, arising from both operational and contractual performance improvements. Accordingly, cumulative impairments prior to 2015 of £50m have been reversed. This has resulted in the capitalisation of £22m of CARs in 2015 that would otherwise have been impaired, including £16m recognised in the interim results.

# FINANCIAL REVIEW CONTINUED

## SUMMARY BALANCE SHEET

£m	2015	2014
Intangible assets	4,645	4,804
Property, plant and equipment	3,490	3,446
Joint ventures and associates	576	539
Net working capital	(501)	(1,134)
Net funds	(111)	666
Provisions	(640)	(807)
Net post-retirement scheme (deficits)/surpluses	(77)	555
Net financial assets and liabilities	(1,883)	(855)
Other net assets and liabilities	(483)	(827)
<b>Net assets</b>	<b>5,016</b>	<b>6,387</b>
Other items		
US\$ hedge book (US\$bn)	28.8	25.6
TotalCare assets	2,994	2,492
TotalCare liabilities	(783)	(687)
Net TotalCare assets	2,211	1,805
Customer financing contingent commitments:		
Gross	269	388
Net	54	59

Carrying values of 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. Other than noted above, there have been no significant impairments in 2015.

Property, plant and equipment (note 10) increased by £44m. Capital expenditure of £494m was largely offset by depreciation of £373m, disposals of £34m and foreign exchange movements of £32m.

Investments in joint ventures and associates (note 11) increased modestly, principally as the share of retained profit exceeded dividends received.

Net post-retirement scheme (deficits)/surpluses (note 19) decreased by £632m, comprising a reduction of £692m in the UK and an increase of £60m overseas.

The reduction in UK schemes is principally due to relative movements in assumptions used to value the underlying assets and liabilities in the UK schemes in accordance

with IAS 19. While the corporate bond yields used to measure the liabilities remained broadly stable, gilt yields which are the principal driver of asset valuations increased, reducing the value of the assets. The schemes adopt a low risk investment strategy that reduces funding volatility (for which both assets and liabilities are measured on a gilt basis); interest rate and inflation risks are largely hedged and the exposure to equities is around 9% of scheme assets.

The increase in overseas schemes arose largely due to higher discount rates in Germany and the US.

Provisions (note 18) largely relate to warranties and guarantees provided to secure the sale of OE and services. The decrease is largely a result of the utilisation of warranty and restructuring provisions.

Net financial assets and liabilities (note 17) include the fair value of derivatives, financial RRSAs and C Shares. The increase in liabilities primarily reflects the impact on the US\$ hedge book of the GBP:USD exchange rate falling to 1.48 from 1.56 at the beginning of the year.

The Group hedges transactional foreign exchange exposures to reduce volatility. The most significant exposure is net US\$ income. The US\$ hedge book increased by 12.5% to US\$28.8bn, which represents around five years of net exposure and has an average book rate of £1 to US\$1.59.

Net TotalCare assets relate to long-term service agreement 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.

The net asset increased in 2015 by £406m (2014: £463m), reflecting accounting for new 'linked' engines of £521m (2014: £588m) and retrospective TotalCare accounting adjustments of £222m (2014: £150m) taken in the year, offset by cash flows and other items of £337m (2014: £275m).

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 almost exclusively 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 18. 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. During 2015, the Group's gross exposure on delivered aircraft reduced by £119m, mainly due to guarantees expiring.

### Summary funds flow

Movement in working capital includes an increase in the net TotalCare asset of £406m and a reduction in the amount of net customer deposits of £143m. The reduction in customer deposits is largely in the Marine business as a result of lower order intake in the offshore market and lower government spend.

Expenditure on property, plant and equipment and intangible assets: the decrease reflects reductions in additions to property, plant and equipment (£174m), participation fees and certification costs (£86m) and capitalised development costs (£45m), offset by increased expenditure on contractual aftermarket rights (£68m) and foreign exchange movements of £51m.

Pensions: contributions to defined benefit pension schemes in 2015 reduced by £63m, which included a reduction in the UK deficit funding payments of £36m and the non-recurrence of discretionary increase contributions of £33m. The total operating charge increased by £43m largely due to past service credits of £8m in 2015 compared to £31m in 2014. Funding of defined benefit schemes is expected to be similar in 2016.

Shareholder payments: the reduction reflects the fact that no dividend was paid by Power Systems to Daimler AG (2014: £76m), offset by an increase in the redemption of C Shares of £15m.

Discontinued operations in 2015 reflect a sales price adjustment of £42m paid in 2015 on the 2014 disposal of the Energy business and wind-down costs.

### Free cash flow

# £179m

2014 exc	447					
2014 inc	254					
2013	781					
2012	548					
2011	581					
		2011	2012	2013	2014	2015

### SUMMARY FUNDS FLOW

£m	2015	Previously reported	2014	Excluding Energy	Change
Opening net funds	666	1,939			
Closing net funds	(111)	666			
<b>Change in net funds</b>	<b>(777)</b>	<b>(1,273)</b>			
Underlying profit before tax	1,432	1,617	(3)	1,620	-188
Depreciation and amortisation	613	600	18	582	+31
Movement in net working capital	(544)	(509)	(152)	(357)	-187
Expenditure on property, plant and equipment and intangible assets	(887)	(1,114)	(30)	(1,084)	+197
Other	(229)	88	(17)	105	-334
<b>Trading cash flow</b>	<b>385</b>	<b>682</b>	<b>(184)</b>	<b>866</b>	<b>-481</b>
Contributions to defined benefit post-retirement schemes in excess of PBT charge	(46)	(152)	2	(154)	+108
Tax	(160)	(276)	(11)	(265)	+105
<b>Free cash flow</b>	<b>179</b>	<b>254</b>	<b>(193)</b>	<b>447</b>	<b>-268</b>
Shareholder payments	(421)	(482)	—	(482)	+61
Share buyback	(414)	(69)	—	(69)	-345
Acquisitions and disposals	(3)	(965)	—	(965)	+962
Net funds of businesses acquired	—	(30)	—	(30)	+30
Discontinued operations	(121)	—	193	(193)	+72
Foreign exchange	3	19	—	19	-16
<b>Change in net funds</b>	<b>(777)</b>	<b>(1,273)</b>	<b>—</b>	<b>(1,273)</b>	

# DEVELOPING A SUSTAINABLE BUSINESS

As a leading power systems provider we have a fundamental role in meeting the environmental and societal opportunities and challenges that the world faces.

