

# 2022 at a glance

## In numbers

As at 31 December 2022

Scale	Strategy	Performance
<b>67,600</b> employees (2021 65,900)	<b>2,400</b> strategic convenience sites★ (2021 2,150)	<b>\$(2.5)bn</b> loss for the year attributable to bp shareholders (2021 profit \$7.6bn)
<b>62</b> countries of operation (2021 >65)	<b>5.8GW</b> developed renewables to FID★ (2021 4.4GW)	<b>\$27.7bn</b> underlying replacement cost (RC) profit★ (2021 \$12.8bn)
<b>2.3</b> million barrels of oil equivalent – upstream★ production (2021 2.2mboe/d)	<b>\$6.07/boe</b> upstream★ unit production costs★ (2021 \$6.82/boe)	<b>96.0%</b> bp-operated upstream plant reliability★ (2021 94.0%)
<b>20,650</b> retail sites★ (2021 20,500)	<b>50</b> tier 1 and 2 process safety events★ (2021 62)	<b>94.5%</b> bp-operated refining availability★ (2021 94.8%)
<b>~22,000</b> electric vehicle charge points★ (2021 13,100)	<b>1.5</b> million tonnes of CO <sub>2</sub> equivalent – sustainable GHG emissions reductions★ (2021 1.6/MtCO <sub>2</sub> e)	

### Key

● A strategic metric, see page 11

● A key performance indicator, see page 20

📖 For more information on group performance see page [32](#)

## Financial reporting segment performance

At 31 December 2021, the group's reportable segments were gas & low carbon energy, oil production & operations, customers & products and Rosneft. The group has ceased to report Rosneft as a separate segment in the group's financial reporting for 2022. For more information see Financial statements – Note 1. From the first quarter of 2022, the group's reportable segments are gas & low carbon energy, oil production & operations and customers & products. Each are managed separately,

with decisions taken for the segment as a whole, and represent a single operating segment that does not result from aggregating two or more segments (see Financial statements – Note 5). For the period from 1 January 2022 to 27 February 2022, net income from Rosneft is included in other businesses & corporate and classified as an adjusting item.

### Gas & low carbon energy<sup>a</sup>

Comprises our gas & low carbon businesses. Our gas business includes regions with upstream activities that predominantly produce natural gas, integrated gas and power, and gas trading. Our low carbon business includes solar, offshore and onshore wind, hydrogen and carbon capture and storage (CCS), power trading and our share in bp Bunge Bioenergia<sup>b</sup>. Power trading includes trading and marketing of both renewable and non-renewable power.

a The AGT and Middle East regions have been further subdivided by asset.

b From the first quarter of 2023, bp Bunge Bioenergia will be reported within customers & products.

**\$14.7bn**

**RC profit before interest and tax<sup>c</sup>**  
(2021 \$2.1bn)

**\$16.1bn**

**Underlying RC profit before interest and tax<sup>★</sup>**  
(2021 \$7.5bn)



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### Oil production & operations<sup>a</sup>

Comprises regions with upstream activities that predominantly produce crude oil, including bpx energy.

**\$19.7bn**

**RC profit before interest and tax<sup>c</sup>**  
(2021 \$10.5bn)

**\$20.2bn**

**Underlying RC profit before interest and tax**  
(2021 \$10.3bn)



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### Customers & products

Comprises customer-focused businesses, which include convenience and retail fuels, EV charging, as well as *Castrol*, aviation and B2B and midstream. It also includes our products businesses, refining & oil trading, as well as our bioenergy businesses.

**\$8.9bn**

**RC profit before interest and tax<sup>c</sup>**  
(2021 \$2.2bn)

**\$10.8bn**

**Underlying RC profit before interest and tax**  
(2021 \$3.3bn)



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### Other businesses & corporate

Comprises innovation & engineering; bp ventures; launchpad; regions, corporates & solutions; our corporate activities and functions; and any residual costs of the Gulf of Mexico oil spill. From the first quarter 2022 the results of Rosneft, previously reported as a separate segment, are also included in other businesses & corporate. Comparative information for 2021 has been restated to reflect the changes in reportable segments. For more information see Financial statements – Note 1 – Significant accounting policies, judgements, estimates and assumptions – Investment in Rosneft.

**\$(26.7)bn**

**RC loss before interest and tax<sup>c</sup>**  
(2021 loss \$(0.3)bn)

**\$(1.2)bn**

**Underlying RC loss before interest and tax**  
(2021 profit \$1.3bn)



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c IFRS requires that the measure of profit or loss disclosed for each operating segment is the measure that is provided regularly to the chief operating decision maker. For bp, this measure of profit or loss is replacement cost profit before interest and tax which reflects the replacement cost of inventories sold in the period and is arrived at by excluding inventory holding gains and losses from profit before interest and tax. Replacement cost profit for the group is not a recognized measure under IFRS. For further information see Financial statements – Note 5.

## Chair and chief executive officer's letter

# Delivering today, transforming for tomorrow

Helge Lund  
Chair



### Nearest GAAP equivalent measures

**\$(2.5)bn**

Loss for the year attributable to bp shareholders<sup>a</sup>

**(3.0)%**

Loss for the year attributable to bp shareholders divided by total equity<sup>b</sup>

**\$46.9bn**

Finance debt at 31 December 2022<sup>c</sup>

### Dear shareholder,

It is now a little over three years since bp's board and leadership team set a new direction for the company – beginning the transformation of bp from international oil company to an integrated energy company.

Since February 2020, the world has seen a pandemic, a war, and a cost-of-living crisis. And now – as we write – our thoughts are with colleagues and all those in Türkiye and Syria following the terrible earthquakes recently.

We take this opportunity to offer joint reflections on what bp has delivered during this time. We do so mindful of the different roles and responsibilities we each perform, but with a shared belief that by working closely together we can continue to deliver value for you, the owners of the company.

### Safety above all

The progress we summarize below is built on a recognition that nothing is more important than safe and reliable operations.

While we have made some improvements, for example, seeing 19% fewer tier 1 and 2 process safety events<sup>★</sup>, we have also had challenges. Tragically, four people lost their lives while working for bp last year, and a pedestrian was killed in a collision with one of our vehicles.

bp continues to focus on actions to maintain and enhance the effectiveness of the safety processes and procedures at bp operations, including supporting a culture of care for others. We firmly believe that when colleagues care deeply about each other, then they really look out for each other, and everyone is safer.

### Performing while transforming

Guided by our purpose – to reimagine energy for people and our planet – bp's focus has been to perform while transforming. Put another way – on delivering the energy the world wants and needs today and tomorrow while creating long-term sustainable value for shareholders. It is still early in our transformation, but we believe the company has made substantial progress. We are a stronger bp today.

In 2022 bp delivered its highest upstream plant reliability<sup>★</sup> on record and its lowest per-barrel production costs<sup>★</sup> since 2006. These two performance measures, combined with high commodity prices, contributed towards operating cash flow<sup>★</sup> of \$40.9 billion for the year, an underlying replacement cost profit<sup>a</sup> of \$27.7 billion, ROACE<sup>b</sup> of 30.5% and net debt<sup>c</sup> of \$21.4 billion at the end of the year.

In a sign of increasing confidence in our strategy, the board decided to increase the dividend per ordinary share by 21% through the year and we announced a total of \$11.25 billion to shareholders in buybacks from 2022 surplus cash flow<sup>★</sup>. We are delivering for shareholders by executing our clear, consistent and disciplined financial frame.

a Nearest GAAP equivalent measure to underlying replacement cost profit <sup>★</sup> of \$27.7 billion, which is loss for the year adjusted for inventory holding gains and net of adjusting items.

b Nearest GAAP equivalent measure to ROACE <sup>★</sup> of 30.5%. Numerator: loss for the year attributable to bp shareholders adjusted for inventory holding gains, net of adjusting items, adding back non-controlling interest and interest expense net of tax. Denominator: the average of the beginning and ending balances of total equity plus finance debt, excluding cash and cash equivalents and goodwill as presented on the group balance sheet over the periods presented.

c Nearest GAAP equivalent measure to net debt <sup>★</sup> of \$21.4 billion, which is finance debt adjusted for the fair value of associated derivative financial instruments and cash and cash equivalents.

In terms of transformation, the proportion of bp's total capital investment in what we call our transition growth★ engines has risen from around 3% in 2019 to around 30% in 2022. This included:

- The acquisition in 2022 of Archaea Energy, a leading US producer of renewable natural gas, accelerating the growth of our bioenergy business.
- The establishment of new businesses in offshore wind and hydrogen.
- A tripling in the number of bp pulse EV charge points★ globally, from more than 7,500 in 2019, to around 22,000.
- The addition of more than 750 strategic convenience sites★ to our global retail network since 2019.

Since 2019, bp has also reduced emissions from our oil and gas operations and production, further rationalized the portfolio and started up 13 major projects★.

### The energy trilemma

Recent events have made it clear that the world wants and needs a better and more balanced energy system, delivering energy that is not only lower carbon, but secure and affordable too – this is known as the energy trilemma.

Transforming today's global energy system so that it can consistently deliver all three is a complex challenge. To tackle it, the energy transition must accelerate. When bp published the *Energy Outlook 2023* earlier this year, one of its insights was that Russia's war in Ukraine is likely to accelerate that transition. At the same time, the energy transition needs to be orderly – decarbonizing rapidly while maintaining the balance of supply and demand that's needed to help avoid, as best as possible, the energy shortages and price rises that have been so difficult for people and businesses.

bp's integrated energy company strategy is deliberately designed to help on both counts: contributing to the energy transition and keeping energy flowing today.

### Leaning in further

The increasing confidence we have in bp's strategy – along with how the world has changed – are what in February convinced us to lean further into our strategy.

First, by planning to invest more into our transition growth engines through this decade than under our previous plans – up to \$8 billion more by 2030. That includes making investments that can help people decarbonize their lives and their businesses sooner – such as EV charging, sustainable aviation fuels and

hydrogen for hard-to-abate industries. Our cumulative investment in these transition growth engines is expected to be in a range of \$55-65 billion between 2023 and 2030.

Second, by planning to invest more into oil and gas – again, up to \$8 billion more by 2030. With investments into resilient, high-quality oil and gas projects – prioritizing where we can deliver quickly and efficiently, and in ways that minimize additional emissions and maximize our contribution to energy security.

As a result of these changes, bp is aiming for its oil and gas production to be around two million barrels a day by 2030. This is around 25% lower than in 2019, but higher than our previous aim of around a 40% reduction by 2030. With this in mind, bp's aim to lower the emissions from the use of its production has been adjusted to 20-30% by 2030. That is lower than our previous aim of 35-40% by 2030, but still significant. Taken in its entirety, we believe bp's strategy – including its specific net zero aims across operations, production and sales – remains consistent with the Paris goals.

### Plan for growth

This is a plan for delivery, for growth and for value creation. And as bp's earnings grow, we can:

- Invest more in bp's transition and in the energy transition.
- Invest more in today's energy's security.

- Create more value for bp's shareholders.
- Benefit governments and society with the taxes and revenues generated by bp's increased earnings.

We have a plan. The strategy is working, and our people are fully behind it. Now it is about execution – operationally and strategically.

### Closing thanks

Your company is running well. It continues to build capability and skills, including attracting talent to bp from a broad range of sectors. And it is becoming more diverse, and stronger for that.

Thank you – as always – for your support. In a challenging year, some of our most rewarding moments were the many meetings we enjoyed with shareholders. Whether you are a long-term bp shareholder or a recent investor, we thank you for the faith you have placed in bp.

Finally, we thank bp's employees for all their work during 2022. Quite simply, they have been outstanding.



**Helge Lund**  
Chair  
10 March 2023



**Bernard Looney**  
Chief executive officer

**Bernard Looney**  
Chief executive officer



# Global context

Energy markets have been volatile, largely driven by the effects of the Russia-Ukraine war. Concerns about energy security, fuel prices and emissions are boosting prospects for non-fossil fuels – especially renewables – as the world transitions towards a lower carbon future.

## 2.3%

**year-on-year increase in global oil consumption in 2022<sup>a</sup>**

## (0.8)%

**estimated decrease in global gas consumption in 2022<sup>b</sup>**

## 10.8%

**expected year-on-year increase in renewable electricity capacity in 2022<sup>c</sup>**

The global economy experienced a broad-based slowdown in 2022, following a post-COVID-19 lockdown economic rebound in 2021.

Soaring energy prices, multi-decade high inflation levels, tightening monetary policy conditions, the Russia-Ukraine war, and COVID-19 contributed to a below-average growth rate of 3.4% for the global economy in 2022<sup>d</sup>.

Growth in advanced economies was 2.7%, following falls in GDP in the US during the first half of the year, and an economic slowdown in the euro area in the second half. Growth in emerging markets slowed to 3.9%, with eastern Europe hit hard by the Russia-Ukraine war and China experiencing extended COVID-19 lockdowns and a slowdown in the property sector.

### Oil

Global oil production increased by 4.7mb/d in 2022 (+4.9%)<sup>a</sup>. Despite western sanctions on Russian oil exports, Russian export volumes remained at 97% of pre-invasion levels, as oil shipments to the EU and OECD Asian countries are redirected to China, India, and Türkiye.

The EU imported 2.1mb/d of crude and products in December 2022, ahead of the products-related embargo coming into effect in early February 2023.

