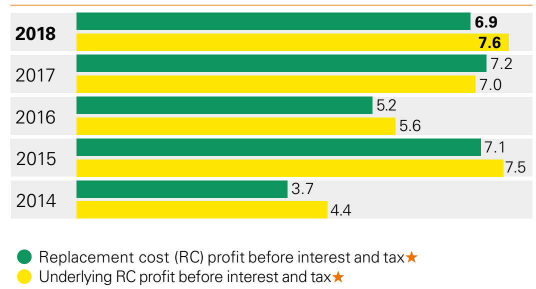
Downstream

In 2018 we have continued to demonstrate, through the execution of our strategy, that we have a competitively advantaged business. Our strategy is fit for now and fit for the future.

Tufan Erginbilgic
Chief executive, Downstream

10% fuels marketing earnings growth (17% on an underlying RC profit basis) (2017 >10%)	1,400 convenience partnership sites (2017 1,100)	46% of lubricant sales were premium grade (2017 44%)
94.9% refining availability★ (2017 95.3%)	1.7 million barrels of oil refined per day (2017 1.7mmb/d)	11.9 million tonnes of petrochemicals produced (2017 15.3mmte)

Downstream profitability ($ billion)



Business model

The Downstream segment has global marketing and manufacturing operations. It is the product and service-led arm of BP, made up of three businesses

Fuels

Includes refineries, logistic networks and fuels marketing businesses, which together with global oil supply and trading activities, make up our integrated fuels value chains (FVCs). We sell refined petroleum products including gasoline, diesel and aviation fuel, and have a significant presence in the convenience retail sector and a growing presence in the advanced mobility and low carbon sectors.

Lubricants

Manufactures and markets lubricants and related products and services to the automotive, industrial, marine and energy markets globally. We add value through brand, technology and relationships, such as collaboration with original equipment manufacturing partners.

Petrochemicals

Manufactures and markets products that are produced using industry-leading proprietary BP technology, and are then used by others to make essential consumer products such as food packaging, textiles and building materials. We also license our technologies to third parties.

Strategy

We aim to run safe and reliable operations across all our businesses, supported by leading brands and technologies, to deliver high-quality products and services that meet our customers' needs. Our strategy is to deliver underlying earnings growth and build competitively advantaged businesses. It is fit for now and fit for the future. The execution of our strategy in 2018 has continued to deliver, with underlying replacement cost profit growing to $7.6 billion in the year.

Safe and reliable operations
This remains our core value and first priority and we continue to drive improvements in personal and process safety performance.

Profitable marketing growth
We invest in higher-returning fuels marketing and lubricants businesses with growth potential and reliable cash flows.

Advantaged manufacturing
We aim to have a competitively advantaged refining and petrochemicals portfolio underpinned by operational excellence and to grow earnings potential, making the businesses more resilient to margin volatility.

Simplification and efficiency
This remains central to what we do to support performance improvement and make our businesses even more competitive.

Transition to a lower carbon and digitally enabled future
We are delivering and developing new products, offers and business models that support the transition to a lower carbon and digitally enabled future.

››› keep advancing

Market-led growth in the downstream

Convenience partnerships

Throughout 2018 BP continued to transform its global retail business. We've refreshed our forecourts, rolled out more BP fuels with *ACTIVE* technology and further enhanced our customer offers. And that's not all, we're also rapidly expanding our convenience partnerships.

>25%
increase in convenience partnership sites

We increased the number of convenience partnership sites by over 25% in 2018 – taking the total to around 1,400 sites across our network. Much of this growth was in Germany, where our strategic partnership with REWE to Go® is expanding rapidly. Since opening our first site in 2014, we now have over 460 in the country, and around half of those opened in 2018. Our REWE to Go® sites deliver substantially higher returns than an industry average site, driven by our differentiated customer offer including fresh, quality food and drink.

We also continue to grow our convenience partnership model in established markets such as the UK with M&S Simply Food® and in October we opened our first partnership site in Luxembourg with MyAuchan®.

We have rolled out our *Ultimate* fuel to forecourts in China.

Global markets
Our footprint in Mexico is growing and we now have 440 BP-operated sites, more than 300 of which were opened in 2018. We are also continuing to progress our plans for growth in China, and in Indonesia we opened our first sites at the end of the year.