## WHAT MATTERS MOST

Understanding and prioritising the issues that matter most to the Group and our stakeholders enables us to manage our business effectively for the long term. This informs our strategy, approach and reporting. We have policies, processes, targets and governance in place to manage the most important issues.

→ [READ MORE AT ROLLS-ROYCE.COM](http://ROLLS-ROYCE.COM)

- Better power
- Better future
- Better business



## EXTERNAL RECOGNITION



**Dow Jones Sustainability Index**  
We have been awarded Industry Leader, Industry Mover and Gold Class award for the Aerospace and Defense sector in the Dow Jones Sustainability Index. Achieving an overall score of 77, we have been listed in the DJSI World and DJSI Europe indexes.



**CDP Climate Change Index**  
Our score of 99B in the CDP is our highest to date and has earned us a place in the FTSE 350 Climate Disclosure Leadership Index. This reflects our commitment to continuously improve our environmental performance and disclosure.

## OUR APPROACH

### Better power

#### Helping our customers do more, using less

Our engineering expertise helps us to deliver more efficient products for our customers. Our commitment is to improve continuously the environmental performance of our products and services. Each year we invest over £1.2bn in gross R&D, two thirds of which is aimed at improving environmental performance.

Our environment strategy focuses on three areas: supporting our customers by further reducing the environmental impact of our products and services; developing new technology for future low emissions products; and maintaining our drive to reduce the environmental impact of our business activities.

We work with our customers to ensure optimal performance from our products throughout their operational life. We deliver a broad range of learning solutions, ranging from product operations and maintenance to simulation activities.

We have an extensive range of field service personnel and service operations centres that ensure we have the expertise and equipment available to service our products with minimal disruption.

Our products and services are designed to the highest standards of product safety, and we consistently pursue proactive opportunities for improvement. Product safety and environmental requirements are an integral part of each stage of the product lifecycle.

### Better future

#### Committed to innovation, powering better, cleaner economic growth

Innovation is embedded in all of our products and services and is a key competitive advantage. The skills, knowledge and passion of our workforce help us to innovate and to deliver on behalf of customers. We are working towards creating an environment where everyone can reach their full potential. We encourage diversity, engagement and development.

We are committed to protecting the human rights of our employees. Our Global Human Rights policy sets out this commitment through employment standards covering: employee involvement; diversity and equality; pay and benefits; working hours; forced labour and child labour. Compliance is assessed on a regular basis.

Employee health and wellbeing are the foundation of high performance. We focus our health improvement programmes on key areas in accordance with our risk profile: health risk management; resilience and wellbeing.

A diverse workforce will help ensure our continued success as a global business and contribute towards a better future. More information on our approach to diversity and gender distribution can be found in the Nominations & Governance Committee report, on pages 71 and 72.

We use 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.

### Better business

#### Investing in technology, people and ideas to improve all aspects of performance

We are committed to conducting every aspect of our business to the highest ethical standards and ensuring we are in line with all applicable laws. We have a zero tolerance approach to any form of ethical misconduct, bribery or corruption.

We have a Global Code of Conduct that applies to all employees of Rolls-Royce, our subsidiaries and controlled joint ventures, wherever they are located. We set equivalent standards for our supply chain through our Global Supplier Code of Conduct.

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

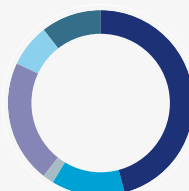
We continue to focus on managing the health and safety risks through risk-based improvement programmes, strengthening leadership and cultural change.

Reducing the environmental impact of our business activities is a key part of our environment strategy. We continue to invest in improving the performance of our operations by reducing energy use, greenhouse gas emissions and waste.

We are committed to optimising material and resource efficiency. We are working to better manage the use of chemicals in our processes and to phase out the use of substances that are considered dangerous to the environment or harmful to health.

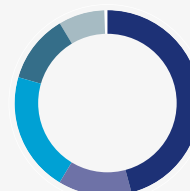
#### Average number of employees per region\*

UK	23,200	Germany	10,700
USA	6,400	Nordic countries	3,800
Canada	1,100	Rest of world	5,300



#### Average number of employees by business unit\*

Civil Aerospace	23,200	Marine	6,000
Defence Aerospace	6,400	Nuclear	4,100
Power Systems	10,600	Other	200



\*Headcount data is calculated in terms of average full-time employees for 2015  
See note 7 Employee information on page 131 for comparative data

# SUSTAINABILITY PERFORMANCE INDICATORS

We launched our dashboard of sustainability performance indicators in 2015, with higher stretching targets base-lined on our 2014 performance.