Global oil demand continued its post-COVID-19 recovery<sup>a</sup>, increasing by 2.2mb/d in 2022 (+2.3%). Europe's energy crisis, a strong US dollar, and persistent COVID-19 lockdowns in China all contributed to slower energy demand growth and weaker oil demand growth. Brent increased by \$30.4/bbl in 2022 as a result of the rebound in oil demand and the oil risk premium associated with the Russia-Ukraine war.

### Natural gas

The loss of Russian pipeline gas supply to the EU in 2022 – equivalent to around 20% of EU gas consumption in 2021 – following Russia's invasion of Ukraine, drove European gas and Asian LNG prices to record-high levels.<sup>e</sup>

European efforts to replace Russian gas supply and recover storage stocks in time for winter led to fierce global competition for spot LNG cargoes, as Europe priced up to attract LNG supply away from other demand regions.

In Asia, spot LNG prices increased to encourage fuel switching and minimize LNG demand.

COVID-19 measures suppressed gas demand in China and, combined with higher gas supply from other sources, saw Chinese LNG demand drop -22bcm, equivalent to around a third of the year-on-year increase in LNG imports to the EU and UK in 2022.<sup>f</sup>

In Europe, in addition to higher LNG imports, a reduction in natural gas demand also helped offset the loss of Russian gas pipeline supply to the EU. Fuel switching, efficiency improvements and imported product substitution supported lower gas demand in industry. A mild start to winter significantly reduced gas demand, limiting the need for storage withdrawals in the fourth quarter of 2022. EU storage stocks exited the year 83% full<sup>g</sup>, 13% above the five-year average.

In the US, average Henry Hub gas prices increased to levels not seen since before the 'shale revolution' on tightening factors across demand as well as supply fundamentals.

US gas consumption is estimated to have increased 6% in 2022<sup>h</sup>, in part due to higher heating demand in the first half of the year as well as heatwaves in the summer, which increased power demand for cooling. Gas-fired generation was used to fill more of the thermal gap as coal-fired generation was constrained by weak coal supply and low coal stockpiles. US LNG exports grew with the ramp-up of new export capacity, increasing gas demand for LNG feedgas (partially offset by an outage at one of the LNG export facilities through the second half of the year). On supply, gas production growth remained subdued due to capital discipline constraints and supply chain bottlenecks through most of the year, before increasing to record high levels at the end of the summer.

Market activity	2022	2021
Global oil consumption <sup>a</sup>	<b>99.9mb/d</b>	97.7mb/d
Global oil production <sup>a</sup>	<b>100.1mb/d</b>	95.3mb/d
Natural gas consumption <sup>b</sup>	<b>4,071bcm</b>	4,103bcm
Natural gas production <sup>b</sup>	<b>4,089bcm</b>	4,109bcm
Dated Brent average <sup>i</sup>	<b>\$101.32/bbl</b>	\$70.91/bbl
West Texas Intermediate (WTI) <sup>★</sup> average <sup>j</sup>	<b>\$94.58/bbl</b>	\$68.10/bbl
Urals average <sup>k</sup>	<b>\$74.16/bbl</b>	\$68.65/bbl
Henry Hub average <sup>l</sup>	<b>\$6.41/mmBtu</b>	\$3.86/mmBtu
Dutch Title Transfer Facility (TTF) <sup>★</sup> average <sup>m</sup>	<b>123.1 euros per MWh (\$37.7/mmBtu)</b>	46.9 euros per MWh (\$16.0/mmBtu)
Japan-Korea (Asian) LNG average <sup>n</sup>	<b>\$34.0/mmBtu</b>	\$18.59/mmBtu
Refining marker margin <sup>★o</sup>	<b>\$33.1/bbl</b>	\$13.6/bbl <sup>p</sup>

## Refining marker margin

We track the refining margin environment using a global refining marker margin (RMM).

Global refining margins rose sharply in 2022 as Russia's invasion of Ukraine affected oil and natural gas markets. RMM values averaged a record \$33.1/bbl for 2022, which was \$13/bbl higher than the previous record in 2012 and around \$20/bbl higher than 2021. As countries began to avoid taking Russian oil and refined products, especially diesel, middle distillate cracks rose significantly. Refining operating costs climbed steeply on the back of an increase in natural gas and electricity prices.

## Power and renewables

Total renewable capacity additions in 2022 are expected to total over 350GW, 65GW more than 2021<sup>c</sup>. This was mainly driven by an increase in solar PV and wind installations in China and Europe. Although on average and globally, the unit cost of renewable capacity increased in 2022, driven by higher commodity, freight, and energy prices, the price of natural gas, oil and coal rose much faster, helping to improve the competitiveness of renewable energy sources such as solar, wind and hydropower.

2022 saw a significant step change in the scale of policy support for renewables and low carbon energy in some regions, including the Inflation Reduction Act (IRA) – the single largest investment in climate and energy in US history – and the RepowerEU plan, which aims to diversify Europe's energy supply and speed up the roll-out of renewables.

In Europe, high natural gas prices caused power prices to reach record highs, leading to some European countries to implement caps on the price of wholesale electricity, and support packages to help protect consumers from the increase in the cost of living. High European power prices also led to an increase in coal consumption and temporary lifetime extensions for coal-fired power plants. And a global resurgence in nuclear energy occurred, with Japan committing to restart idled nuclear reactors and some EU countries postponing reactor closures.

## Hydrogen and carbon capture and storage (CCS)

Global momentum behind hydrogen's role in decarbonizing hard-to-abate sectors is accelerating, notably in industry and long-distance transportation. Several countries have published national hydrogen strategies and this is increasingly being followed by announcements of policy support. 2022 was a significant year in terms of policy support for hydrogen production.

Hydrogen and CCS tax credits in the IRA and the additional renewables tax credits accessible by green hydrogen<sup>★</sup> projects allow blue and green hydrogen to compete with grey hydrogen<sup>★</sup> in the near to medium term.

RepowerEU outlined hydrogen production targets and allocated several billion euros in subsidies for low carbon hydrogen projects.

The pipeline of announced projects has continued to scale rapidly with cumulative clean hydrogen production capacity in 2030 projected to be 26Mtpa<sup>q</sup>.

Momentum also grew for CCS in 2022, in part driven by governments providing additional incentives. Interest in CCS has been bolstered by the need to abate process emissions from heavy industries such as cement and steel manufacture, together with a growing acknowledgement of the need for negative emissions to meet the Paris goals.

a IEA Oil Market Report, January 2023.

b IEA Gas Market Report, Q4 2022.

c IEA Renewables Report, December 2022.

d IMF World Economic Outlook, January 2023 update.

e EU Directorate-General for Energy, European Transmission System Operator data, bp *Statistical Review of World Energy 2022*.

f S&P Global, LNG Waterborne Trade data.

g GIE (Gas Infrastructure Europe).

h EIA (Energy Information Administration).

i Refinitiv Data Service (Dated Brent spot price).

j Refinitiv Data Service (West Texas Intermediate).

k Refinitiv Data Service (Urals CIF Rotterdam).

l Platts Henry Hub cash price.

m Platts Dutch TTF Day Ahead price.

n Platts JKM spot price.

o 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.

p This number is updated from 13.2/bbl as stated in the bp *Annual Report and Form 20-F 2021* to reflect the 2022 RMM, which has been updated to reflect changes in bp's portfolio.

q Hydrogen Council.

# Energy outlook

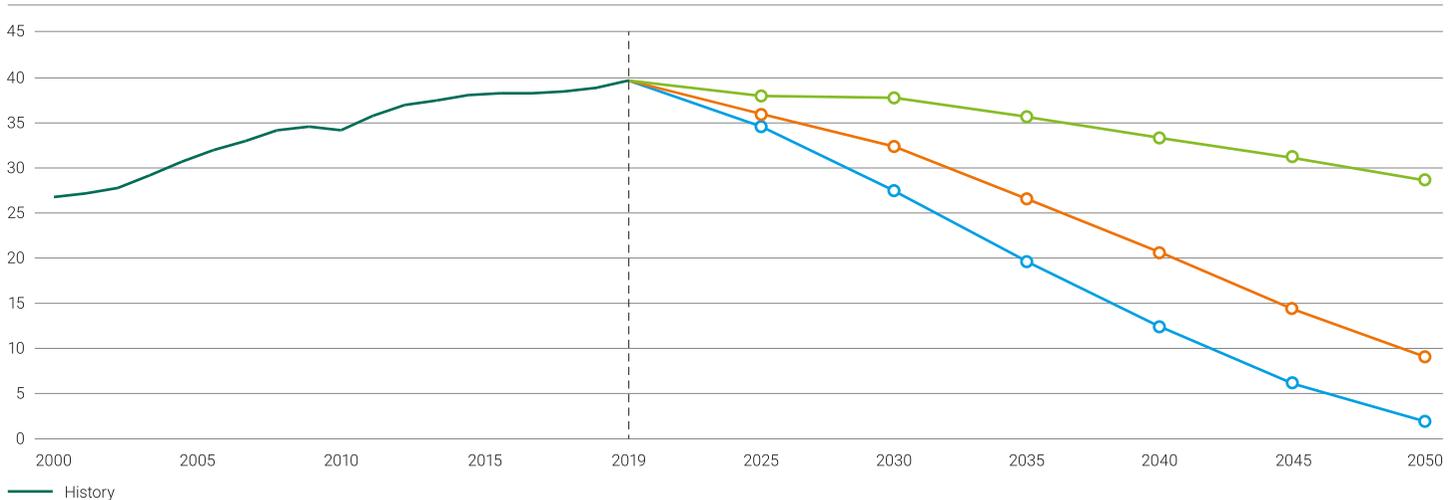
The *bp Energy Outlook 2023* explores the trends and uncertainties surrounding the energy transition out to 2050. It helps inform bp's core beliefs about the energy transition.

The scenarios explore the possible implications of different judgements and assumptions concerning the nature of the energy transition. The uncertainty associated with the transition is substantial, and these scenarios are not predictions of what is likely to happen or what bp would like to see happen.

We use the output from these scenarios to inform our strategic thinking.

## Three scenarios to explore the energy transition

Carbon emissions Gt of CO<sub>2</sub>e<sup>a</sup>



### New momentum —○—

Captures the broad trajectory of the current global energy system. Places weight on the marked increase in global ambition for decarbonization in recent years, as well as on the manner and speed of decarbonization seen over the recent past. CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emissions peak in the late 2020s and by 2050 are around 30% below 2019 levels. This scenario is not considered to be a Paris-consistent pathway<sup>b</sup>.

### Net zero —○—

A shift in societal behaviour and preferences supports gains in energy efficiency and the adoption of low carbon energy, with global energy system CO<sub>2</sub>e emissions falling by more than 95%, relative to 2019 levels. This scenario is considered consistent with Paris, broadly aligning with pathways maintaining global temperature rises below 1.5°C.

### Accelerated —○—

Explores what elements of the energy system might need to change if the world collectively takes action for CO<sub>2</sub>e to fall by around 75% by 2050, relative to 2019 levels. This scenario is considered consistent with Paris, broadly aligning with a well-below-2°C pathway.

<sup>a</sup> Carbon emissions include CO<sub>2</sub> emissions from energy use, industrial processes, natural gas flaring and methane emissions from energy production.

<sup>b</sup> For more information on Paris-consistent pathways, see page 26.

## 2023 Energy Outlook updates

The scenarios in the *bp Energy Outlook 2023 (2023 Outlook)* have been updated to account for two major developments: the Russia-Ukraine war and the passing of the US Inflation Reduction Act<sup>a</sup>.

**Russia-Ukraine war:** The Russia-Ukraine war is likely to have a persistent effect on the future path of the global energy system. The *2023 Outlook* models this impact through three main channels:

- **Energy security:** The increased focus on energy security triggered by concerns about energy shortages and vulnerability to geopolitical events is assumed to increase countries' and regions' preference for energy produced domestically rather than imported.
- **Economic growth:** The higher food and energy prices associated with the Russia-Ukraine war have contributed to a sharp slowing in global economic growth. Further out, the war is assumed to reduce somewhat the pace of global integration and trade.
- **Composition of global energy supplies:** The scenarios in the *2023 Outlook* assume there is a persistent reduction in Russian exports of hydrocarbons.

**US Inflation Reduction Act (IRA):** Also included in the modelling is the IRA, which includes a package of largely supply-side measures supporting low carbon energy sources and decarbonization technologies in the US.

The impact of the IRA is concentrated in the New Momentum scenario, which represents the current pace of the energy transition and acknowledges ambition from governments and the corporate sector. In this scenario emissions are predicted to fall from 40Gt of CO<sub>2</sub>e in 2019 to 29Gt of CO<sub>2</sub>e by 2050.

The Accelerated and Net Zero scenarios are less affected by the IRA given the scale of policy support already embodied in these scenarios.

Net Zero delivers emissions reductions of 95% by 2050 versus 2019, in line with a 1.5 degrees rise. In Accelerated, emissions are reduced by around 75% by 2050 and can be considered consistent with a well-below-2°C rise pathway.

 For more information see [bp.com/energyoutlook](https://bp.com/energyoutlook)

## Scenarios for strategic decision making

We use scenarios to inform strategy, manage risk, and improve decision making.

The scenarios we used to inform our ambition and strategy, which we set out in 2020, were based on a collaborative approach between our economists, strategists and extended leadership team and board.

