Downstream

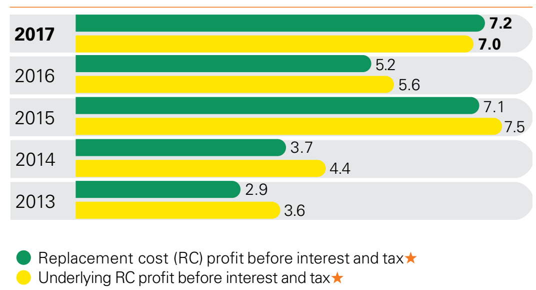
> The execution of our strategy is delivering results and building a business that is fit for now and the future. In 2017, we had our best year ever, with a replacement cost profit of $7.2 billion.

Tufan Erginbilgic, chief executive, Downstream

In summary

>10% fuels marketing earnings growth versus prior year (2016 >20%)	**1,100** convenience partnership sites (2016 880)	**44%** of lubricant sales were premium grade (2016 43%)
95.3% refining availability★ (2016 95.3%)	**1.7** million barrels of oil refined per day (2016 1.7mmb/d)	**15.3** million tonnes of petrochemicals produced (2016 14.2mmte)

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.

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 performance improvement in order to expand earnings and cash flow potential and improve our resilience to a range of market conditions. We also aim to further build competitively advantaged businesses. The execution of our strategy in 2017 has continued to deliver, with growth in underlying earnings and cash flow at attractive returns.

Safe and reliable operations
This remains our core value and first priority and we continue to drive improvement 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 developing new products, offers and business models that support the transition to a lower carbon and digitally enabled future over the longer term.

Market-led growth

Growing retail business

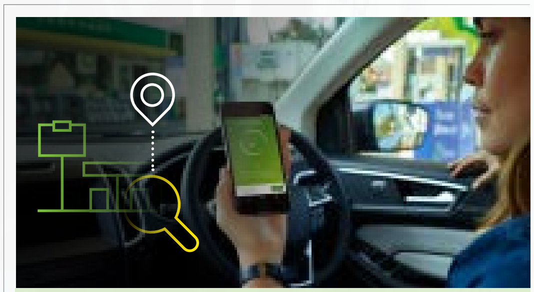
Every second of every day vehicles are filling up with BP fuel across 18,300 sites – making retail big business for BP.

Our premium fuel volumes grew by 6% in 2017 and generated margins that are higher than our standard grades. With a retail network that spans 19 countries, we have one of the top three positions in terms of market share in most of the markets where we operate.

But we're not stopping there. We also have a significant and growing retail convenience partnership offer which we plan to continue to expand across our markets. This builds on the success we have had with other industry leading food retailers – like M&S Simply Food® and REWE to go®. Our loyalty schemes, such as PAYBACK® and Nectar®, are helping to strengthen customer relationships in key markets – with loyalty card customers tending to shop more frequently and spend more per visit.

We are also expanding our global portfolio into major growth markets such as Mexico, China and Indonesia. For the first time in 75 years, companies outside Mexico can invest in its fuels market. We were the first global brand to open retail sites there in early 2017 and by the end of the year we had more than 120 BP-branded sites, serving thousands of customers a day. Mexico is one of the world's largest consumer gasoline and diesel markets globally and we plan to have around 1,500 sites by 2021.

Each day more than 250,000 consumers in Mexico are choosing BP's differentiated offer.



Digital and advanced mobility

We are rolling out new digital and advanced mobility customer offers. This includes our new *BPme* app, which helps customers find a convenient BP site, order coffee and pay for fuel from their vehicle, and our investment in FreeWire, a manufacturer of mobile electric vehicle rapid charging systems, which we plan to roll out to selected European retail sites in 2018.

1,100 convenience partnership sites globally

Some examples of our partnerships.

Financial performance

	2017	2016	$ million 2015
Sale of crude oil through spot and term contracts★	**47,702**	31,569	38,386
Marketing, spot and term sales of refined products	**159,475**	126,419	148,925
Other sales and operating revenues	**12,676**	9,695	13,258
Sales and other operating revenues[a]	**219,853**	167,683	200,569
RC profit before interest and tax[b]			
Fuels	**4,679**	3,337	5,858
Lubricants	**1,457**	1,439	1,241
Petrochemicals	**1,085**	386	12
	7,221	5,162	7,111
Net (favourable) adverse impact of non-operating items★ and fair value accounting effects★			
Fuels	**193**	390	137
Lubricants	**22**	84	143
Petrochemicals	**(469)**	(2)	154
	(254)	472	434
Underlying RC profit before interest and tax[b]			
Fuels	**4,872**	3,727	5,995
Lubricants	**1,479**	1,523	1,384
Petrochemicals	**616**	384	166
	6,967	5,634	7,545
Organic capital expenditure★[c]	**2,399**	2,102	N/A

[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 249. Organic capital expenditure on a cash basis in 2015 is not available.

Financial results

Sales and other operating revenues in 2017 were higher due to higher crude and product prices as well as higher sales volumes. Sales and other operating revenues in 2016 were lower than 2015 due to lower crude and product prices.