## Better power

Description	Why we measure it	How we have performed
<b>Improving efficiency levels of each generation of the Trent engine family</b> to meet the ACARE Flightpath 2050 goals	The Advisory Council for Aviation Research and Innovation in Europe (ACARE) has set challenging goals for aviation to meet by 2050. These include developing technologies and procedures to: <ul style="list-style-type: none"> <li>Reduce aircraft CO<sub>2</sub> emissions by 75% (per passenger kilometre)</li> <li>Reduce noise by 65%</li> <li>Reduce oxides of nitrogen (NO<sub>x</sub>) by 90%.</li> </ul> This is all relative to a typical new aircraft produced in 2000.	This chart shows the improved efficiency levels of each generation of Trent engine from the Trent 800 onwards.
<b>Improving emissions levels of each generation of the MTU Series 4000 C&amp;I engines</b> to meet future emissions regulations	Our MTU Series 4000 C&I engines meet the strictest current regulations for NO <sub>x</sub> and particulates reduction. This is achieved through field-tested and proven technology such as two-stage turbocharging and exhaust gas recirculation. We continue to invest in product R&D to meet future emissions regulations.	This chart shows the improved emissions levels of each generation of the MTU Series 4000 C&I engine.

## Better future

Description	Why we measure it	How we have performed
<b>STEM</b> Reach 6 million people through our STEM education programmes and activities by 2020	We aim to inspire future generations in Science, Technology, Engineering and Mathematics (STEM) through education outreach programmes and activities that demonstrate the life-long opportunities that STEM careers can offer.	Our programmes reached 1.6 million people worldwide in 2015, 70% of whom were actively engaged in one or more STEM activity. Many programmes were aimed at groups currently under-represented in engineering careers, reflecting our commitment to encouraging greater diversity in the workplace.
<b>Employee wellbeing</b> All sites to achieve our employee health and wellbeing LiveWell accreditation by 2020	Our goal is to enhance the personal health and wellbeing of our people to help them reach their full potential. The Rolls-Royce LiveWell accreditation programme will help to create a culture where healthy choices are encouraged and rewarded, including; smoke-free site policies, healthy food choices and exercise facilities. Sites are also required to establish local employee wellbeing committees with annual objectives.	During 2015, all sites were required to complete an initial LiveWell accreditation gap analysis. One site, Bristol UK, met the criteria for accreditation and was awarded the LiveWell award. The introduction of our Global Smoke Free Campus policy in 2016 will enable more sites to obtain LiveWell accreditation.
<b>Employee engagement</b> Ensure our Sustainable Employee Engagement Index is greater than, or equal to, the Global High Performance Norm <sup>1</sup> by 2020	We want all of our employees to be able to perform to their best ability and encourage open collaboration, engagement and involvement.	Our Sustainable Engagement Score declined slightly, from 84 in 2014 to 81 in 2015, as we continue to undergo significant change as a business. As a result, our Executive Leadership Team has committed to and is driving a programme of improvement actions relating to leadership, communication and enablement. These are aimed at improving our work environment and strengthening our climate for success.

<sup>1</sup> Employee Engagement survey, Sustainable Employee Engagement Index and Global High Performance Norm provided independently by Towers Watson