Some scenarios start from today and project forward over a timeframe in which the current structure of the energy system helps to inform the pace and nature of the transition path. Others start in the future, breaking free from the inherent inertia in the energy system and look back to the present from that new perspective.

In thinking about appropriate scenarios to inform our strategy, we used both approaches.

### How scenarios inform our strategy

The use of scenarios described in the *2023 Outlook*, and from other organizations, aids our understanding of the energy transition and helps us to think about how different outcomes might impact our strategy.

The use of a broad range of scenarios to inform our strategy supports our efforts to make it robust and resilient to the range of uncertainty we face. Given that, we believe that it is neither useful nor sensible to try to identify one scenario as being more or less likely than another.

By considering various time horizons, we can identify key milestones or signposts which might emerge over the next five, 10 or 30 years and inform our view of the key sources of uncertainty affecting the global energy system.

We actively monitor for changes in the external environment, and refresh or review our scenarios as needed in response to these signals, as we have done with the Russia-Ukraine war and the IRA.

For the purposes of testing the resilience of our strategy to the range of uncertainty in the energy transition we have used scenarios drawn from the World Business Council for Sustainable Development (WBCSD) 'Climate Scenario Analysis Reference Approach for Companies in the Energy System'.

 For more on our resilience analysis and the outcome of that work, see page [58](#)

## How we create scenarios

We quantify a range of scenarios in the *2023 Outlook* using our global energy modelling system. This comprises a suite of models developed over the past 10 years to help us understand the supply and demand dynamics of the global energy system as well as production in intermediate sectors.

The modelling framework uses historical data based on the *bp Statistical Review of World Energy*, the International Energy Agency (IEA) and a range of other data sets.

Each scenario is determined by a set of key assumptions including population and economic growth, pace of technological change, resource constraints and government policies. These are informed by expert views from external organizations including United Nations, Oxford Economics, Rystad Energy and a proprietary integrated assessment model. We benchmark our scenarios against external organizations including the IEA, the Intergovernmental Panel on Climate Change (IPCC), IHS Markit and the WBCSD.

Prices are used to balance supply and demand. The modelling techniques used vary by sector and include a combination of econometric modelling, least-cost optimization, adoption curves and consumer choice modelling.

<sup>a</sup> Analysis contained in the *bp Energy Outlook 2023* should be treated as subject to change, depending on future developments.

## Our strategy

# Transforming to an integrated energy company

We remain focused on transforming to an integrated energy company. Our three-pillar strategy includes our five transition growth engines, and integration underpins and connects it all.

### Three strategic focus areas

Our strategy is focused on three key areas of activity. These remain unchanged.

### Five transition growth engines

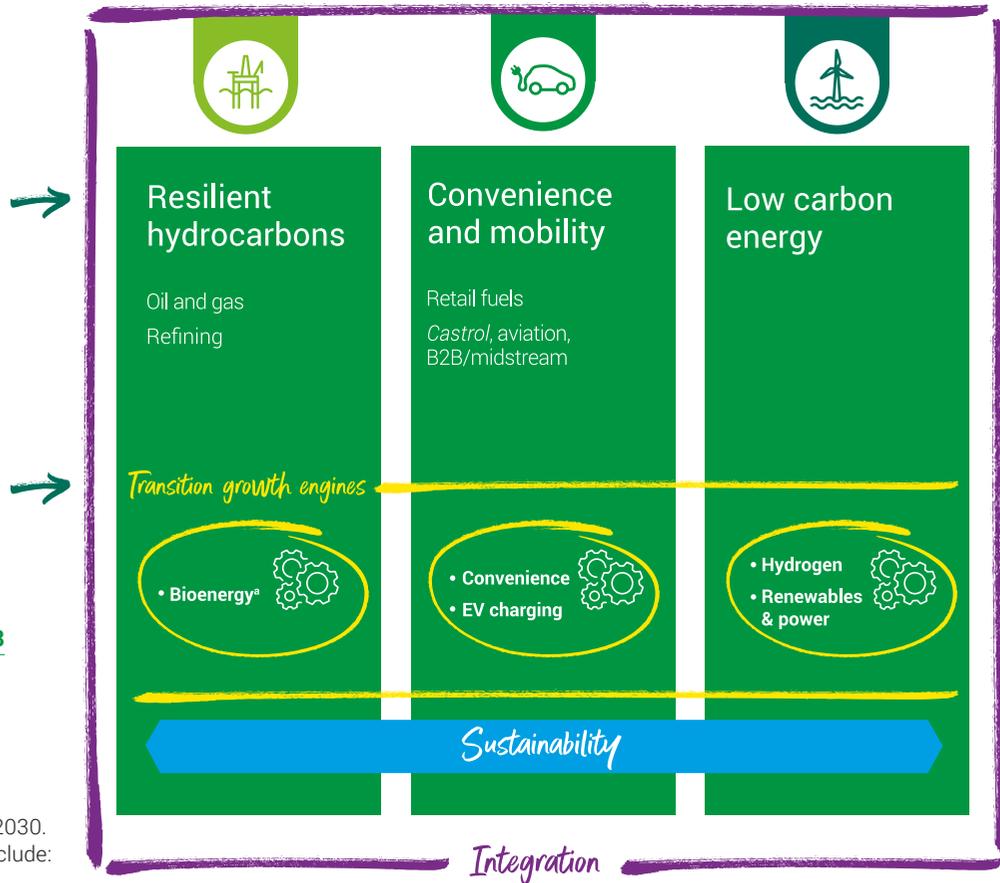
We are investing more to accelerate our transition growth engines.

See pages [14](#), [16](#) and [18](#)

### Growth to 2030<sup>b</sup>

We aim to generate adjusted EBITDA<sup>a</sup> of \$51-56 billion<sup>c</sup> in 2030. The aims underpinning this include:

- Growing adjusted EBITDA from resilient hydrocarbons to \$39-42 billion<sup>c</sup>.
- More than doubling adjusted EBITDA versus 2019 in convenience and mobility to \$9-11 billion<sup>d</sup>.
- Delivering \$2-3 billion<sup>d</sup> of adjusted EBITDA from low carbon energy, while establishing the foundations of a material business for the decades to come.
- Delivering between \$10-12 billion<sup>c</sup> of adjusted EBITDA from transition growth engines.



#### Sustainability

Embedded across our strategy is our sustainability frame, which sets out our aims for getting to net zero, improving people's lives and caring for our planet.

- For more about sustainability at bp, see page [45](#)
- For our climate-related financial disclosures, see page [50](#)

#### Integration

Connecting our strategic focus areas together is integration. We believe we are distinctively set up to create integrated energy solutions for customers and generate attractive returns.

- For more on how we are integrating energy systems, see pages [15](#), [17](#) and [19](#)

<sup>a</sup> Bioenergy includes customer-facing and midstream biofuels activities that form part of convenience and mobility.

<sup>b</sup> This does not form part of bp's Annual Report on Form 20-F as filed with the SEC.

<sup>c</sup> At Brent \$70/bbl 2021 real and bp planning assumptions, and at the upper end of the relevant capital expenditure range.

<sup>d</sup> At the upper end of the relevant capital expenditure range.

## Progress against our strategy

We have set targets and aims against our strategic focus areas out to 2025 and 2030. Examples of our progress in 2022 are detailed on pages 14-19.

	Metrics	2022	2025 target	2030 aim
 <b>Resilient hydrocarbons</b> ⓘ	Upstream★ unit production costs★	<b>\$6.07/boe</b> 2021 \$6.82/boe	~\$6/boe	–
	Upstream production <sup>a</sup>	<b>2.3mboe/d</b> 2021 2.2mboe/d	~2.3mboe/d	~2mboe/d
	bp-operated upstream plant reliability★	<b>96%</b> 2021 94%	96%	> 96%
	bp-operated refining availability★	<b>94.5%</b> 2021 94.8%	~96%	>96%
	Biofuels production 	<b>27kb/d</b> 2021 26kb/d	~50kb/d	~100kb/d
	Biogas supply volumes 	<b>12mboe/d<sup>b</sup></b> 2021 9mboe/d	~40mboe/d <sup>c</sup>	~70mboe/d <sup>c</sup>
	LNG portfolio★	<b>19Mtpa</b> 2021 18Mtpa	25Mtpa	30Mtpa
 <b>Convenience and mobility</b> ⓘ	Customer touchpoints★ per day 	<b>~12 million</b> 2021 >12 million	>15 million	>20 million
	Strategic convenience sites <sup>d</sup> ★ 	<b>2,400</b> 2021 2,150	~3,000	~3,500
	Electric vehicle charge points★ 	<b>~22,000</b> 2021 13,100	>40,000	>100,000
 <b>Low carbon energy</b> ⓘ	Hydrogen production (net) 	–	–	0.5-0.7Mtpa
	Developed renewables to final investment decision★ 	<b>5.8GW</b> 2021 4.4GW	20GW	50GW
	Installed renewables capacity★ (net) 	<b>2.2GW</b> 2021 1.9GW	–	~10GW

Our targets and aims across our strategic focus areas have been revised from those set out in the *bp Annual Report and Form 20-F 2021* to reflect and more closely align with the strategy update announced in February 2023. The revisions include new targets and aims for biofuels and biogas to replace the previous ones for bioenergy production; new metrics: installed renewables capacity and hydrogen production; and we have retired targets and aims for refining throughput, retail sites in growth markets, *Castrol* sales and other operating revenues, margin share from convenience and electrification and traded electricity.

a Relative to 2019, we expect our hydrocarbon production to be around 25% lower by 2030 reflecting active management and high-grading of the portfolio, including divestment of non-core assets.  
 b Excludes Archaea.  
 c Includes Archaea.  
 d Reported to the nearest 50.

## Our business model

# What makes us different

We believe we have the scale, global presence and expertise to navigate complex markets and manage increasingly integrated energy systems.

For more information on how integration is helping us deliver against our strategic priorities see pages [15](#), [17](#) and [19](#)

## People and resources

These are some of the people and resources in our business model that support how we create and preserve value for our stakeholders. Data as at 31 December 2022.

<p><b>Energy sector experience</b></p> <p>&gt;110 years in energy</p> <p>13 years <i>bp Energy Outlook</i> publication</p> <p>Global context, see page <a href="#">6</a></p> <p><b>Energy resources</b></p> <p>7,183 mmmboe proved hydrocarbon reserves for the group<sup>a</sup></p> <p>5.8GW developed renewables to FID<sup>★</sup></p> <p>Gas &amp; low carbon energy, see page <a href="#">36</a> Supplementary information on oil and natural gas, see page <a href="#">263</a></p>	<p><b>Incumbent capability</b></p> <p>~10,600 engineers</p> <p>~1,700 traders</p> <p>Sustainability in bp, see page <a href="#">45</a></p> <p><b>Financial resources</b></p> <p>\$16.3bn capital expenditure<sup>★</sup></p> <p>\$40.9bn operating cash flow<sup>★</sup></p> <p>Group performance, see page <a href="#">32</a></p>	<p><b>Research &amp; development</b></p> <p>\$274m invested in research and development</p> <p>~3,100 granted and pending patent applications held by bp and its subsidiaries</p> <p>See page <a href="#">213</a></p> <p><b>Our purpose</b></p> <p>Guiding what we do and how we operate, our purpose is: <b>Reimagining energy for people and our planet.</b></p> <p><b>Our culture frame</b></p> <p>'Who we are' is our three core beliefs that aim to inspire each of us at bp to be our best every day.</p> <ul style="list-style-type: none"> <li>• Live our purpose</li> <li>• Play to win</li> <li>• Care for others</li> </ul> <p>Our people, see page <a href="#">66</a></p>
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## Financial reporting segments

### Reconciling strategic focus areas to our reporting segments<sup>b</sup>

From the first quarter of 2022, the group's reportable segments were gas & low carbon energy, oil production & operations, and customers & products. We reconcile these to our business activities and strategic focus areas in the table.

Performance against our strategic focus areas in 2022, pages [11](#), [14](#), [16](#) and [18](#)

Financial segment performance in 2022, see pages [36-43](#)

<sup>a</sup> On a combined basis of subsidiaries and equity-accounted entities.

<sup>b</sup> bp reporting segments also included other businesses & corporate in 2022.

<sup>c</sup> Includes customer-facing and midstream biofuels activities that form part of the bioenergy transition growth engine.

Strategic focus areas	Gas & low carbon energy	Oil production & operations	Customers & products
<b>Resilient hydrocarbons</b>	Gas regions Gas marketing and trading	Oil regions	Refining and oil trading Bioenergy 
<b>Convenience and mobility</b>			Convenience  Fuels EV charging  <i>Castrol</i> , aviation, B2B/midstream <sup>c</sup>
<b>Low carbon energy</b>	Renewables & power  Hydrogen 		

 Denotes transition growth engine.

## Our business groups

This is how we are organized to deliver our strategy and grow long-term shareholder value. Our three business groups are supported by four integrators to facilitate collaboration and unlock value (innovation & engineering; regions, corporates & solutions; strategy, sustainability & ventures; and trading & shipping), and three teams that serve as enablers of business delivery (finance; legal; and people & culture).

### Gas & low carbon energy

Creating low carbon energy solutions. Integrating our existing natural gas capabilities with power trading and growth in low carbon businesses and markets, including wind, solar, hydrogen and carbon capture and storage (CCS).