Financial performance

	2018	2017	$ million 2016
Sale of crude oil through spot and term contracts★	**62,484**	47,702	31,569
Marketing, spot and term sales of refined products	**195,020**	159,475	126,419
Other sales and operating revenues	**13,185**	12,676	9,695
Sales and other operating revenues[a]	**270,689**	219,853	167,683
RC profit before interest and tax[b]			
Fuels	**5,261**	4,679	3,337
Lubricants	**1,065**	1,457	1,439
Petrochemicals	**614**	1,085	386
	6,940	7,221	5,162
Net (favourable) adverse impact of non-operating items★ and fair value accounting effects★			
Fuels	**381**	193	390
Lubricants	**227**	22	84
Petrochemicals	**13**	(469)	(2)
	621	(254)	472
Underlying RC profit before interest and tax[b]			
Fuels	**5,642**	4,872	3,727
Lubricants	**1,292**	1,479	1,523
Petrochemicals	**627**	616	384
	7,561	6,967	5,634
Organic capital expenditure★[c]	**2,781**	2,399	2,102

[a] Includes sales to other segments.
[b] Income from petrochemicals produced at our Gelsenkirchen and Mülheim sites in Germany is reported in the fuels business. Segment-level overhead expenses are included in the fuels business result.
[c] A reconciliation to GAAP information at the group level is provided on page 275.

Financial results

Sales and other operating revenues in 2018 were higher due to higher crude and product prices. Sales and other operating revenues in 2017 were higher than 2016 due to higher crude and product prices as well as higher sales volumes.

Replacement cost (RC) profit before interest and tax for 2018 included a net non-operating charge of $716 million, primarily reflecting restructuring costs. The 2017 result included a net non-operating gain of $389 million, primarily reflecting the gain on disposal of our share in the Shanghai SECCO Petrochemical Company Limited (SECCO) joint venture★ in petrochemicals, while the 2016 result included a net non-operating charge of $24 million, mainly relating to a gain on disposal in our fuels business which was more than offset by restructuring and other charges. In addition fair value accounting effects had a favourable impact of $95 million, compared with an adverse impact of $135 million in 2017 and $448 million in 2016.

After adjusting for non-operating items and fair value accounting effects, underlying RC profit before interest and tax in 2018 was $7,561 million.

Outlook for 2019

We anticipate lower industry refining margins, narrower North American heavy crude oil discounts and a lower level of turnaround activity than in 2018.

Our fuels business

Our fuels strategy focuses primarily on fuels value chains (FVCs). This includes building an advantaged refining portfolio through operating reliability and efficiency, location advantage and feedstock flexibility, as well as commercial optimization opportunities. We believe that having a quality refining portfolio connected to strong marketing positions is core to our integrated FVC businesses as this provides optimization opportunities in highly competitive markets.

Our fuels marketing business comprises retail, business-to-business and aviation fuels. It is a material part of Downstream with a strong track record of growth. We have an advantaged portfolio of assets with good growth potential, attractive returns and reliable cash flows. We continue to grow our fuels marketing business through our differentiated marketing offers and strategic convenience partnerships. We also partner with leading retailers, creating distinctive retail offers that aim to deliver good returns and reliable profit growth and cash generation.

Underlying RC profit before interest and tax for our fuels business was higher compared with 2017, reflecting continued growth in fuels marketing and refining despite 2018 having one of the highest levels of turnaround activity in our history. This was partially offset by a weaker contribution from supply and trading. Compared with 2016, the 2017 result was higher, reflecting stronger refining performance and growth in fuels marketing, partially offset by a weaker contribution from supply and trading.

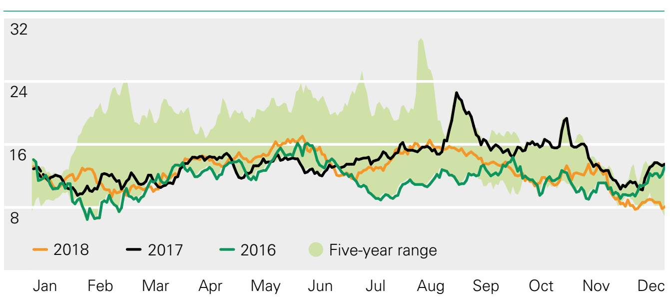
Refining marker margin★

We track the refining margin environment using a global refining marker margin (RMM). Refining margins are a measure of the difference between the price a refinery pays for its inputs (crude oil) and the market price of its products. Although refineries produce a variety of petroleum products, we track the margin environment using a simplified indicator that reflects the margins achieved on gasoline and diesel only. The RMM may not be representative of the margin achieved by BP in any period because of BP's particular refinery configurations and crude and product slates. In addition, the RMM does not include estimates of energy or other variable costs.