Replacement cost (RC) profit before interest and tax for the year ended 31 December 2017 included a net non-operating gain of $389 million, primarily reflecting the gain on disposal of our share in the SECCO joint venture★ in petrochemicals. 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, while the 2015 result included a net non-operating charge of $590 million, mainly relating to restructuring charges. In addition, fair value accounting effects had an adverse impact of $135 million, compared with an adverse impact of $448 million in 2016 and a favourable impact of $156 million in 2015.

After adjusting for non-operating items and fair value accounting effects, underlying RC profit before interest and tax in 2017 was $6,967 million.

Outlook for 2018

We anticipate higher discounts for North American heavy crude oil differentials but lower industry refining margins. We also expect the level of turnaround activity to be similar in total, although higher in our petrochemicals business.

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 good 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.

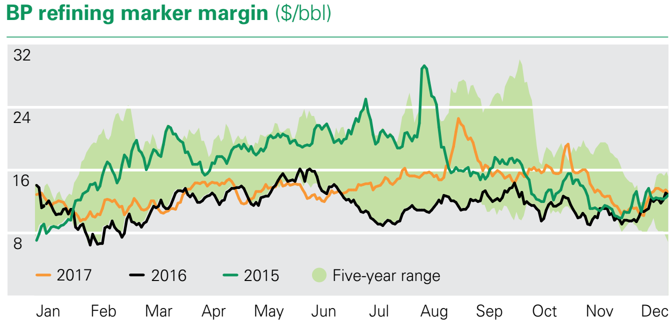
Underlying RC profit before interest and tax for our fuels business was higher compared with 2016, reflecting stronger refining performance and growth in fuels marketing, partially offset by a weaker contribution from supply and trading. Compared with 2015, the 2016 result was lower, reflecting a significantly weaker refining environment and the impact from a particularly large turnaround at our Whiting refinery. This was partially offset by lower costs, reflecting the benefits from our simplification and efficiency programmes, an increased fuels marketing performance driven by retail growth and higher refining margin capture in our operations.

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	2017	2016	$ per barrel 2015
US North West	Alaska North Slope	**18.8**	16.9	24.0
US Midwest	West Texas Intermediate★	**16.9**	13.2	19.0
Northwest Europe	Brent★	**11.7**	10.0	14.5
Mediterranean	Azeri Light	**10.4**	9.0	12.7
Australia	Brent	**12.9**	10.9	15.4
BP RMM		**14.1**	11.8	17.0

BP refining marker margin ($/bbl)



The average global RMM in 2017 was $14.1/bbl, $2.3/bbl higher than in 2016. The increase was driven by tighter global supply demand balances as well as lower product inventories compared with 2016.

Refining

At 31 December 2017 we owned or had a share in 11 refineries 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 258.

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 2017 operations remained strong, with refining availability★ sustained at around 95.3%, refinery utilization rates★ at 90% (2016 91%) and overall throughputs in 2017 higher compared with 2016. 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. In 2017 we processed record levels of advantaged crude across our portfolio. 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.

Refining performance was stronger in 2017 compared with 2016, reflecting continued strong operational performance, capturing higher industry refining margins, 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. This stronger performance in 2017 resulted in an underlying improvement of more than 15% in our net cash margin per barrel. Compared with 2015, refining performance in 2016 was lower, reflecting a significantly weaker refining environment and the impact of a particularly large turnaround at the Whiting refinery. This was partially offset by higher refining margin capture in our operations and lower costs from our simplification and efficiency programmes.

Above: Engineers at our Cherry Point refinery in the US.

	2017	2016	2015
Refinery throughputs[a]		thousand barrels per day	
US	**713**	646	657
Europe	**773**	803	794
Rest of world[b]	**216**	236	254
Total	**1,702**	1,685	1,705
			%
Refining availability	**95.3**	95.3	94.7

[a] Refinery throughputs reflect crude oil and other feedstock volumes.
[b] Bulwer refinery in Australia ceased refining operations in 2015.

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 most advanced premium fuels and our use of digital technology, as well as our customer relationships. This differentiation enables our growth in existing markets and supports our plans to expand our footprint in new material markets such as Mexico, India, Indonesia and China. In Mexico we became the first international oil company to open a branded network since deregulation of the fuel market, and we announced new retail joint ventures in Indonesia and, most recently, China in February 2018.

We have a clear strategic frame to develop new customer offers in mobility and to transition our business to a lower carbon future over the longer term, building on our capabilities, retail assets and brand strengths. We are actively developing new offers and business models centred around digital and advanced mobility trends, for example we have invested in FreeWire Technologies Inc., a manufacturer of mobile electric vehicle rapid charging systems, and we have plans to roll out FreeWire's Mobi Charger units at selected BP retail sites in Europe in 2018, see Innovation in BP on page 46. Our acquisition of Clean Energy Fuel Corporation's biomethane production assets in 2017 means we are now the largest supplier of renewable natural gas to the US transport sector.

In 2017, we also completed the initial public offering of common units in BP Midstream Partners LP, our subsidiary★, which has interests in certain crude oil, natural gas and refined product pipelines in the US.