## Better business

Description	Why we measure it	How we have performed																									
<b>Ethics</b> All employees to complete year-on-year Global Code of Conduct certification and mandatory ethics training	Our Global Code of Conduct sets out the ethical principles that underpin our values and the way we do business. It also provides guidance on how to apply these principles in everything we do.	During the year, 100% of our managers have certified that they have access to, understand and will comply with our Global Code of Conduct. Our ethics training continued to require managers to lead ethical discussions around dilemmas with their teams. During 2015, 97% of employees completed dilemma-based training.	<b>Ethics employee certification and training (% of employees)<sup>2</sup></b> <table><tr><th>Year</th><th>Certification</th><th>Training</th></tr><tr><td>2014</td><td>100%</td><td>0%</td></tr><tr><td>2015</td><td>100%</td><td>97%</td></tr><tr><td>2016</td><td>100%</td><td>97%</td></tr><tr><td>2017</td><td>100%</td><td>97%</td></tr><tr><td>2018</td><td>100%</td><td>97%</td></tr><tr><td>2019</td><td>100%</td><td>97%</td></tr><tr><td>2020</td><td>100%</td><td>97%</td></tr></table>	Year	Certification	Training	2014	100%	0%	2015	100%	97%	2016	100%	97%	2017	100%	97%	2018	100%	97%	2019	100%	97%	2020	100%	97%
Year	Certification	Training																									
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2016	100%	97%																									
2017	100%	97%																									
2018	100%	97%																									
2019	100%	97%																									
2020	100%	97%																									
<b>Energy</b> ✓ Reduce energy use in our operations and facilities by 30%, normalised by revenue, by 2020  (excluding product test and development)	Understanding our energy use helps us to identify inefficiency and opportunities for improvement across our global operations and activities. Upgrading existing facilities and investing in energy efficient technology helps us to reduce energy consumption and cost.	We continue to invest in energy efficient technology to reduce our energy consumption and cost. Our energy use in 2015 was 112 MWh/£m. This represents a decrease of 3% compared to 2014. We have invested in upgrading lighting systems, variable speed drives and voltage optimisation. We have also introduced more efficient cooling systems.	<b>Energy use (MWh/£m)<sup>3</sup></b> <table><tr><th>Year</th><th>Energy use (MWh/£m)</th></tr><tr><td>2014</td><td>115</td></tr><tr><td>2015</td><td>112</td></tr><tr><td>2016</td><td>108</td></tr><tr><td>2017</td><td>105</td></tr><tr><td>2018</td><td>102</td></tr><tr><td>2019</td><td>99</td></tr><tr><td>2020</td><td>85 (target)</td></tr></table>	Year	Energy use (MWh/£m)	2014	115	2015	112	2016	108	2017	105	2018	102	2019	99	2020	85 (target)								
Year	Energy use (MWh/£m)																										
2014	115																										
2015	112																										
2016	108																										
2017	105																										
2018	102																										
2019	99																										
2020	85 (target)																										
<b>GHG emissions<sup>4</sup></b> ✓ Reduce greenhouse gas (GHG) emissions in our operations and facilities by 50%, absolute, by 2025  (excluding product test and development)	Investing in renewable energy sources and other opportunities to reduce our GHG emissions reduces cost and mitigates risk associated with energy price volatility.	Our total GHG emissions for 2015, excluding product test and development, was 455 ktCO <sub>2</sub> e. This represents an 8% reduction from 2014. We continue to drive energy efficiency and have developed a number of low carbon and renewable energy projects across our global facilities. These include combined heat and power, tri-generation power systems and solar.	<b>Absolute GHG emissions (ktCO<sub>2</sub>e)<sup>3</sup></b> <table><tr><th>Year</th><th>Absolute GHG emissions (ktCO<sub>2</sub>e)</th></tr><tr><td>2014</td><td>500</td></tr><tr><td>2015</td><td>455</td></tr><tr><td>2016</td><td>420</td></tr><tr><td>2017</td><td>385</td></tr><tr><td>2018</td><td>350</td></tr><tr><td>2019</td><td>315</td></tr><tr><td>2020</td><td>280</td></tr><tr><td>2025</td><td>245 (target)</td></tr></table>	Year	Absolute GHG emissions (ktCO <sub>2</sub> e)	2014	500	2015	455	2016	420	2017	385	2018	350	2019	315	2020	280	2025	245 (target)						
Year	Absolute GHG emissions (ktCO <sub>2</sub> e)																										
2014	500																										
2015	455																										
2016	420																										
2017	385																										
2018	350																										
2019	315																										
2020	280																										
2025	245 (target)																										
<b>Waste</b> Reduce total solid and liquid waste in our operations and facilities by 25%, normalised by revenue, by 2020	We recognise that improving the environmental performance of our operations contributes to profitable growth. The four principal waste streams that contribute to our waste production are: recyclable solid wastes; liquid wastes sent for disposal; recyclable metals; and solid wastes sent for landfill.	We have seen a modest reduction in the amount of waste that we dispose of from our sites. Our total solid and liquid waste, normalised by revenue, was 4.31 t/£m in 2015. This represents a 3% reduction compared to 2014. New programmes launched in 2015 and continuing into 2016 are expected to accelerate waste reduction across our global operations.	<b>Total solid and liquid waste (t/£m)<sup>3</sup></b> <table><tr><th>Year</th><th>Total solid and liquid waste (t/£m)</th></tr><tr><td>2014</td><td>4.5</td></tr><tr><td>2015</td><td>4.31</td></tr><tr><td>2016</td><td>4.1</td></tr><tr><td>2017</td><td>3.9</td></tr><tr><td>2018</td><td>3.7</td></tr><tr><td>2019</td><td>3.5</td></tr><tr><td>2020</td><td>3.3 (target)</td></tr></table>	Year	Total solid and liquid waste (t/£m)	2014	4.5	2015	4.31	2016	4.1	2017	3.9	2018	3.7	2019	3.5	2020	3.3 (target)								
Year	Total solid and liquid waste (t/£m)																										
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2016	4.1																										
2017	3.9																										
2018	3.7																										
2019	3.5																										
2020	3.3 (target)																										
<b>Recycling</b> Zero waste to landfill in our operations and facilities, by 2020  (excluding hazardous waste)	We are committed to both increasing our recycling rates and achieving zero waste to landfill from our manufacturing and office facilities. We are concentrating on the recycling of metals and packaging. Hazardous waste will continue to be managed in a safe and controlled manner.	The amount of waste sent to landfill has increased from 6,700 tonnes in 2014 to 7,200 tonnes in 2015. This is due in part to an increase in waste from our Power Systems business and improved waste reporting across the Group. Since 2009, we have reduced our waste to landfill by 3,000 tonnes and remain confident that more sites will achieve zero waste to landfill.	<b>Waste to landfill (000 tonnes)<sup>3</sup></b> <table><tr><th>Year</th><th>Waste to landfill (000 tonnes)</th></tr><tr><td>2014</td><td>7.2</td></tr><tr><td>2015</td><td>7.5</td></tr><tr><td>2016</td><td>7.8</td></tr><tr><td>2017</td><td>8.1</td></tr><tr><td>2018</td><td>8.4</td></tr><tr><td>2019</td><td>8.7</td></tr><tr><td>2020</td><td>9.0 (target)</td></tr></table>	Year	Waste to landfill (000 tonnes)	2014	7.2	2015	7.5	2016	7.8	2017	8.1	2018	8.4	2019	8.7	2020	9.0 (target)								
Year	Waste to landfill (000 tonnes)																										
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2015	7.5																										
2016	7.8																										
2017	8.1																										
2018	8.4																										
2019	8.7																										
2020	9.0 (target)																										
<b>Safety</b> ✓ Reduce total reportable injury (TRI) rate to 0.3 per 100 employees by 2020, to achieve first quartile performance	We are dedicated to providing a safe and healthy place of work for all our employees, contractors and visitors to our facilities and wherever they may work on our behalf.	Our TRI rate deteriorated in 2015 to 0.82, compared to 0.64 in 2014. This is primarily due to the inclusion of Power Systems data and improved reporting of safety incidents across the Group. We continue to focus our improvement programmes on high consequence activities in accordance with our risk profile, for example electrical safety and process safety management.	<b>TRI rate (per 100 employees)<sup>3</sup></b> <table><tr><th>Year</th><th>TRI rate (per 100 employees)</th></tr><tr><td>2014</td><td>0.64</td></tr><tr><td>2015</td><td>0.82</td></tr><tr><td>2016</td><td>0.85</td></tr><tr><td>2017</td><td>0.88</td></tr><tr><td>2018</td><td>0.91</td></tr><tr><td>2019</td><td>0.94</td></tr><tr><td>2020</td><td>0.3 (target)</td></tr></table>	Year	TRI rate (per 100 employees)	2014	0.64	2015	0.82	2016	0.85	2017	0.88	2018	0.91	2019	0.94	2020	0.3 (target)								
Year	TRI rate (per 100 employees)																										
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2019	0.94																										
2020	0.3 (target)																										
<b>Suppliers</b> All suppliers aligned to our own ambitions: all suppliers agree adherence to the Global Supplier Code of Conduct by 2016	Our Global Supplier Code of Conduct sets out the minimum standards of behaviour and practices we require of our suppliers. We work to align them to our own ambitions in ethics, and support suppliers in managing their energy and waste, and in completing submissions to the CDP.	We released a revision to our Global Supplier Code of Conduct at the start of 2015. Our terms of business now include agreement to the Code, which makes our compliance expectations clear. 75% of our suppliers have now contractually agreed adherence. We plan to launch strategic supplier monitoring programmes in 2016.	<b>Suppliers agreed adherence to the Global Supplier Code of Conduct (%)</b> <table><tr><th>Year</th><th>Suppliers agreed adherence (%)</th></tr><tr><td>2015</td><td>75</td></tr><tr><td>2016</td><td>100 (target)</td></tr></table>	Year	Suppliers agreed adherence (%)	2015	75	2016	100 (target)																		
Year	Suppliers agreed adherence (%)																										
2015	75																										
2016	100 (target)																										