#### Creating value through

- Integrated gas and LNG businesses.
- Onshore and offshore wind.
- Our 50% stake in Lightsource bp.
- Hydrogen and CCS.
- Gas trading and power trading, and marketing of both renewable and non-renewable power.

See page [36](#)

Alignment with our strategic focus areas



### Production & operations

The operational heart of bp, producing the hydrocarbon energy and products the world wants and needs – safely and efficiently.

#### Creating value through

- Finding and developing hydrocarbon resources, with selective exploration mostly focused near our existing hubs.
- Operating oil and gas production assets.
- Operating refineries, terminals and pipelines.
- Deploying technical capability across hydrocarbons and low carbon businesses.

See page [39](#)

Alignment with our strategic focus areas



### Customers & products

Focusing on customers as the driving force for innovating new business models and service platforms to deliver the convenience, mobility and energy products and services of today and the future.

#### Creating value through

- Differentiated convenience and fuel offers at our retail sites★, including snacks, ready meals and coffee.
- Our EV charging businesses.
- Our *Castrol* lubricants and e-fluids brand sold through numerous channels.
- Our aviation business.
- Our B2B and midstream businesses.
- Refining & oil trading – our products businesses.
- Bioenergy – our biogas and biofuels businesses.
- Optimizing across integrated fuels value chain.

See page [41](#)

Alignment with our strategic focus areas



Our strategy, see page [10](#)

## Delivering value for stakeholders

We are committed to delivering long-term value for stakeholders.

Investors and shareholders <sup>I</sup>	Employees <sup>E</sup>	Government and regulators <sup>G</sup>	Society <sup>S</sup>	Customers <sup>C</sup>	Partners and suppliers <sup>P</sup>
Includes our institutional and retail investors.	Our 67,600 people worldwide.	In the countries where we have existing or planned activities.	The people, businesses and environment in the communities where we work.	Including end-use consumers, B2B customers, and distributors.	Includes relationships with academia, industry and cities.
<b>\$4.4bn</b>	<b>70%</b>	<b>\$12.5bn</b>	<b>\$93m</b>	<b>~12m</b>	<b>\$174bn</b>
<b>total dividends distributed to bp shareholders (2021 \$4.3bn)</b>	<b>employee engagement score – 'Pulse' survey (2021 64%)</b>	<b>corporate income tax and production tax paid (2021 \$5.4bn)</b>	<b>supporting additional initiatives to benefit the communities where we operate (2021 \$51m)</b>	<b>customer touchpoints★ per day (2021 &gt;12m)</b>	<b>sourcing goods and services from 39,000 suppliers (2021 \$122.2bn)</b>
See page <a href="#">24</a>	See page <a href="#">67</a>	See page <a href="#">68</a> and <a href="#">bp.com/tax</a>	See page <a href="#">63</a>	See page <a href="#">41</a>	See page <a href="#">63</a>

★ See glossary on page 389

## Progress against our strategy

# Resilient hydrocarbons

Our focus remains on safely delivering value, maximizing returns and cash flow and reducing emissions. Having grown production in 2022, we plan to grow underlying production★ to 2025, and hold broadly flat to 2030, relative to 2022. In the second half of the decade, we have options to progress several new hub opportunities in our existing operating areas.

Our plan is underpinned by a high-quality hopper of options, with 18 billion barrels currently planned for development. We will drive value through continued high-grading to ensure only the highest quality barrels are developed.

We also plan to sustain operational cost efficiency and reliability improvements. 2022 performance demonstrates our focus here; with our lowest unit production cost since 2006 and the highest plant reliability on record.



### Key

- C Customers
- E Employees
- G Governments and regulators
- I Investors and shareholders
- P Partners and suppliers
- S Society



## Transition growth engines

**Bioenergy:** we have established global biogas and biofuel businesses that are positioned in an increasingly supportive macro environment of rapidly growing demand, with attractive fiscal incentives. And our trading capabilities enable us to integrate supply volumes to capture enhanced value.

## Keeping North Sea energy flowing

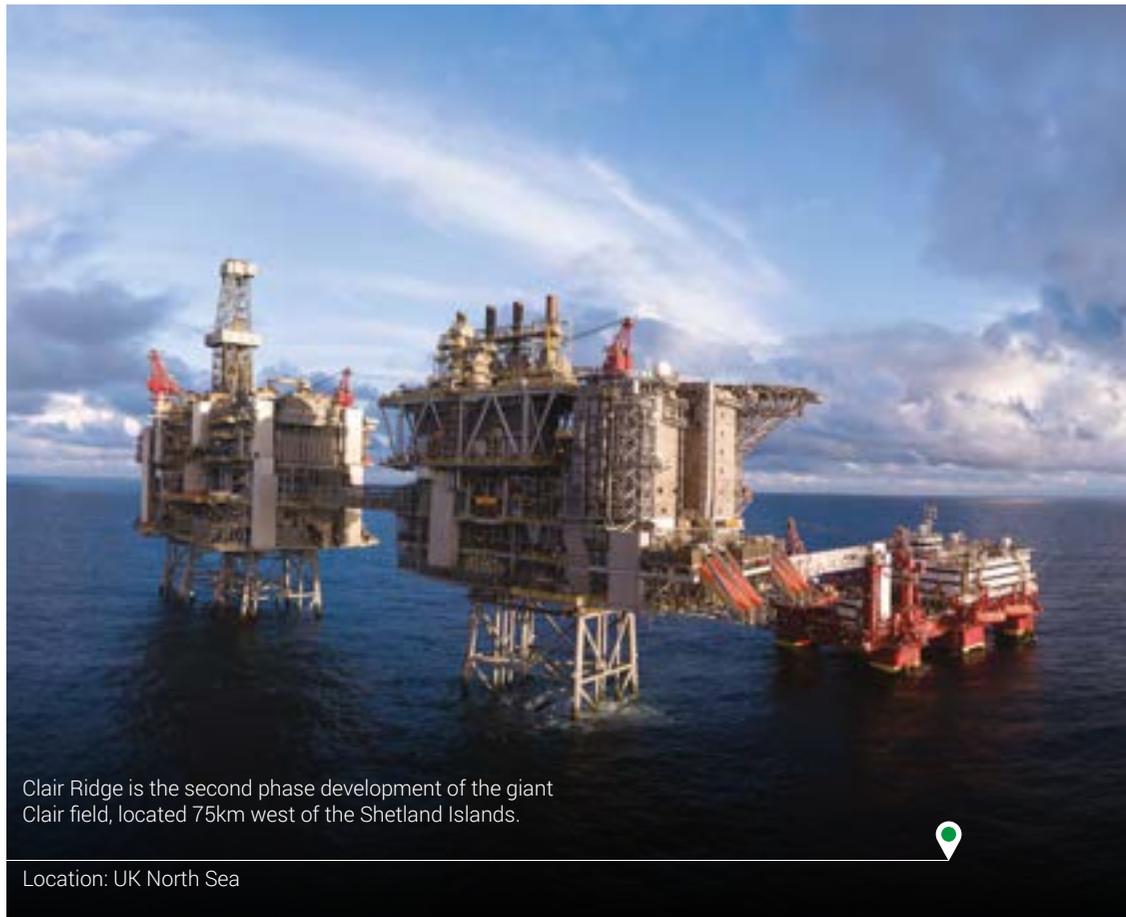
We're in action to boost home-grown energy in the UK.

Seagull and Murlach (our new North Sea major projects★) will tap into existing oil and gas infrastructure, removing the need to build new production facilities. We plan for Seagull to come online in 2023, and Murlach is currently in the planning phase.

We've also secured planning permission for a 1.25km pipeline at Sullom Voe terminal, Shetland, to help provide the UK with a long-term reliable gas supply from our Clair field.

~30mboe/d

Seagull's expected peak annual average production (gross)



Clair Ridge is the second phase development of the giant Clair field, located 75km west of the Shetland Islands.

Location: UK North Sea



## Going big in bioenergy

We made significant progress in 2022, as we work to help meet increased global demand for biogas and biofuels.

**Archaea Energy:** we acquired Archaea Energy, a leading US renewable natural gas (RNG) producer. Archaea builds out our existing biogas business – helping us expand into the fast-growing US biogas market. As a result of the acquisition, we have doubled our adjusted EBITDA\* aim for biogas in 2030.

**Nuseed Carinata:** we entered into a 10-year strategic agreement with Nuseed to accelerate the expansion of Nuseed Carinata oil, a non-food cover crop used to produce low carbon biofuel feedstock. Working with Nuseed can help us advance decarbonization efforts in hard-to-abate transportation sectors like aviation by supporting production of sustainable aviation fuel (SAF) and other biofuels.

## Integrating along value chains

We're looking to create value by integrating Nuseed Carinata and Archaea Energy with our trading and shipping (T&S) capabilities and customer relationships.

- We'll use the global reach of the T&S team to help accelerate market adoption of Nuseed Carinata as a sustainable biofuel feedstock.
- We plan to integrate Archaea with our broad customer base. bp is a leading marketer of natural gas in the US as many customers look to decarbonize.

As demand for bioenergy diversifies, we also see opportunities for growth into LNG, renewable hydrogen, and power for EV charging.



Archaea's operations process biogas that would have been flared or vented to produce pipeline-quality RNG and generate power.

Location: Project Assai, Pennsylvania, US

## Successful Gulf of Mexico start-up

The Herschel Expansion project was our first major project to come online in 2022. The team got the development started-up ahead of schedule, with no safety incidents recorded.

Phase 1 of the project involved developing a new subsea production system and the first of up to three wells tied to the Na Kika platform.

Herschel is a high-return tieback that allows us to rapidly access and deliver new barrels at low cost. The project team maximized the use of existing facilities, which can help to lower the carbon intensity of the barrels produced. And they worked with ongoing projects to expedite delivery and minimize costs.

## Zero safety incidents

recorded during the 300,000 hours worked on the project

## Azule Energy goes live

Angola's largest independent oil and gas company – our joint venture\* with Eni – is now fully operational. Azule Energy has exploration and production activities in 16 licensed blocks, and produces approximately 200mboe/d of oil.

### Our people in the field

// I help to bridge the gap between the drilling phase and the production phase. Once drilling is complete, my team designs the well, seeking maximum efficiency and minimum risk to mitigate interventions once production starts. //

**Taimur**, wells completion, intervention & integrity engineer



Scan to read Taimur's story



## Expanding in Indonesia

Our energy contributions in Indonesia range from hydrocarbon production & operations to energy trading & shipping and retail products.

### Progress in 2022

- We signed 30-year production-sharing contracts\* with the Indonesian government, paving the way for exploration activities in the Agung I and II offshore gas blocks.
- We participated in the Timpan-1 discovery and will evaluate potential development options with Harbour Energy, who operate the Andaman II licence.
- The government of Indonesia granted a 20-year extension of the Tangguh production sharing contract.
- And we plan for the Tangguh expansion project to start-up in 2023.





# Convenience and mobility

By bringing our capabilities and reach in convenience together with EV charging, we can provide customer-focused, lower carbon transport solutions over time. We are also focused on growth in our differentiated fuels, *Castrol*, aviation, B2B and midstream including biofuels businesses.

## Transition growth engines

**Convenience:** in the growing convenience sector, our combination of local strategic partnerships and global reach enables us to deliver leading offers for our customers.

**EV charging:** is moving at pace, and we see significant value through our focus on fleets and fast<sup>a</sup> charging to on-the-go customers. Major corporations are increasingly demanding decarbonization solutions, driving strong momentum in fleets.

<sup>a</sup> 'Fast' charging comprises rapid charging ≥50kW and ultra-fast charging ≥150kW.



### Leaning into convenience and mobility

We agreed to purchase<sup>b</sup> TravelCenters of America (TA) in February 2023. It is one of the biggest networks of roadside travel centres in the US and is expected to add around 280 sites to our retail network. TA sites are strategically located on major highways in 44 states across the country. TA's nationwide network of on-highway locations complement bp's more than 8,000 off-highway locations and have the potential to offer travellers and professional drivers a seamless experience for decades to come. 



Jio-bp mobility stations bring together a range of services for consumers on the move – including EV charging, refreshments and food, and additivized fuels.

Location: Navi Mumbai, India 



### Decarbonizing transport

Air bp signed a strategic collaboration agreement with DHL Express to supply sustainable aviation fuel (SAF) until 2026, and a SAF supply contract with Rolls-Royce in the UK and Germany.

And we're building Europe's first public charging corridor for E-trucks. We're opening eight dedicated E-truck charging stations at key sites in Germany along the Rhine-Alpine corridor – one of Europe's busiest road freight routes. These ultra-fast★ 300kW electric chargers are capable of adding up to 200km of range to medium and heavy-duty vehicles in 45 minutes.  



### Partnering with Uber

We've signed a new global strategic convenience partnership with Uber, responding to growing demand for food, groceries and everyday essentials brought to the door. We aim for ~3,000 retail sites to be available on Uber Eats by 2025.

<sup>b</sup> This is subject to regulatory and shareholder approval.



## Supercharging EVs

In 2022 we focused on accelerating EV charging around the world, rapidly expanding charging networks in key markets.