Region	Crude marker	2018	2017	$ per barrel 2016
US North West	Alaska North Slope	**16.2**	18.8	16.9
US Midwest	West Texas Intermediate★	**16.0**	16.9	13.2
Northwest Europe	Brent★	**11.1**	11.7	10.0
Mediterranean	Azeri Light	**9.8**	10.4	9.0
Australia	Brent	**11.5**	12.9	10.9
BP RMM		**13.1**	14.1	11.8

The global RMM averaged $13.1/bbl in 2018, $1/bbl lower than in 2017. The RMM was lower mainly due to weaker gasoline margins as a result of lower demand growth and higher inventory levels in the US.

BP refining marker margin ($/bbl)



Refining

At 31 December 2018 we owned or had a share in 11 refineries[a] producing refined petroleum products that we supply to retail and commercial customers. For a summary of our interests in refineries and average daily crude distillation capacities see page 284.

Underlying growth in our refining business is underpinned by our multi-year business improvement plans, which comprise globally consistent programmes focused on operating reliability and efficiency, advantaged feedstocks and commercial optimization. Operating reliability is a core foundation of our refining business and in 2018 operations remained strong, with refining availability of 94.9% (2017 95.3%) and refinery utilization★ rates at 91% (2017 90%). As a result we achieved record levels of refining throughput on a current portfolio basis despite high turnaround activity.

Our refinery portfolio – along with our supply capability – enables us to process advantaged crudes. For example, in the US, our three refineries all have location-advantaged access to Canadian crudes which are typically cheaper than other crudes. Our commercial optimization programme aims to maximize value from our refineries by capturing opportunities in every step of the value chain, from crude selection through to yield optimization and utilization improvements. In 2018 we delivered continued improvement in our net cash margin per barrel★, a measure of the competitiveness of our refinery portfolio, and extended lower carbon bio-processing into more of our refineries.

The refining result was higher in 2018 compared with 2017, reflecting increased commercial optimization and strong operations, which in North America allowed us to capture the benefits from higher North American heavy crude oil discounts, partially offset by lower industry refining margins and a higher level of turnaround activity. Compared with 2016, refining performance continued to improve in 2017, capturing higher industry refining margins and efficiency benefits as well as increased commercial optimization including the benefits of higher levels of advantaged feedstock. This was, however, partially offset by a higher level of planned turnaround activity.

	2018	2017	2016
Refinery throughputs[ab]			thousand barrels per day
US	**703**	713	646
Europe	**781**	773	803
Rest of world	**241**	216	236
Total	**1,725**	1,702	1,685
			%
Refining availability	**94.9**	95.3	95.3

[a] This does not include BP's interest in Pan American Energy Group, which is reported through the Upstream segment.
[b] Refinery throughputs reflect crude oil and other feedstock volumes.

Fuels marketing and logistics

Across our fuels marketing businesses, we operate an advantaged infrastructure and logistics network that includes pipelines, storage terminals and tankers for road and rail. We seek to drive excellence in operational and transactional processes and deliver compelling customer offers in the various markets where we operate. Through our retail business, we supply fuel and convenience retail services to consumers through company-owned and franchised retail sites, as well as other channels, including dealers and jobbers. We also supply commercial customers in the transport and industrial sectors.

Retail is the most material part of our fuels marketing business and a significant source of earnings growth through our strong market positions, brands and distinctive customer offers. This is underpinned by the strength of our retail convenience partnerships, technology such as our advanced fuels and use of digital technology, as well as our customer relationships. This differentiation enables our growth in existing markets and supports our growth plans in new material markets such as Mexico, India, Indonesia and China. During 2018 we continued our expansion in Mexico with 440 BP-branded sites operational at the end of the year. In the fourth quarter of 2018 we also opened our first retail sites in Indonesia.