<sup>2</sup> 2015 certification by managers only<sup>3</sup> 2014 data has been restated to reflect the inclusion of Power Systems<sup>4</sup> Regulatory GHG emissions data detailed on page 180

✓ Limited external assurance provided by Bureau Veritas, using the assurance standards ISAE 3000 and ISAE 3410, over the energy, GHG, and TRI data as indicated. More information detailed on page 175

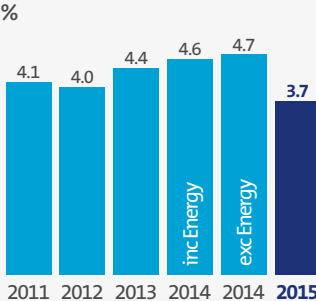
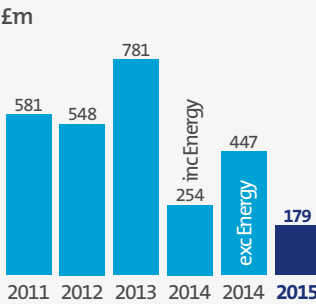


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# KEY PERFORMANCE INDICATORS

Financial performance indicators are shown below. The areas of focus of the Board and its committees are described on pages 63 to 104, and other non-financial performance indicators are shown in the Sustainability section on pages 50 and 51.

Description	Why we measure it	How we have performed												
<b>Order book</b> <b>+4%</b>	The order book provides an indicator of future business. We measure it at constant exchange rates 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.	<p>The order book grew by £2.7bn. An increase of £3.8bn in Civil Aerospace was offset by a reduction of £0.4bn in Marine, reflecting the current weak market conditions.</p> <p><b>£bn</b></p> <table><tr><th>Year</th><th>Order book (£bn)</th></tr><tr><td>2011</td><td>62.2</td></tr><tr><td>2012</td><td>60.1</td></tr><tr><td>2013</td><td>71.6</td></tr><tr><td>2014</td><td>73.7</td></tr><tr><td>2015</td><td>76.4</td></tr></table>	Year	Order book (£bn)	2011	62.2	2012	60.1	2013	71.6	2014	73.7	2015	76.4
Year	Order book (£bn)													
2011	62.2													
2012	60.1													
2013	71.6													
2014	73.7													
2015	76.4													
<b>Order intake</b> <b>-4%</b>	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.	<p>An increase of £0.9bn in Civil Aerospace order intake was offset by weaker intake in Defence Aerospace and Marine.</p> <p><b>£bn</b></p> <table><tr><th>Year</th><th>Order intake (£bn)</th></tr><tr><td>2011</td><td>16.3</td></tr><tr><td>2012</td><td>16.1</td></tr><tr><td>2013</td><td>26.9</td></tr><tr><td>2014</td><td>19.4 (inc Energy)</td></tr><tr><td>2015</td><td>18.2 (exc Energy)</td></tr></table>	Year	Order intake (£bn)	2011	16.3	2012	16.1	2013	26.9	2014	19.4 (inc Energy)	2015	18.2 (exc Energy)
Year	Order intake (£bn)													
2011	16.3													
2012	16.1													
2013	26.9													
2014	19.4 (inc Energy)													
2015	18.2 (exc Energy)													
<b>Underlying revenue</b> <b>-4%</b> -1% excluding FX	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 FX contracts. This provides a clearer measure of the year-on-year trend.	<p>The reduction reflects a 9% reduction in OE revenue, offset by a 3% increase in services revenue. Marine revenue fell by 23%, reflecting the weak market conditions.</p> <p><b>£m</b></p> <table><tr><th>Year</th><th>Underlying revenue (£m)</th></tr><tr><td>2011</td><td>11,277</td></tr><tr><td>2012</td><td>12,209</td></tr><tr><td>2013</td><td>15,505</td></tr><tr><td>2014</td><td>14,588 (inc Energy)</td></tr><tr><td>2015</td><td>13,354 (exc Energy)</td></tr></table>	Year	Underlying revenue (£m)	2011	11,277	2012	12,209	2013	15,505	2014	14,588 (inc Energy)	2015	13,354 (exc Energy)
Year	Underlying revenue (£m)													
2011	11,277													
2012	12,209													
2013	15,505													
2014	14,588 (inc Energy)													
2015	13,354 (exc Energy)													
<b>Net R&amp;D expenditure as a proportion of underlying revenue</b> <b>6.2%</b>	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 revenues 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.	<p>The increase is largely due to changes in net capitalisation, reflecting the phasing of new Civil Aerospace programmes, in particular the Trent XWB-84 and the Trent 1000 TEN.</p> <p><b>%</b></p> <table><tr><th>Year</th><th>Net R&amp;D expenditure as a proportion of underlying revenue (%)</th></tr><tr><td>2011</td><td>4.6</td></tr><tr><td>2012</td><td>4.7</td></tr><tr><td>2013</td><td>4.8</td></tr><tr><td>2014</td><td>5.8 (inc Energy)</td></tr><tr><td>2015</td><td>6.2 (exc Energy)</td></tr></table>	Year	Net R&D expenditure as a proportion of underlying revenue (%)	2011	4.6	2012	4.7	2013	4.8	2014	5.8 (inc Energy)	2015	6.2 (exc Energy)
Year	Net R&D expenditure as a proportion of underlying revenue (%)													
2011	4.6													
2012	4.7													
2013	4.8													
2014	5.8 (inc Energy)													
2015	6.2 (exc Energy)													