- **In Spain and Portugal:** we're teaming up with Iberdrola to grow EV charging infrastructure. We plan to jointly invest up to €1 billion into ~11,000 fast<sup>a</sup> charge points by 2030.
- **In the US:** we're collaborating with Hertz, with plans to install and manage a network of EV charging solutions, powered by bp pulse. We aim to help Hertz's growing fleet of electric rental cars recharge quickly and efficiently.
- And we're planning to establish a bp pulse Gigahub network – a series of large, EV fast<sup>a</sup> charging hubs designed to serve ridehail and taxi fleets, near US airports and high-demand locations.
- **In China:** we signed an agreement with AVATR Technology to accelerate the development of an ultra-fast charging network, with intent to roll out around 100 charging hubs in 15 cities.



## Integrated offers with our partners

We are expanding our strategic partnership with leading retailer REWE in Germany, to install fast<sup>a</sup>, reliable, convenient charging for customers at up to 180 of their sites.

And we announced an exclusive agreement in the UK with our convenience partner M&S for bp pulse to install fast<sup>a</sup> charge points in around 70 of their stores, with an initial ambition to add up to 900 charge points within the next two years.



>65%

more charge points globally than in 2021

## Growing mobility

We've signed a new supply contract and brand partnership with Julius Stiglechner, to establish the bp brand in the majority of the 160 Stiglechner filling station network by the end of 2023 and to further strengthen the bp brand in Austria.



### Our people in the field

I help countries around the world where bp is active with decarbonizing mobility – from advising on EV infrastructure roll-out in the US, to working with the European Commission on how to support the uptake of sustainable aviation fuels.

**Sebastian,** SS&V sustainability – policy and partnerships



Scan to read  
Sebastian's story



## Investing in the UK

We've announced plans to invest up to £1 billion in UK EV charging infrastructure over the decade, supporting the rapid roll-out of fast, convenient charging across the country.

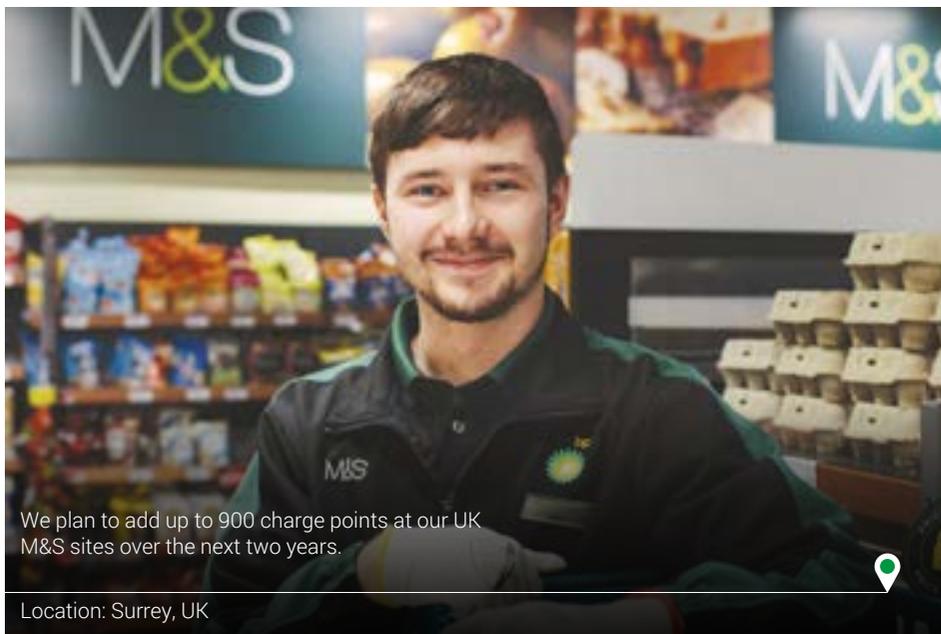
The investment supports our plans to:

- Meet the UK's fast-growing demand for EV charging.
- Approximately triple the number of public charge points in our UK network by 2030.
- Accelerate the roll-out of 300kW and 150kW ultra-fast charge points.
- Support the UK's transition to low carbon transportation for consumers and fleet vehicles.
- Upgrade our current EV charging technology across our public charging network to improve reliability.



up to £1 billion

investment in UK EV charging infrastructure over 10 years



We plan to add up to 900 charge points at our UK M&S sites over the next two years.

Location: Surrey, UK

Progress against our strategy continued



# Low carbon energy

We plan to create integrated regional hubs, enabled by two of our transition growth engines in high-growth sectors: hydrogen and renewables & power.

## Transition growth engines

**Hydrogen:** we plan to use our refineries as demand anchors, and to scale these up to regional hubs providing low carbon solutions for customers, particularly in hard-to-abate sectors, such as steel. In parallel, as markets evolve, we expect to invest to build global export hubs for hydrogen and hydrogen derivatives. These are in advantaged geographies where we have an established presence.

**Renewables & power:** we are focusing our investment in renewables on opportunities where we can create integration value, and enhance returns. We aim to do this with focused investment to build out a renewables portfolio in service of green hydrogen★, green and e-fuels, EV charging, and power trading. This includes building a global position in offshore wind, enabled by our capabilities in large-scale, complex offshore projects. By integrating our power trading and marketing activities into this growth engine, we can integrate through the value chain from generation to customer, enhancing returns, building market position and supporting the decarbonization of electricity.

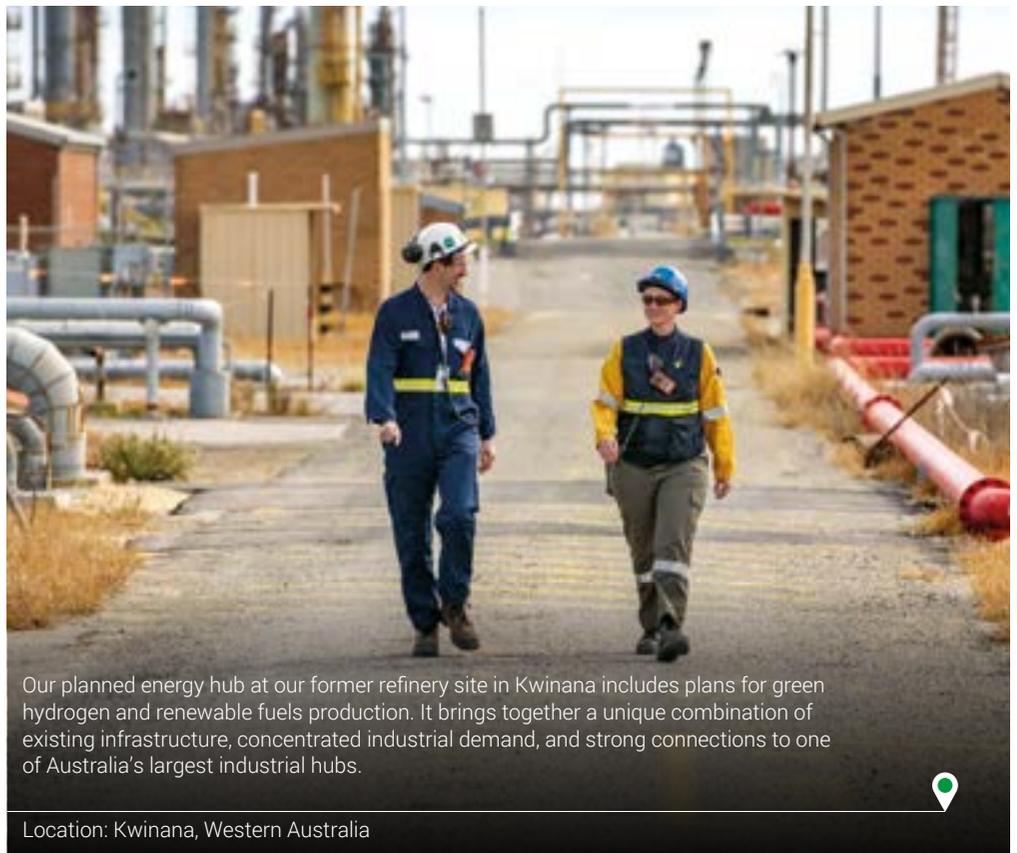


## Boosting hydrogen and renewables in Asia-Pacific

We've acquired a 40.5% stake and operatorship of the Australian Renewable Energy Hub (AREH) project in Western Australia. At full scale, if all of its planned renewable capacity is used for green hydrogen or ammonia production AREH could produce 1.6 million tonnes (gross) of green hydrogen or 9 million tonnes (gross) of green ammonia per year – making it one of the largest green hydrogen projects in the world.

>26GW

planned development of solar and wind power generating capacity (gross)



Our planned energy hub at our former refinery site in Kwinana includes plans for green hydrogen and renewable fuels production. It brings together a unique combination of existing infrastructure, concentrated industrial demand, and strong connections to one of Australia's largest industrial hubs.

Location: Kwinana, Western Australia 



## Harnessing hydrogen for decarbonization

We are progressing a major CCS project to advance decarbonization efforts across the Texas Gulf Coast.

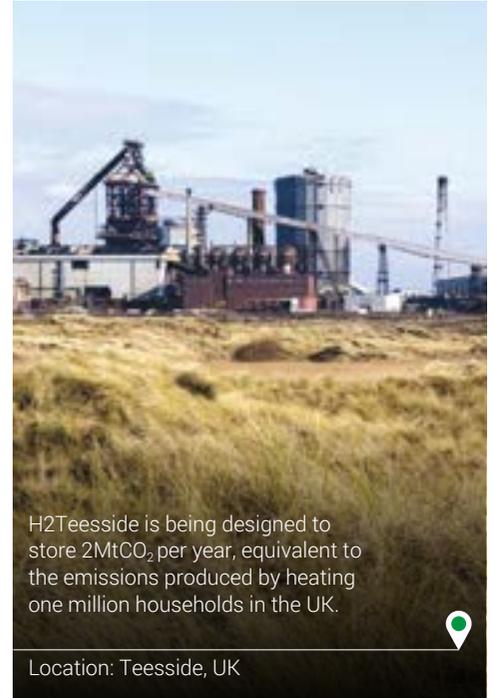
The project aims to store the equivalent CO<sub>2</sub> of removing 3 million cars from the road a year.

- Third party emitters will capture CO<sub>2</sub> from their facilities to produce low carbon hydrogen.
- As part of the project, bp will appraise, develop and permit sites to permanently store the CO<sub>2</sub>.

And we're joining forces with ADNOC and Masdar on hydrogen, bringing international investment into the UK's hydrogen sector and strengthening the country's leadership in low carbon.

- ADNOC has signed a joint development agreement working with bp on our blue hydrogen★ project H2Teesside.
- Masdar has signed a memorandum of understanding to join bp's HyGreen Teesside green hydrogen project.

Together, these two projects could deliver 15% of the UK government's recently expanded 10GW target for low carbon hydrogen production capacity by 2030.



H2Teesside is being designed to store 2MtCO<sub>2</sub> per year, equivalent to the emissions produced by heating one million households in the UK.

Location: Teesside, UK



## Building scale in renewables

bp and EnBW were awarded a ~860km<sup>2</sup> lease option off the east coast of Scotland to develop a major offshore wind project, Morven.

We expect Morven to have a total generating capacity of around 2.9GW – enough to power the equivalent of more than 3 million homes.

bp and EnBW are also jointly developing up to 3GW of offshore wind in the Irish Sea – the Morgan and Mona projects.

**Supporting local jobs and reskilling workers:** As part of our commitment to support oil and gas workers through employment and provide opportunities

for reskilling in renewables, bp and EnBW have committed more than £1 million to X-Academy in Scotland. This will help to support both reskilling experienced workers and the creation of entry-level energy transition roles.

We have signed an agreement with the Port of Leith to help it transform into Scotland's largest offshore wind hub, with potential to create around 3,000 direct and indirect jobs.

And we're establishing our global offshore wind centre of excellence for operations and maintenance in Aberdeen, creating up to 120 jobs.

## Integrating energy systems

Our Morven project is expected to support up to £10 billion of investment in offshore wind and aims to go further than generating wind power. Investments include significant expansion of EV

charging infrastructure, Scottish ship-building, port redevelopment and green hydrogen production, helping to support Scotland to become a global leader in offshore wind.



### 5.9GW

combined offshore wind to be developed with EnBW



## Acquiring EDF Energy Services

EDF Energy Services (EDF ES) is a leading, US-based retail power and gas provider. We plan to tap into EDF ES' wide geographical reach and diverse customer base to deliver energy solutions directly to large end-user customers in new and existing markets.

### Our people in the field

Partnerships and collaborative work are essential to our net zero ambition. Everyone brings different strengths and working as a team towards a common goal is highly motivating.

**Elizabeth**, head of project development & permitting, G&LCE offshore wind



Scan to read Elizabeth's story



## Key performance indicators

# Measuring our progress

We assess the performance of the group across a wide range of measures and indicators that are consistent with our strategy and investor proposition.

Our key performance indicators (KPIs) provide a balanced set of metrics that give emphasis to both financial and non-financial measures. These help the board and leadership team assess bp's performance. Our leadership team uses these measures to evaluate operating performance and inform its financial, strategic and operating decisions.

### Remuneration

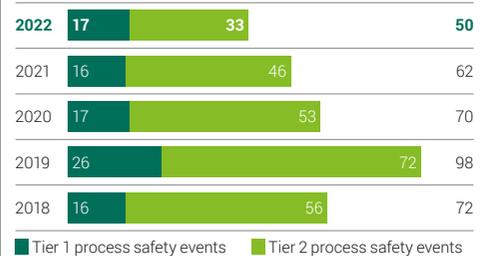
To help align the focus of our board and executive management with the interests of our shareholders, certain measures are used for executive remuneration.