We have a clear strategy and focused activity set for the transition to a lower carbon and digitally enabled future. We are actively implementing and developing new offers and business models centred around digital and advanced mobility trends. In 2018 we acquired Chargemaster, the operator of the UK's largest electric vehicle charging network and invested in StoreDot, a leading developer of ultra-fast charging battery technology and FreeWire, a manufacturer of mobile rapid charging systems for electric vehicles. Our ambition is to roll out more than 2,000 additional charging points in the UK, bringing the total to around 9,000 by 2021, including more than 400 new ultra-fast chargers at our retail forecourts – see page 42. These investments and our differentiated fuels and convenience offers support BP's aim to become the leading fuel provider for both conventional and electric vehicles.

Fuels marketing performance in 2018 was significantly higher compared with 2017, reflecting the benefits from our strategic improvement programmes, enabling improved margin capture and supply chain optimization. Our convenience partnership model is now in around 1,400 sites across our network, with more than 460 sites in Germany with our REWE to Go® offer. Compared with 2016, fuels marketing performance in 2017 was higher, reflecting continued earnings growth supported by higher premium fuel volumes, and the continued roll out of our convenience partnership model.

			thousand barrels per day
Sales volumes	**2018**	2017	2016
Marketing sales[a]	**2,736**	2,799	2,825
Trading/supply sales[b]	**3,194**	3,149	2,775
Total refined product sales	**5,930**	5,948	5,600
Crude oil[c]	**2,624**	2,616	2,169
Total	**8,554**	8,564	7,769

[a] Marketing sales include branded and unbranded sales of refined fuel products and lubricants to both business-to-business and business-to-consumer customers, including service station dealers, jobbers, airlines, small and large resellers such as hypermarkets as well as the military.
[b] Trading/supply sales are fuel sales to large unbranded resellers and other oil companies.
[c] Crude oil sales relate to transactions executed by our integrated supply and trading function, primarily for optimizing crude oil supplies to our refineries and in other trading. 2018 includes 102 thousand barrels per day relating to revenues reported by the Upstream segment.

			Number of BP-branded retail sites
Retail sites[d]	**2018**	2017	2016
US	**7,200**	7,200	7,100
Europe	**8,200**	8,100	8,100
Rest of world	**3,300**	3,000	2,800
Total	**18,700**	18,300	18,000

[d] Reported to the nearest 100. Includes sites not operated by BP but instead operated by dealers, jobbers, franchisees or brand licensees under a BP brand. These may move to or from the BP brand as their fuel supply or brand licence agreements expire and are renegotiated in the normal course of business. Retail sites are primarily branded *BP*, *ARCO* and *Aral*.

Aviation

Our Air BP business is one of the world's largest suppliers of aviation fuels and services, selling fuel to commercial airlines, the military and general aviation customers at around 800 locations across more than 50 countries. We have marketing sales of more than 430,000 barrels per day. Air BP's services include the design, build and operation of fuelling facilities, technical consultancy and training, supporting customers to meet their lower carbon goals and digital fuelling solutions to increase efficiency and reduce risk. Our Air BP business is differentiated through its strong market positions, brand strength, partnerships, technology and customer relationships. Our strategy is to maintain a strong presence in our core geographies of Australia, New Zealand, Europe, the Middle East and the US, while expanding into major growth markets that offer long-term competitive advantages, such as Asia, Africa and Latin America.

In 2018 we continued to develop new offers and solutions in response to the needs of our customers. This included a collaboration with Neste, a leading producer of renewable products, to advance the supply of sustainable aviation fuels. We also launched the world's first commercially deployed airfield automation system that actively helps prevent misfuelling. This digital platform for operators and airports provides an integrated, real-time, global solution to strengthen safety barriers and mitigate risks during the fuelling process.

Oil supply and trading

Our integrated supply and trading function is responsible for delivering value across the overall crude and oil products supply chain. This structure enables our downstream businesses to maintain a single interface with oil trading markets and operate with one set of trading compliance and risk management processes, systems and controls. It has a two-fold purpose:

First, it seeks to identify the best markets and prices for our crude oil, source optimal raw materials for our refineries and provide competitive supply for our marketing businesses. We will often sell our own crude and purchase alternative crudes from third parties for our refineries where this will provide incremental margin.

Second, it aims to create and capture incremental trading opportunities by entering into a full range of exchange-traded commodity derivatives, over-the-counter contracts and spot and term contracts. In combination with rights to access storage and transportation capacity, it seeks to access advantageous price differences between locations and time periods, and to arbitrage between markets.