Description	Why we measure it	How we have performed														
<b>Capital expenditure as a proportion of underlying revenue</b> <b>3.7%</b>	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%.	<p>Expenditure reduced to £494m (2014: £668m) principally reflecting the major investment in Civil Aerospace facilities nearing completion.</p>  <table><thead><tr><th>Year</th><th>Value (%)</th></tr></thead><tbody><tr><td>2011</td><td>4.1</td></tr><tr><td>2012</td><td>4.0</td></tr><tr><td>2013</td><td>4.4</td></tr><tr><td>2014 inc Energy</td><td>4.6</td></tr><tr><td>2014 exc Energy</td><td>4.7</td></tr><tr><td>2015</td><td>3.7</td></tr></tbody></table>	Year	Value (%)	2011	4.1	2012	4.0	2013	4.4	2014 inc Energy	4.6	2014 exc Energy	4.7	2015	3.7
Year	Value (%)															
2011	4.1															
2012	4.0															
2013	4.4															
2014 inc Energy	4.6															
2014 exc Energy	4.7															
2015	3.7															
<b>Underlying profit before financing</b> <b>-11%</b>	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.	<p>The reduction reflects the reduction in revenues and the Group's high level of fixed costs, which the transformation programme is addressing.</p>  <table><thead><tr><th>Year</th><th>Value (£m)</th></tr></thead><tbody><tr><td>2011</td><td>1,206</td></tr><tr><td>2012</td><td>1,495</td></tr><tr><td>2013</td><td>1,831</td></tr><tr><td>2014 inc Energy</td><td>1,678</td></tr><tr><td>2014 exc Energy</td><td>1,681</td></tr><tr><td>2015</td><td>1,492</td></tr></tbody></table>	Year	Value (£m)	2011	1,206	2012	1,495	2013	1,831	2014 inc Energy	1,678	2014 exc Energy	1,681	2015	1,492
Year	Value (£m)															
2011	1,206															
2012	1,495															
2013	1,831															
2014 inc Energy	1,678															
2014 exc Energy	1,681															
2015	1,492															
<b>Free cash flow</b> <b>£179m</b>	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 funds/debt during the year, before movements arising from payments to shareholders, acquisitions and disposals, and FX.	<p>The reduction reflects the lower profits and the utilisation of provisions.</p>  <table><thead><tr><th>Year</th><th>Value (£m)</th></tr></thead><tbody><tr><td>2011</td><td>581</td></tr><tr><td>2012</td><td>548</td></tr><tr><td>2013</td><td>781</td></tr><tr><td>2014 inc Energy</td><td>254</td></tr><tr><td>2014 exc Energy</td><td>447</td></tr><tr><td>2015</td><td>179</td></tr></tbody></table>	Year	Value (£m)	2011	581	2012	548	2013	781	2014 inc Energy	254	2014 exc Energy	447	2015	179
Year	Value (£m)															
2011	581															
2012	548															
2013	781															
2014 inc Energy	254															
2014 exc Energy	447															
2015	179															

Average cash is no longer being monitored as a key performance indicator, as the focus is now on the free cash flow.

## Non-financial KPIs

As we undertake significant restructuring, reorganisation and transformation, it is imperative that we do not lose focus on our customers, and that we ensure our employees are fully engaged in the transformation. So for 2016, we are introducing two non-financial measures to the Annual Performance Related Award relating to customers and employees. In line with our remuneration policy, financial performance will still be required for any payout, as the non-financial measures will be subject to achieving a profit before taxation threshold.

Description	How performance is measured
<b>Customer satisfaction</b>	This is measured by the percentage of 'on-time to purchase order' and includes measures for new equipment, spare parts, equipment repair and overhaul. This is tracked Group-wide in our scheduling and order fulfilment system.
<b>Employee engagement</b>	This is measured through our Employee Opinion Survey which produces a composite engagement score. The targets will be based on absolute scores.



# 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 system and reviewing its effectiveness. The system is designed to identify and manage, rather than eliminate, the risk of failure to achieve business objectives and to provide reasonable but not absolute assurance against material misstatement or loss. More information about our internal control system can be found in the Audit Committee report on page 95.

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; a network of trained risk management facilitators; and a software tool.

In 2015, we performed a comprehensive review of our RMS and are implementing a programme of work to enhance our RMS which will continue to be embedded throughout 2016. This activity is sponsored by the General Counsel and Chief Financial Officer and is regularly reviewed by the Audit Committee. The enhancements touch all areas of our RMS including: categorisation, governance, operating model, reporting and infrastructure.