See page [112](#)

## Safety

### Tier 1 and 2 process safety events

We track tier 1 and tier 2 events and report the aggregated outcome. Tier 1 events are losses of primary containment from a process of greatest consequence – causing harm to a member of the workforce, damage to equipment from a fire or explosion, a community impact or exceeding defined quantities (per API RP 754 tier 1 definitions). Tier 2 events are those of lesser consequence (per API RP 754 tier 2 definitions).

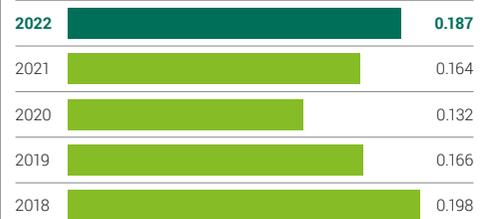


### 2022 performance

Our combined process safety events (PSEs) have generally decreased over the last 10 years, apart from in 2019. This downward trend continued in 2022 with 12 fewer (19%) reported compared to 2021, mainly due to a 28% reduction in tier 2 PSEs.

### Reported recordable injury frequency<sup>a</sup>

Reported recordable injury frequency (RIF) measures the number of reported work-related employee and contractor incidents that result in a fatality or injury per 200,000 hours worked.



### 2022 performance

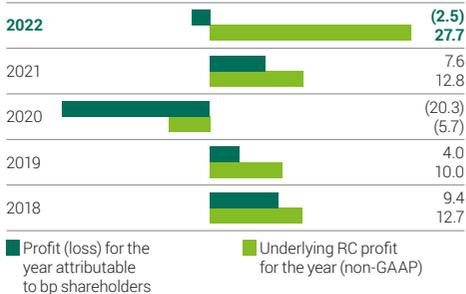
Our RIF increased by 14% compared with 2021. The unique impact of the COVID-19 pandemic on personal safety was reflected in a lower RIF for 2020, which continued into 2021. See Safety on page 65 for more information.

<sup>a</sup> It includes reported process safety events occurring within bp's operational HSSE reporting boundary. That boundary includes bp's own operated facilities and joint ventures where bp is the operator. In some cases, we may also provide information about some of our joint venture activities where we are not the operator.

Financial

**Underlying replacement cost (RC) profit**  
(\$ billion)

Underlying RC profit★ (non-GAAP) is a useful measure for investors because it is one of the profitability measures bp management uses to assess performance. It assists management in understanding the underlying trends in operational performance on a comparable year-on-year basis. It reflects the replacement cost of inventories sold in the period and is arrived at by adjusting for inventory holding gains and losses,★ net impact of adjusting items★ and related taxation from profit or loss attributable to bp shareholders.

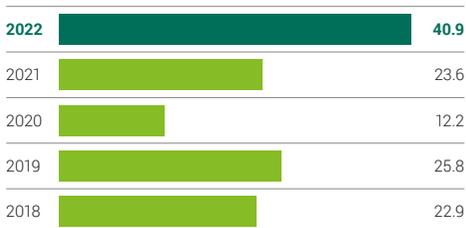


**2022 performance**

Loss attributable to bp shareholders for 2022 includes a pre-tax charge of \$24.0 billion, classified as an adjusting item, as a result of the loss of significant influence over Rosneft combined with the market impacts on Russian assets. Underlying RC profit improved as a result of higher gas and liquids realizations and higher refining margins. See Group performance on page 32 and Adjusting items on page 353 for more information.

**Operating cash flow** (\$ billion)

Operating cash flow is net cash flow provided by operating activities, as reported in the group cash flow statement.

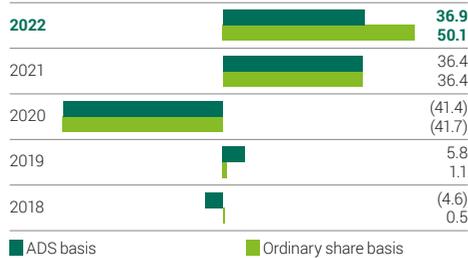


**2022 performance**

2022 reflects higher profits from operations partly offset by working capital movements and higher tax payments.

**Total shareholder return (%)**

Total shareholder return (TSR) represents the change in value of a bp shareholding over a calendar year (ADS in USD, ordinary share in GBP). It assumes that dividends are reinvested to purchase additional shares at the closing price on the ex-dividend date.

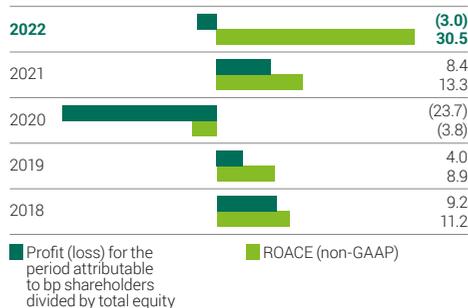


**2022 performance**

Improvement in TSR in 2022 reflects an increase in both the share price and the dividend per share.

**Return on average capital employed (%)**

Return on average capital employed (ROACE)★ (non-GAAP) gives an indication of a company's capital efficiency, dividing the underlying RC profit (loss) after adding back non-controlling interest and interest expense net of tax by the average of the beginning and ending balances of total equity plus finance debt, excluding cash and cash equivalents and goodwill as presented on the group balance sheet over the periods presented (see page 399).



**2022 performance**

Loss for 2022 attributable to bp shareholders was \$2.5 billion and total equity at 31 December 2022 was \$83.0 billion. The increase in ROACE reflects strong operational delivery and disciplined delivery of our financial frame.

Key

- Used for remuneration policy
- A strategy metric, see page 11
- ⓧ TCFD Recommendations and Recommended Disclosures

★ See glossary on page 389

# Key performance indicators continued

## Sustainable operations

### Refining availability (%) ●

bp-operated refining availability represents Solomon Associates' operational availability for bp-operated refineries. The measure shows the percentage of the year that a unit is available for processing after subtracting the annualized time lost due to turnaround activity and all planned mechanical, process and regulatory downtime.

Refining availability is an important indicator of the operational performance of our downstream businesses.

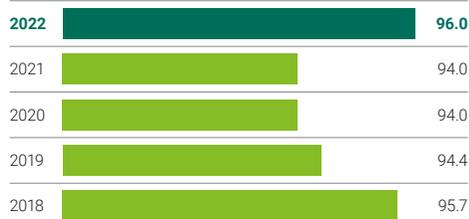


### 2022 performance

bp-operated refining availability★ in 2022 was similar to 2021.

### Upstream★ plant reliability (%) ●

bp-operated upstream plant reliability is calculated taking 100% less the ratio of total unplanned plant deferrals divided by installed production capacity, excluding non-operated assets and bpx energy. Unplanned plant deferrals are associated with the topside plant and, where applicable, the subsea equipment (excluding wells and reservoir). Unplanned plant deferrals include breakdowns, which does not include Gulf of Mexico weather-related downtime.



### 2022 performance

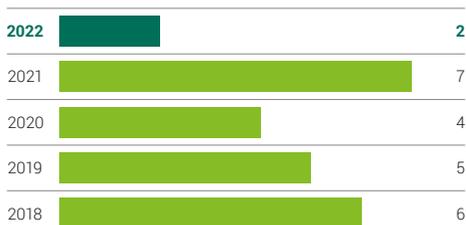
Upstream plant reliability increased to 96% in 2022, our strongest plant reliability on record.

### Major project delivery

We monitor the progress of our major projects to gauge whether we are delivering our core pipeline of projects under construction on time.

Projects take many years to complete, requiring differing amounts of resource, so a smooth or increasing trend should not be anticipated.

Major projects are defined as those with a bp net investment of at least \$250 million, or considered to be of strategic importance to bp, or of a high degree of complexity.



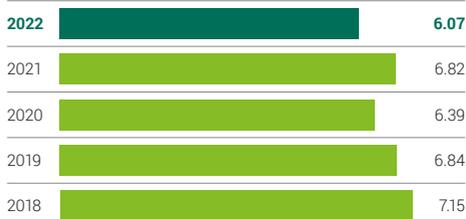
### 2022 performance

We started up two major projects in 2022 – Herschel Expansion in the US Gulf of Mexico and Cassia Compression off the south-east coast of Trinidad. We're aiming for ~200mboe/d production from nine high-margin major project start-ups by end-2025.

### Upstream unit production costs

#### (\$/boe) ●

The upstream unit production cost is calculated as production cost divided by units of production. Production cost does not include ad valorem and severance taxes. Units of production are barrels for liquids and thousands of cubic feet for gas. Amounts disclosed are for bp subsidiaries only and do not include bp's share of equity-accounted entities.



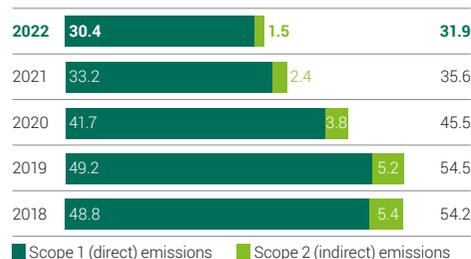
### 2022 performance

Unit production costs decreased to their lowest since 2006. The decrease reflects higher volumes and lower costs including the impact of conversion to equity-accounted entities.

## Non-financial

### Greenhouse gas emissions<sup>a</sup> – operational control (MtCO<sub>2</sub>e) T

We report Scope 1 and Scope 2 greenhouse gas (GHG) emissions material to our business on a carbon dioxide-equivalent basis. This KPI comprises Scope 1 (from running the assets within our operational control boundary) and Scope 2 (associated with importing the electricity, heating and cooling that is bought in to run those operations) data covered by aim 1 (to be net zero across our operations by 2050 or sooner). It comprises 100% of Scope 1 and 2 emissions or activities within bp's operational control boundary.

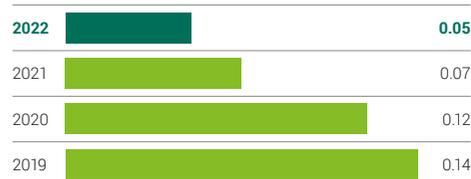


### 2022 performance

Scope 1 (direct) emissions, covered by aim 1, were 30.4MtCO<sub>2</sub>e – a decrease of 8% from 33.2MtCO<sub>2</sub>e in 2021. Of these Scope 1 emissions, 29.7MtCO<sub>2</sub>e were CO<sub>2</sub> and 0.7MtCO<sub>2</sub>e methane<sup>b</sup>. Emissions decreased due to divestments, delivery of Sustainable emissions reductions (SERs)★ and other temporary operational changes. Scope 2 (indirect) emissions decreased by 0.9MtCO<sub>2</sub>e, to 1.5MtCO<sub>2</sub>e, a 38% reduction compared with 2021. This decrease resulted from lower carbon power agreements, including those at our Gelsenkirchen, Cherry Point and Rotterdam sites.

### Methane intensity (%) T

We define methane intensity as the amount of methane emissions from our upstream oil and gas operations as a percentage of the gas that goes to market from those operations. This applies to methane emissions within our operational control boundary, where we have the highest degree of control. Methane emissions from non-producing activities, such as exploration drilling, are excluded. The 2022 methane intensity is calculated using existing methodology and, while it reflects progress in reducing methane emissions, it will not directly correlate with progress towards delivering the 2025 target under aim 4.



### 2022 performance

Our methane intensity in 2022 was 0.05%, an improvement from 0.07% in 2021<sup>b</sup>. Methane emissions from upstream operations, used to calculate our intensity, continued on the declining trend they have followed since 2016, when we reported 111kt, decreasing by 35% to around 28kt, from 43.0kt in 2021.

### Sustainable GHG emissions reductions (SERs) (MtCO<sub>2</sub>e) ● T

This measure includes actions taken by our businesses to improve energy efficiency and reduce methane emissions and flaring – all leading to ongoing, quantifiable GHG reductions. These refer to the GHG emissions on an operational control basis, which comprise 100% of emissions from activities that are operated by bp and would have occurred had we not made the change – they are absolute in nature. Since 2019 progress against this target has been used as a factor in determining bonuses for eligible employees<sup>a</sup>, including executives.



#### 2022 performance

We delivered 1.5MtCO<sub>2</sub>e of SERs from reductions projects including reducing Scope 2 emissions from purchased electricity by 662ktCO<sub>2</sub>e at our Gelsenkirchen, Cherry Point and Rotterdam refineries and Gelsenkirchen Chemicals through further lower carbon power agreements and reducing operational emissions by 351ktCO<sub>2</sub>e at bpx energy through projects including further electrification, the introduction of new technologies such as at the Grand Slam facility, and the installation of vapour recovery in Eagle Ford.

### Employee engagement

We conduct an annual employee survey to understand and monitor levels of employee engagement and identify areas for improvement.



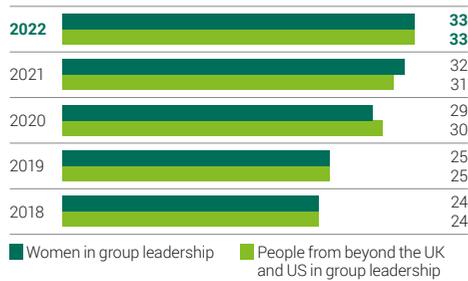
#### 2022 performance

Employee engagement increased to 70% (2021 64%), while pride in working for bp increased to a record 78% (2021 73%). Both numbers are notable given that participation was the highest since the survey began, with an 80% response rate. We continue to build engagement plans based on survey feedback and on real-time updates from our monthly snapshot.