The function has trading offices in Europe, North America and Asia. Our presence in the more actively traded regions of the global oil markets supports overall understanding of the supply and demand forces across these markets.

Our trading financial risk governance framework is described in Financial statements – Note 29 and the range of contracts used is described in Glossary – commodity trading contracts on page 315.

Our lubricants business

We manufacture and market lubricants and related products and services to the automotive, industrial, marine and energy markets across the world. Our key brands are *Castrol*, *BP* and *Aral*. *Castrol* is a recognized brand worldwide that we believe provides us with significant competitive advantage. We are one of the largest purchasers of base oil in the market but have chosen not to produce it or manufacture additives at scale. Our participation choices in the value chain are focused on areas where we can leverage competitive differentiation and strength.

Our strategy is to focus on our premium lubricants and growth markets while leveraging our strong brands, technology and customer relationships – all of which are sources of differentiation for our business. With 65% of profit generated from growth markets and 46% of our sales from premium grade lubricants, we have a strong base for further expansion and sustained profit growth.

In 2018 we significantly strengthened our relationship with Renault through the continuation of our Renault Formula 1 sponsorship with Renault Sport Racing, and are exploring new opportunities to work globally with the Renault-Nissan-Mitsubishi Alliance. This includes collaborating in a number of areas including fuel and lubricants supply and the joint development of advanced mobility solutions and new technologies.

We have a robust pipeline of technology development through which we seek to respond to engine developments and evolving consumer needs and preferences, including lower carbon options. We apply our expertise to create differentiated, premium lubricants and high-performance fluids for customers in on-road, off-road, sea and industrial applications. In 2018 we extended the roll out of *Castrol EDGE BIO-SYNTHETIC* into China, an engine oil that uses 25% plant-derived oil compounds while delivering a high level of performance.

The lubricants business delivered an underlying RC profit before interest and tax that was lower than 2017. The 2018 results reflected continued premium brand growth, more than offset by the adverse lag impact of increasing base oil prices, as well as adverse foreign exchange rate movements. The 2017 results reflected growth in premium brands and growth markets, offset by the adverse lag impact of increasing base oil prices.

Our petrochemicals business

Our petrochemicals business manufactures and markets three main product lines: purified terephthalic acid (PTA), paraxylene (PX) and acetic acid. These have a large range of uses including polyester fibre, food packaging and building materials. We also produce a number of other specialty petrochemicals products. In addition, we manufacture olefins and derivatives at Gelsenkirchen and solvents at Mülheim in Germany, the income from which is reported in our fuels business.

Along with the assets we own and operate, we have also invested in a number of joint arrangements★ in Asia, where our partners are leading companies in their domestic market.

Our strategy is to grow our underlying earnings and ensure the business is resilient to margin volatility, positioning ourselves to capture growth and investment opportunities in an attractive and growing market. We do this through the execution of our business improvement programmes which include operational efficiency, deploying our industry-leading proprietary technology, commercial optimization and competitive feedstock sourcing. We also aim to grow our third-party technology licensing income to create additional value.

We continue to work on reducing our carbon footprint through the application of our proprietary technologies, and are assessing further opportunities to advance the circular economy in the chemicals and plastics sector.

In 2018 the petrochemicals business delivered an underlying RC profit before interest and tax that was higher compared with 2017 – which in turn was higher than 2016. The 2018 result reflected an improved margin environment, increased margin optimization and continued cost management focus, partially offset by a higher level of turnaround activity and the divestment of our 50% shareholding in the SECCO joint venture, which completed in the fourth quarter of 2017. Compared with 2016, the higher result in 2017 reflected an improved margin environment, higher margin optimization, the benefits from our efficiency programmes and a lower level of turnaround activity. This was partially offset by the impact of the divestment of our interest in the SECCO joint venture.

Our petrochemicals production of 11.9 million tonnes in 2018 was lower than 2017 and 2016 (2017 15.3mmte, 2016 14.2mmte) due to higher levels of turnaround activity and the divestment of our interest in the SECCO joint venture in 2017.

Our technology remains a significant source of competitive advantage. In 2018 we secured six new licensing agreements out of the 10 PTA and PX licences announced globally.

In 2018 we also signed a heads of agreement with SOCAR to evaluate the creation of a joint venture to build and operate a world-scale petrochemicals complex in Turkey. This facility would be the largest and most competitive integrated PTA, PX and aromatics complex in the western hemisphere.