Above: Over-wing fuelling at Adelaide airport in Australia.

Fuels marketing performance in 2017 was higher compared with 2016, reflecting continued earnings growth supported by higher premium fuel volumes, which grew by 6%, and the continued rollout of our convenience partnership model to over 220 more sites, bringing the total number of convenience partnership sites to 1,100 across our retail network. Compared with 2015, fuels marketing performance in 2016 was higher, reflecting retail growth.

		thousand barrels per day	
Sales volumes	**2017**	2016	2015
Marketing sales[a]	**2,799**	2,825	2,835
Trading/supply sales[b]	**3,149**	2,775	2,770
Total refined product sales	**5,948**	5,600	5,605
Crude oil[c]	**2,616**	2,169	2,098
Total	**8,564**	7,769	7,703

[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. 2017 includes 103 thousand barrels per day relating to revenues reported by the Upstream segment.

		Number of BP-branded retail sites	
Retail sites[d]	**2017**	2016	2015
US	**7,200**	7,100	7,000
Europe	**8,100**	8,100	8,100
Rest of world	**3,000**	2,800	2,900
Total	**18,300**	18,000	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* and include our interest in equity-accounted entities.

Aviation

Our Air BP business is one of the world's largest aviation fuels suppliers, selling fuel to major commercial airlines as well as the general aviation sector in over 800 locations across more than 50 countries globally. We also provide aviation fuel consultancy services to airlines and airports including the design, build and operation of aviation fuelling facilities. Our Air BP business is differentiated through its strong market positions, brand strength, partnerships, technology and customer relationships. Our strategy aims to maintain a strong presence in our core locations in Australia, New Zealand, Europe and the US, while expanding into major growth markets that offer long-term competitive advantages, such as in Asia and Latin America. We have marketing sales of more than 420,000 barrels per day, and in 2017 began marketing in Mexico, one of the world's fastest-growing aviation markets.

We are developing new offers and solutions in response to the needs of our customers. In 2017 we entered into a strategic partnership and preferred fuel supplier agreement with Victor, one of the world's leading on-demand marketplaces for private jet charters. We also recognize the lower carbon commitments of the airline industry and continue to develop our capability to meet the industry's needs. In 2017 we began supply of jet biofuel at two further locations in Sweden and Norway, in addition to Norway's Oslo airport where in 2016, we became the world's first supplier for commercial jet biofuel using existing fuelling infrastructure.

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, this allows it 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 27 and the range of contracts used is described in Glossary – commodity trading contracts on page 289.

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.

Above: *Castrol EDGE* engine oil.

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 more than 60% of profit generated from growth markets and more than 44% of our sales from premium grade lubricants, we have an excellent base for further expansion and sustained profit growth.

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 2017 in the US, we launched *Castrol EDGE BIO-SYNTHETIC*, 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 similar compared with 2016 – which in turn was higher compared with 2015. The 2017 results reflected growth in premium brands and growth markets, offset by the adverse lag impact of increasing base oil prices. The 2016 results also reflected continued strong performance in growth markets and premium brands as well as lower costs achieved through simplification and efficiency programmes.

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.

In line with our strategy to focus our portfolio on areas where we have industry-leading proprietary technologies and competitive advantage, in 2017 we divested our 50% shareholding in the Shanghai SECCO Petrochemical Company Limited joint venture★ in China for a consideration of $1.7 billion.

In 2017 the petrochemicals business delivered a higher underlying RC profit before interest and tax compared with 2016 – which in turn was higher than 2015. The 2017 result reflected an improved margin environment, stronger 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, which completed in the fourth quarter of 2017 and was classified as held for sale in the group balance sheet at 30 September. In 2017 we reduced our cash breakeven by more than 40% compared with 2014, making our business more resilient to volatility in the environment. Compared with 2015, the higher result in 2016 reflected strong operations and margin capture supported by the continued rollout of our latest advanced technology, as well as benefits from a slightly improved environment particularly in olefins and derivatives.

Our petrochemicals production of 15.3 million tonnes in 2017 was higher than 2016 and 2015 (2016 14.2mmte, 2015 14.8mmte). Production was higher in 2017, reflecting record levels of production at a number of our plants, a lower level of turnaround activity and the increase in our interest in the Gelsenkirchen and Mülheim sites following the dissolution of our German refining joint operation with Rosneft in 2016. These increases were partially offset by the divestments of our share in the SECCO joint venture in 2017 and the Decatur petrochemicals complex in 2016.

In 2017 we completed the upgrade of our PTA plant at Cooper River in South Carolina, US, to our industry-leading proprietary technology. This technology is also used at our key PTA sites at Zhuhai in China and Geel in Belgium. Since its deployment, new production records have been set at Zhuhai and Geel.

We have also leveraged this technology to develop a lower carbon PTA solution for manufacturers, brand owners and their customers. Our *PTAir* brand, which was first launched in Europe in 2016, is now available globally. The introduction of *PTAir* in China in 2017 has demonstrated our long-term commitment to both promoting improved sustainability in the polyester industry and helping China to move towards a lower carbon future.