### Diversity and inclusion<sup>d</sup> (%)

Our people are crucial to delivering our purpose and strategy. We aim to recruit talented people from diverse backgrounds, invest in their development and promote an inclusive culture.

Each year we report the percentage of women and individuals from countries other than the UK and the US among bp's group leaders.



#### 2022 performance

The percentage of women and people from beyond the UK and the US in group leadership increased in 2022, continuing an upward trend over the past five years.

#### Key

● Used for remuneration policy

● Strategy metric

T TCFD Recommendations and Recommended Disclosures

- a Total (100%) Scope 1 (direct) GHG emissions from source activities operated by bp or otherwise within bp's operational control boundary. bp's reported GHG emissions include CH<sub>4</sub> and CO<sub>2</sub>. Other GHGs are not included as they are not material to our operations.
- b The methane intensity is calculated using existing methodology and, while it reflects progress in reducing methane emissions, will not directly correlate with progress towards delivering the 2025 target under aim 4.
- c 32,000 employees were eligible for a cash bonus in 2022, (2021 30,000).
- d Relates to bp employees.

★ See glossary on page 389



\$15 billion between 2023 to 2030 with expected internal rate of returns (IRR) of over 15%. In convenience and EV charging we expect cumulative capital expenditure of around \$15 billion between 2023 to 2030 with combined expected IRR of over 15%. In hydrogen and renewables & power we expect cumulative capital expenditure of around \$30 billion between 2023 to 2030. In hydrogen we expect double-digit unlevered IRR and in renewables we expect 6-8% unlevered IRR.

#### #4 Investing to drive returns in resilient hydrocarbons

The balance of our capital expenditure will be invested outside our transition growth engines – into our oil, gas, refining and other businesses.

As we invest, our balanced investment criteria for final investment decisions (see page 32) include:

- Seeking a payback of less than 10 years for investments in upstream oil and refining.
- Seeking a payback of less than 15 years for upstream gas.
- Testing against 15-20% investment hurdle rates in oil & gas at \$60 per barrel.

This focused and disciplined capital frame is coupled with a deep hopper of attractive investment opportunities in oil and gas.

#### #5 Share buybacks

We are committed to returning at least 60% of surplus cash flow through share buybacks, subject to maintaining a strong investment grade credit rating. In considering the quantum of share buybacks and in setting the dividend per ordinary share each quarter, the board will take account of factors including the cumulative level of, and outlook for, surplus cash flow, the cash balance point and the maintenance of a strong investment grade credit rating.

For 2022 we announced share buybacks of \$11.25 billion from surplus cash flow. We have now announced share buybacks from 2021 and 2022 surplus cash flow of \$15.4 billion.

For 2023, and subject to maintaining a strong investment grade credit rating, we are committed to using 60% of surplus cash flow for share buybacks.

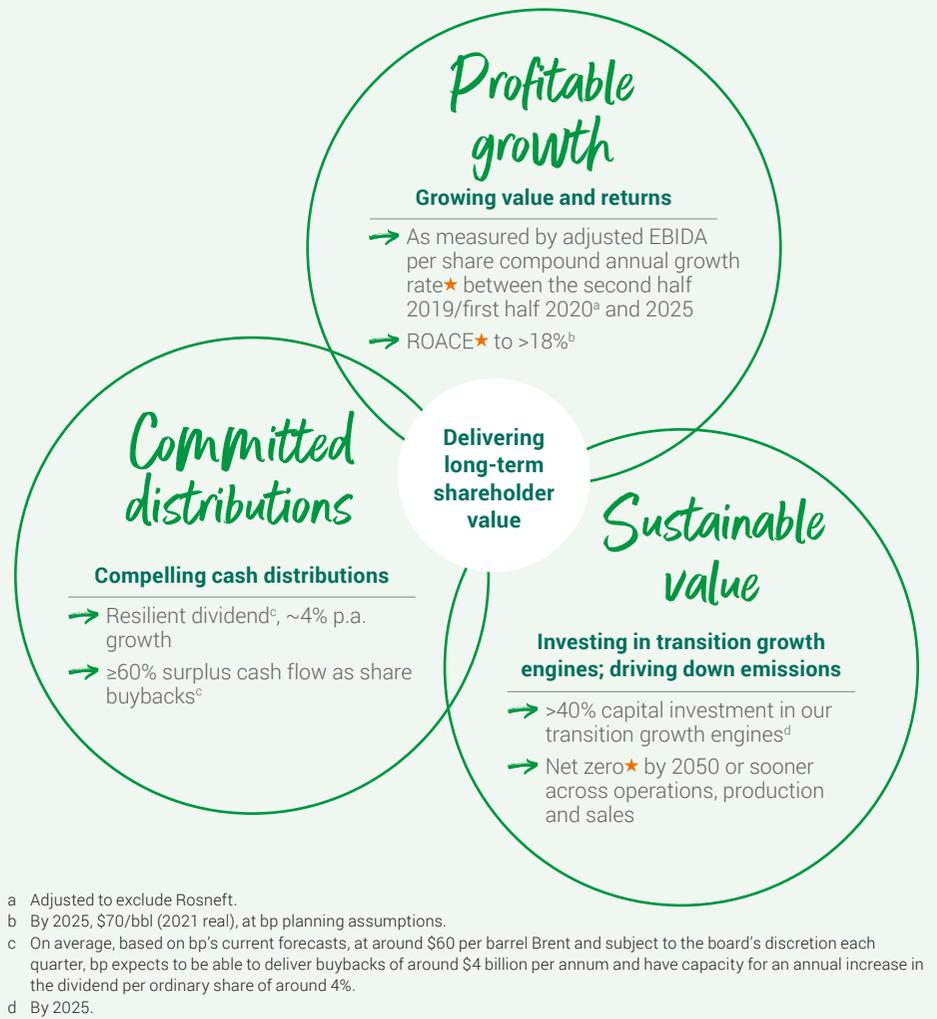
Based on our current forecasts, at around \$60 per barrel Brent and at the lower end of the capital expenditure range, we expect to be able to deliver buybacks of around \$4.0 billion per annum, subject to the board's discretion each quarter.

In addition to the commitment to share buybacks from surplus cash flow, we intend to offset the expected dilution from vesting of awards under employee share schemes through share buybacks. During the first quarter 2022 we executed a \$500-million share buyback to offset the expected dilution from the 2022 vesting of awards under employee share schemes.

★ See glossary on page 389

### Our investor proposition

Our strategy and financial frame together underpin our investor proposition of delivering long-term value for shareholders.



### 2023 guidance

	2022 actual	2023 guidance
Upstream★ reported production (guidance is both reported and underlying production★)	2.3mmboe/d	Expected to be broadly flat vs 2022
Total capital expenditure★	\$16.3bn	\$16-18bn
Depreciation, depletion and amortization	\$14.3bn	Slightly above 2022
Divestments and other proceeds <sup>a</sup>	\$3.1bn	\$2-3bn
Gulf of Mexico oil spill payments <sup>b</sup> (pre-tax)	\$1.4bn	~\$1.3bn
Other businesses and corporate underlying annual charge	\$1.2bn	\$1.1-1.3bn
Underlying effective tax rate★	34% <sup>c</sup>	Expected to be around 40%

a Divestment proceeds are disposal proceeds as per the group cash flow statement. See page 355 for more information on divestment and other proceeds.

b See Financial statements – Note 22 for more information on payables related to the Gulf of Mexico oil spill.

c Nearest equivalent GAAP measure: effective tax rate 109%.

## Consistency with the Paris goals

# Pursuing a *strategy* that is consistent with the Paris goals

### What we mean by Paris-consistent

As a reminder, the CA100+ 2019 resolution★ requires us to disclose the strategy that the board considers in good faith to be consistent with the Paris goals.

When we refer to 'consistency with Paris' we consider this to mean consistency with the world meeting the goals set out in Articles 2.1(a) and 4.1 of the Paris Agreement on Climate Change★.

Both the Sharm el-Sheikh Implementation Plan agreed by the Parties at COP27 in November 2022 and the Glasgow Climate Pact agreed by the Parties at COP26 in November 2021 reaffirmed the temperature goal set out in Article 2 of the Paris Agreement.

We believe the world is on an unsustainable path – we support the Paris goals, and the carbon budget to meet those goals is running out.

bp's strategy is informed by all these considerations. It is designed to create long-term value for shareholders, while enabling delivery of our net zero ambition – to become a net zero company by 2050 or sooner, and to help the world get to net zero. It is designed to be resilient to the uncertainty of the energy transition across many different potential pathways, including various Paris-consistent pathways.

In the *bp Annual Report and Form 20-F 2021* we set out, based on three key principles, why the board considers our strategy to be consistent with the Paris goals.

Here we set out, on the same three grounds, why the board continues to consider this to be the case.

### Informed by Paris-consistent energy transition scenarios

We use scenarios described in the *bp Energy Outlook* and from other organizations to inform our core beliefs about the energy transition.

We believe that it is generally neither useful nor sensible to identify one scenario as being more or less likely than another. Therefore, considering a broad range of scenarios from multiple sources to develop and test our strategic thinking helps to reinforce our confidence in the robustness and resilience of our strategy to the range of uncertainty we face.

We are confident that our approach is science-based. We see the Intergovernmental Panel on Climate Change (IPCC) as the most authoritative source of information on the science of climate

change and we use it and other sources to inform our strategy. The IPCC highlights that there are a range of global pathways by which the world can meet the Paris goals, with differing implications for regions, industry sectors and sources of energy.

The *bp Energy Outlook 2023* has been updated to reflect the significant developments in global energy markets over the past year, including the possible impact of the Russia-Ukraine war on the pace of the energy transition. It includes three main scenarios – two of which we regard as Paris-consistent (Accelerated and Net Zero) – that we use to inform our strategy.

 See [Energy outlook, page 8](#) and [bp.com/energyoutlook](https://www.bp.com/energyoutlook)

### Strategic resilience

We believe our strategy positions bp for success and resilience in a Paris-consistent world – a world that is progressing on one of the many global trajectories considered to be Paris-consistent, and ultimately meets the Paris goals.

The strategy diversifies bp's portfolio and business interests, reducing the risk that challenges facing a single business area might adversely affect bp's strategic resilience. In addition, within the inevitable constraints associated with factors such as long-term capital investments, contractual commitments and organizational capabilities at any given time, bp's ability to maintain its strategic resilience rests, in part, on the governance used to keep the strategy and associated targets and aims under review in light of new information and changes in circumstances.

In our climate-related financial disclosures on page 58, we describe how we have conducted an analysis to test our view of the resilience of our strategy to different climate-related scenarios, using the update on strategic progress presented in February 2023. This includes scenarios that are classified by the World Business Council for Sustainable Development (WBCSD) to be consistent with well-below 2°C and 1.5°C outcomes<sup>a</sup>.

As further explained on page 58, while the results of any such analysis must be treated with caution overall, this resilience test again reinforced our confidence in the resilience of our strategy to a wide range of ways in which the energy system could evolve throughout this decade, including in scenarios consistent with limiting temperature rise to 1.5°C.

The analysis also highlighted that, while WBCSD data may point towards a broad directional correlation between oil price and the temperature goal with which scenarios are associated, there is considerable uncertainty as to the extent of this correlation. This is demonstrated by the range within, and overlap between, the prices indicated for each scenario family.

In the version of the WBCSD catalogue used for the analysis, the lowest oil price is associated with a 1.5°C scenario, however a number of the 1.5°C and well-below 2°C scenarios have oil prices in 2030 that are substantively higher. And when compared to bp's own oil price planning assumption for 2030, the oil price in a number of the 1.5°C and well-below 2°C scenarios is also higher, supporting our view that our oil price planning assumption is broadly consistent with Paris-consistent scenarios.

### Contributes to net zero

We believe that our strategy enables bp to make a positive contribution to the world achieving net zero GHG emissions and meeting the Paris temperature goals – outcomes which we believe to be in the best interests of bp as well as beneficial to society generally.

We see huge opportunity in the energy transition – the transformation of the energy system that we believe to be a necessary feature of the world's efforts to meet the Paris goals. There are many ways a company at the heart of the energy sector can make a meaningful contribution to the world getting to net zero. These include: policy advocacy and seeking to use the company's influence with trade associations (who conduct climate-related advocacy); low carbon collaboration and support for others in their own decarbonization efforts (such as cities and companies); and investment in low carbon and technology development. bp seeks to advance these areas through our aims in support of our net zero ambition, including aims 6-10 which are focused on activities which can help the world get to net zero, see page 47.

And, as we pursue our strategy, our diversification and the growth of our low carbon businesses may also contribute to helping the world get to net zero. For example, in Teesside in the UK, we have worked to advance components of the East Coast Cluster – a vision for decarbonizing local heavy industries at scale, with CO<sub>2</sub> from their emissions taken offshore for permanent storage through Northern Endurance Partnership's carbon capture and storage

facilities. This has the potential to store up to 27 million tonnes of CO<sub>2</sub> emissions a year by 2030.

Some ways of contributing are more readily measured by quantitative metrics than others – but all can be important, whether or not they translate into GHG reductions for bp.