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 Executive Leadership Team (ELT) and the Board during their risk reviews. This includes monitoring the status of mitigation actions, adequacy of controls and any incidents that have occurred since the last review. Risks are also captured during the strategy and business planning activities to 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 that threaten the business model, future performance, solvency and liquidity. These reviews have been complemented by financial scenario modelling of our principal risks which is also used to support our viability statement on page 57.

The Board, or the most appropriate Board committee, undertakes periodic in-depth reviews of our principal risks in which it assesses our material controls and the effectiveness of our risk management and mitigation activities.

Business units and functions are accountable for identifying and managing risk in line with the Group risk management policy. Business continuity plans are in place to mitigate continuity risks.

The Group's enterprise risk team, led by the Director of Risk, is responsible for disseminating 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 also now regularly reviewed by the sector audit committees.

Joint ventures constitute an increasingly 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.

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. Our ethics and compliance improvement programme, aimed at securing compliance with our ethical standards, and the Global Code of Conduct are reinforcing the values and behaviours required, which in turn will continue to strengthen our risk management culture.

## Principal risks

During the year, the Board and ELT focused on the principal risks and the actions and controls in place to manage them.

This involved: discussing changes to the risks; reviewing the risk indicators for principal risks; and hearing from management about how risks will be managed.

This ongoing review of risks has resulted in a further principal risk being added this year: talent and capability. This risk has been added to reflect the significant transformation agenda ahead and our future growth requirements and plans.

## Management of principal risks

Our risk framework ensures that risks are identified, managed and communicated at every level of the Group.





Risk or uncertainty and potential impact	How we manage it	Strategic priorities
<b>Product failure</b> Product not meeting safety expectations, or causing significant impact to customers or the environment through failure in quality control.	<ul style="list-style-type: none"> <li>• Embedding and operating a safety-first culture.</li> <li>• Applying our engineering design and validation process from initial design through production and into service.</li> <li>• The Safety &amp; Ethics Committee reviewing the scope and effectiveness of the Group's product safety policies to ensure that they operate to the highest industry standards (see Safety &amp; Ethics Committee report on page 99).</li> <li>• 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. (see Safety &amp; Ethics Committee report on page 100 for details of the SMS).</li> <li>• Improving our supply chain quality.</li> <li>• Crisis management team jointly chaired by the Group President and the General Counsel.</li> </ul> <b>This principal risk is subject to review by the Safety &amp; Ethics Committee.</b>	<div>1</div> <div>2</div> <div>3</div>
<b>Business continuity</b> Breakdown of external supply chain or internal facilities that could be caused by destruction of key facilities, natural disaster, regional conflict, 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.	<ul style="list-style-type: none"> <li>• Continued investment in adequate capacity and modern equipment and facilities.</li> <li>• Identifying and assessing points of weakness in our internal and external supply chain, our IT systems and our people skills.</li> <li>• Selecting and developing stronger suppliers.</li> <li>• Developing dual sources or dual capability.</li> <li>• Developing and testing incident management and business continuity plans.</li> <li>• Crisis management team jointly chaired by the Group President and the General Counsel.</li> <li>• Customer excellence centres providing improved response to supply chain disruption.</li> </ul> <b>This principal risk is subject to review by the Audit Committee.</b>	<div>2</div> <div>3</div>
<b>Competitive position</b> 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 are few. Our main competitors have access to significant government funding programmes, as well as the ability to invest heavily in technology and industrial capability.	<ul style="list-style-type: none"> <li>• Accessing and developing key technologies and service offerings which differentiate us competitively (see Engineering and innovation on page 18).</li> <li>• Focusing on being responsive to our customers and improving the quality, delivery and reliability of our products and services.</li> <li>• Partnering with others effectively.</li> <li>• Driving down cost and improving margins (see Chief Executive's review on page 12).</li> <li>• Protecting credit lines.</li> <li>• Investing in innovation, manufacturing and production, and continuing governance of technology programmes (see Engineering and innovation on page 18 and Science &amp; Technology Committee report on page 103).</li> <li>• Maintaining a strong balance sheet to enable access to cost-effective sources of third-party funding.</li> <li>• Understanding our competitors.</li> </ul> <b>This principal risk is subject to review by the Board.</b>	<div>1</div> <div>2</div> <div>3</div>
<b>Political risk</b> 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.	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Diversifying global operations to avoid excessive concentration of risks in particular areas.</li> <li>• The international network of Rolls-Royce and its business units proactively monitoring local situations.</li> <li>• Maintaining a balanced business portfolio with high barriers to entry and a diverse customer base (see Chief Executive's review on page 8).</li> <li>• Proactively influencing regulation where it affects us.</li> </ul> <b>This principal risk is subject to review by the Board.</b>	<div>2</div>
<b>Major programme delivery</b> 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.	<ul style="list-style-type: none"> <li>• Major programmes are subject to Board approval (see Additional financial information on page 176).</li> <li>• 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 programme's life cycle (see Additional financial information on page 176).</li> <li>• Conducting technical audits at pre-defined points which are performed by a team that is independent from the programme.</li> <li>• Requiring programmes to address the actions arising from reviews and audits and monitoring and controlling progress through to closure.</li> <li>• Applying knowledge management principles to provide benefit to current and future programmes.</li> </ul> <b>This principal risk is subject to review by the Board.</b>	<div>1</div> <div>2</div>

# PRINCIPAL RISKS CONTINUED

Risk or uncertainty and potential impact	How we manage it	Strategic priorities
<b>Compliance</b> Non-compliance by the Group with legislation or other regulatory requirements in the regulated environment in which it operates (eg. export controls; offset; use of controlled chemicals and substances; and anti-bribery and corruption legislation) compromising our 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 or export credit financing, any of which could have a material adverse effect.	<ul style="list-style-type: none"> <li>• Taking an uncompromising approach to compliance.</li> <li>• 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 (see Safety &amp; Ethics Committee report on page 102).</li> <li>• Strengthening of the ethics, anti-bribery and corruption, compliance and export control teams.</li> <li>• A legal team is in place to manage any ongoing regulatory investigations.</li> <li>• Implementing a comprehensive 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.</li> </ul> <p><b>This principal risk is subject to review by the Safety &amp; Ethics Committee.</b></p>	<div>2</div>
<b>Market and financial shock</b> The Group is exposed to a number of market risks, some of which are of a macro-economic nature (eg. foreign currency, oil price, exchange rates) and some of which are more specific to the Group (eg. liquidity and credit risks, reduction in air travel or disruption to other customer operations). Significant extraneous market events could also materially damage the Group's competitiveness and/or creditworthiness. This would affect operational results or the outcomes of financial transactions.	<ul style="list-style-type: none"> <li>• Maintaining a strong balance sheet, through managing cash balances and debt levels (see Financial review on page 42).</li> <li>• Providing financial flexibility by maintaining high levels of liquidity and an investment grade credit rating.</li> <li>• 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 Chief Executive's review on page 8).</li> <li>• 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).</li> </ul> <p><b>This principal risk is subject to review by the Audit Committee.</b></p>	<div>2</div> <div>3</div>
<b>IT vulnerability</b> Breach of IT security causing controlled or critical data to be lost, made inaccessible, corrupted or accessed by unauthorised users.	<ul style="list-style-type: none"> <li>• 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 (see Audit Committee report on page 95).</li> <li>• Running security and network operations centres.</li> <li>• Actively sharing IT security information through industry, government and security forums.</li> </ul> <p><b>This principal risk is subject to review by the Audit Committee.</b></p>	<div>1</div> <div>2</div>
<b>Talent and capability</b> 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.	<ul style="list-style-type: none"> <li>• Attracting, rewarding and retaining the right people with the right skills globally in a planned and targeted way, including regular benchmarking of remuneration.</li> <li>• Developing and enhancing organisational, leadership, technical and functional capability to deliver global programmes.</li> <li>• Continuing a strong focus on individual development and succession planning.</li> <li>• 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.</li> <li>• Embedding a lean, agile high performance culture that tightly aligns Group strategy with individual and team objectives.</li> <li>• 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.</li> <li>• Tracking engagement through our annual employee opinion survey and a commitment to drive year-on-year improvement to the employee experience and communications (see Sustainability on page 50).</li> </ul> <p><b>This principal risk is subject to review by the Nominations &amp; Governance Committee.</b></p>	<div>1</div> <div>2</div> <div>3</div>

1 Engineering excellence    2 Operational excellence    3 Capturing aftermarket value

# GOING CONCERN AND VIABILITY STATEMENTS

## Introduction

Rolls-Royce operates an annual planning process which includes strategic (greater than five years), medium-term (five year) and short-term (one year) financial forecasts, based on the inputs from each of the businesses. These plans and risks to their achievement are reviewed by the Board as part of its strategy review and budget approval processes. Once approved these plans are cascaded throughout the Group and are used as the basis for monitoring our performance, incentivising employees and providing external guidance to our shareholders.

The processes for identifying and managing the principal risks are described on pages 54 to 56. As also described there, the risk management process, and in consequence the going concern and viability statements, are designed to provide reasonable but not absolute assurance.

## Going concern

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

As described on page 177, the Group meets its funding requirements through a mixture of shareholders' funds, bank borrowings, bonds and notes. At 31 December 2015, the Group had borrowing facilities of £5.1bn and total liquidity of £5.0bn, including cash and cash equivalents of £3.2bn and undrawn facilities of £1.8bn. £419m of the facilities mature in 2016.

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

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

## Viability

The viability assessment considers solvency and liquidity over a longer period than for the purposes of the going concern assessment above. Inevitably, the degree of certainty reduces over this longer period.

In making the assessment, severe but plausible scenarios have been considered that estimate the potential impact of each of the principal risks arising over the assessment period, for example: the loss of a key element of the supply chain; the impact on aircraft travel of a global pandemic; or, a failure to achieve planned cost reductions. The scenarios assume an appropriate management response to the specific event, but not broader mitigating actions which could be undertaken, which were considered separately. The impacts of these scenarios were overlaid on the medium-term forecast to assess how the Group's liquidity and solvency would be affected.

The assessment took account of the Group's current funding, forecast requirements and existing committed borrowing facilities. It assumed that existing facilities could be refinanced as they mature. There are modest maturities over the first three years of the medium-term forecast with more significant maturities in 2019 and 2020.

On the basis described above, the Board confirms that it has a reasonable expectation that the Company will be able to continue in operation and meet its liabilities as they fall due over the next five years, consistent with the period of the medium-term forecast.

In making this statement, the Directors have made the following key assumptions:

- that maturing facilities will be refinanced. The Group currently has access to global debt markets and expects to be able to refinance these facilities on commercially acceptable terms. The Group's medium- and long-term financing plans are designed to allow for periods of adverse conditions in world capital markets but not a prolonged (say 12 month) period where debt markets were effectively closed to the Group;
- that in the event of multiple risks occurring and having a particularly severe effect on the Group, all potential actions, such as constraining capital spending and reducing or suspending payments to shareholders, would be taken on a timely basis. The Group believes it has the early warning mechanisms to identify the need for such actions and the ability to implement them on a timely basis if necessary;
- that implausible scenarios, whether involving multiple risks occurring at the same time or the impact of individual risks occurring that cannot be mitigated by management actions to the degree assumed, do not occur. For instance, whilst the Directors have considered a scenario where cost reductions are not achieved and a major programme is delayed, they have not considered it plausible that any other of the key risks would crystallise in a way that would create a worse outcome over the five-year assessment period.

**Warren East**

**Chief Executive**

11 February 2016