To illustrate this, in terms of low carbon investment ★, by 2030 we aim to increase to 50GW the amount of developed renewables to FID ★, supported by the capital expenditure we plan to invest in our transition growth engines. This aim supports the Paris goals by increasing the low carbon options available to energy consumers. However, it does not reduce our

Scope 1, 2 or 3 emissions. And it may not result in a decrease in the overall carbon intensity of bp's sold products, because that is dependent on the extent to which we – rather than another party such as a buyer of the developed project – market the resulting renewable power, which is a commercial consideration. Where we do not sell that power, our development of the renewables is effectively 'invisible' in terms of our GHG metrics.

As another example, our aim 6 is to more actively advocate for policies that support net zero, including carbon pricing. Helping policymakers to design and put in place low carbon policies can help deliver our strategy and

capitalize on the huge opportunities associated with achieving the Paris goals, but the benefit of such advocacy, if successful, extends well beyond any implications for bp's own GHG metrics. That is because well-designed low carbon policies can also advance the decarbonization of a whole economy – something potentially of far greater impact than anything a single company can achieve through its own portfolio. We publish examples of our activity in support of aim 6 online at [bp.com/advocacyactivities](https://bp.com/advocacyactivities).

## Responding to increased shareholder interest on Paris consistency

In 2019 the board recommended that shareholders support a special resolution requisitioned by Climate Action 100+ (CA100+) on climate change disclosures. The CA100+ resolution passed with more than 99% of the vote. This is the fourth year we have included responses throughout the annual report. We have adopted a similar approach to that taken in the *bp Annual Report and Form 20-F 2020* and *2021*.

The CA100+ resolution, which includes safeguards such as protections for commercially confidential and competitively sensitive information, is on page 389. Key terms related to this resolution response are indicated with ★ and defined in the glossary on page 389. These should be reviewed with the following information.

Element of the CA100+ resolution	Related content	Where
Strategy that the board considers in good faith to be consistent with the Paris goals.	Our strategy and business model	10
	Pursuing a strategy that is consistent with the Paris goals	26
How bp evaluates each new material capex investment ★ for consistency with the Paris goals and other outcomes relevant to bp strategy.	Our investment process	28
Disclosure of bp's principal metrics and relevant targets or goals over the short, medium and long term, consistent with the Paris goals.	Key performance indicators	20
	Sustainability: net zero targets and aims	45
	See 'TCFD metrics and targets' for an overview	62
Anticipated levels of investment in: (i) Oil and gas resources and reserves. (ii) Other energy sources and technologies.	Financial frame: disciplined investment allocation	24
	Investment in non-oil and gas	29
bp's targets to promote operational GHG reductions.	Sustainability: net zero targets and aims (in table)	45
Estimated carbon intensity of bp's energy products and progress over time.	Sustainability: aim 3	46
Any linkage between above targets and executive pay remuneration.	Directors' remuneration report	112
	2022 annual bonus outcome	120
	2023 remuneration policy	128

<sup>a</sup> For the purposes of our scenario analysis exercise, we drew on the WBCSD 'Climate Scenario Catalogue' version 1.0, published on 23-03-2022, which includes scenarios considered to be consistent with well-below 2°C and 1.5°C outcomes.

## Our investment process

# Our investment process

### How we use price assumptions

Our price assumptions are used for our investment appraisal processes. They are also used to inform decisions about internal planning and the value-in-use impairment testing of assets for financial reporting.

#### The role of price assumptions

As part of our regular review of strategy, we consider our portfolio and capital requirements to deliver our strategy. This work (and, where applicable, our decisions on individual investments) is informed by our view of the price environment and considers the balanced investment criteria discussed below. Together, these create a framework that seeks to ensure investments align with our strategy and add shareholder value.

Our price assumptions continue to reflect a range of possibilities, including that the transition to a lower carbon economy and energy system could accelerate. They also now reflect new supply side constraints that have emerged as a result of the Russia-Ukraine war.

2022 was a particularly volatile year for energy markets. Our investment appraisal assumptions, which take a long-term perspective, allow us to look past near-term volatility and focus on the fundamental trends affecting the energy sector and our businesses when we make our investment decisions.

Throughout 2022 we held our key investment appraisal price assumptions constant at the levels set out in the *bp Annual Report and Form 20-F 2021*. For relevant investment cases assessed in 2023, we have applied and plan to continue to apply the prices shown in the key investment appraisal assumptions table (right) for our central price case. Brent oil and Henry Hub gas assumptions average around \$61/bbl and \$3.8/mmBtu respectively (2021 \$ real) from 2023 to 2050. We consider these prices to be broadly consistent with a range of transition paths compatible with meeting the Paris goals, but they do not correspond to any specific Paris-consistent scenario. We also consider a range of other price assumptions for our investment appraisal.

We continue to apply carbon prices rising to \$100/tCO<sub>2</sub>e in 2030 and \$250/tCO<sub>2</sub>e by 2050 (2021 \$ real) for operational greenhouse gas (GHG) emissions in certain investment cases, as explained on page 30.

<sup>a</sup> The values in the table represent the central case.

<sup>b</sup> The disclosed RMM assumption in this table excludes carbon pricing impacts and assumes a normalized cost of renewable identification numbers (RINs).

### Impairment testing

Our best estimate of future prices for use in value-in-use impairment testing continues to be based on our investment appraisal price assumptions, with quarterly review of near-term prices to confirm that the assumptions appropriately reflect any changes to expectations due to short-term market trends.

Impairment price assumptions were held constant in 2022 at the levels disclosed in the *bp Annual Report and Form 20-F 2021* until the fourth quarter, when the updated investment appraisal price assumptions shown below were used for value-in-use impairment testing, with the

#### Key investment appraisal assumptions<sup>a</sup>

2021 \$ real

	2023	2025	2030	2040	2050
Brent oil (\$/bbl)	70	70	70	58	45
Henry Hub gas (\$/mmBtu)	4.0	4.0	4.0	3.5	3.5
Refining marker margin <sup>b</sup> ★ (\$/bbl)	14	14	14	11	8.5

In addition to the prices shown we also test whether investments meet our return expectations (see page 30) using other prices, including a \$60/bbl Brent oil price series.

#### Carbon price (US\$/tCO<sub>2</sub>e)

2021 \$ real

	2023	2025	2030	2040	2050
Carbon	50	50	100	200	250

exception that the Brent price assumption used for 2023 was \$77/bbl (2021 \$ real).

For investment appraisal, potential future operational emissions costs that may be borne by bp are included as bp costs, as described in the next section (generally without assuming incremental revenue), in order to incentivize engineering solutions that reduce carbon emissions on projects.

For the treatment of emission cost assumptions in value-in-use impairment testing, see Financial statements – Note 1.

### Investment process price assumptions

All investments are evaluated against relevant price assumptions for oil, natural gas, refining margins and other commodities across a range of alternative price series (central, upper and lower). In addition, all investment cases with anticipated annual GHG emissions from operations above 20,000 tonnes of CO<sub>2</sub> equivalent (bp net basis) must estimate those anticipated GHG emissions and include an associated carbon cost in the investment economics.

Our investment price assumptions place some weight on scenarios in which the transition to a low carbon energy system is sufficiently rapid to meet the goals of the Paris Agreement, as well as scenarios in which the transition may not be sufficiently rapid. They also place some weight on a range of other factors that can drive prices, and which are not directly related to the Paris goals.

These price assumptions do not link to specific scenarios or outcomes, but instead try to capture the range of different possibilities surrounding the future path of the global energy system. The nature of the uncertainty means that the price ranges inevitably reflect considerable judgement. The ranges are reviewed and updated as necessary, as our understanding of and judgements about the energy transition evolve.

In addition to consideration of a range of price assumptions, investment cases are asked to assess the impact of alternative assumptions covering a range of other variables related to the economics of the investment. These variables may include cost, resource, policy changes and schedule, to assess the robustness of investment cases to a range of other factors.

## Investment governance and evaluating consistency with the Paris goals

### Governance framework

bp's framework for investment governance seeks to ensure that investments align with our strategy, can be accommodated within our prevailing financial frame, and add shareholder value. It enables investments to be assessed in a consistent way against a range of criteria relevant to our strategy, including environmental and other sustainability criteria.

Investments follow an integrated stage-gate process designed to enable our businesses to choose and develop the most attractive investment cases. A balanced set of investment criteria is used, see page 30. This allows for the comparison and prioritization of investments across an increasingly diverse range of business models.

The governance framework specifies that proposed investments are evaluated using relevant assumptions, including carbon prices for projected operational emissions where applicable. It also sets out requirements for assurance by functions independent of the business before a final investment decision (FID) is taken.

### The role of the board

The board assesses capital allocation across the bp portfolio, including the level and mix of capital expenditures and divestments, strategic acquisitions, distribution choices and deleveraging, as well as reviewing certain investment cases for approval.

### Resource commitment meeting

For capital investments above defined financial thresholds for organic or inorganic spend, investment approval is conducted through the executive-level resource commitment meeting (RCM), which is chaired by the chief executive officer.

The RCM reviews the merits of each investment case against a balanced set of criteria and considers any key issues raised in the assurance process.

The CA100+ resolution ★ requires bp to disclose how we evaluate the consistency of new material capex investments ★ with (i) the Paris goals and (ii) a range of other outcomes relevant to bp's strategy.

bp's evaluation of the consistency of such investments with the Paris goals was undertaken by the RCM for new material capex investments sanctioned in 2022, see page 31.

bp's evaluation of an investment's consistency with 'a range of other relevant outcomes' is achieved by considering its merits against bp's balanced investment criteria, described on page 30.

### bp board

Reviews and approves investment cases of more than \$3 billion for resilient hydrocarbons, more than \$1 billion for all transition or low carbon investments ★ and any significant inorganic acquisition that is exceptional or unique in nature.

### Resource commitment meeting

Forum for approval of investments related to existing and new lines of business above \$250 million organic and \$25 million inorganic, or which exceed the relevant EVP's financial authority, and any project considered strategically important such as a new market entry.

### Investment allocation committees

EVP-level forums to review investment cases within a business group as per individual EVP financial authority (up to \$250 million organic, \$25 million inorganic capital investment).

### Business group investment governance meetings

SVP-level forums which review investment cases within a business group, enabler or integrator up to the individual SVP's financial authority.

### Cross-group meetings and forums

Meetings and forums to allow cross-group discussions and integration across wider strategic planning. The forums do not hold investment decision rights, but inform and underpin the decision-making process delivering integration opportunities across bp.

## Investment in non-oil and gas

Our aim 5 is to increase the proportion of investment we make into our non-oil and gas businesses. We have restated the scope of businesses included under aim 5 to align with our transition growth investment ★. As a result, the proportion of capital expenditure which counts towards our aim 5 2025 target has changed from \$3-4 billion in low carbon activity investment ★ to transition growth investment of \$6-8 billion, and our 2030 aim has changed from around \$5 billion in low carbon investment capital spend (excludes cash costs) to \$7-9 billion of transition growth investment. We expect more than 40% of total annual capital investment to be on transition growth engines by 2025, and are aiming for it to increase to around 50% in 2030. For more information see page 46.

**Bioenergy:** In October 2022 we announced our ~\$3 billion deal to acquire Archaea Energy (see page 15), a leading US producer of renewable natural gas (RNG). This will expand bp's presence in the US biogas industry and accelerate our bioenergy transition growth engine.

**EVs:** Together with our strategic convenience site networks, our investment in EV charging will help us to offer low carbon solutions to customers. We believe that, for road transport to decarbonize at the pace and scale needed to achieve the goals of the Paris climate agreement, it is necessary for the roll-out of EV charging infrastructure and usage of electric vehicles to be scaled up in parallel with – or even ahead of – the decarbonization of electricity grids. As a result, in some geographies it may be some years before grid decarbonization begins to drive down the lifecycle carbon intensity of EV charging. In 2022 EV charge points installed and energy sold grew by more than 65% and around 150%, respectively, compared to 2021, with charge points now at ~22,000. See page 41 for more information.

**Convenience:** We have 2,400 strategic convenience sites and aim to grow this to around 3,000 by 2025 and to around 3,500 by 2030. In the UK, we negotiated an extension to our partnership with M&S until at least 2030, following a successful 16-year collaboration. See page 16 for more information, including our new global strategic partnership with Uber.

**Renewables & power:** In 2022, in offshore wind in the US, we progressed Empire Wind 1 and 2 projects with Equinor and development work continued on Beacon Wind. In January 2022, together with EnBW, we were awarded a 2.9GW gross offshore wind lease, under project Morven, located off the east coast of Scotland. In power, in December 2022, we completed the purchase of EDF Energy Services, which will expand bp's presence in the US commercial and industrial retail energy business (see page 19).

**Hydrogen:** We aim to build a leading position globally in hydrogen, initially supplying our own refineries, scaling up to meet growing customer demand and in parallel, as markets develop, developing global export hubs for hydrogen and its derivatives. In 2022 we progressed Net Zero Teesside and Northern Endurance Partnership projects. Both form part of the East Coast Cluster which aims to remove nearly 50% of all UK industrial cluster CO<sub>2</sub> emissions. In Western Australia we acquired a 40.5% interest and will operate the Australian Renewable Energy Hub, AREH (see page 18). The hub aims to supply renewable power and sustainable fuels to both local mining customers and export markets.

### Low carbon activity investment

In 2022 low carbon activity investment – a subset of our total aim 5 transition growth investment – accounted for more than 80% of our total aim 5 investment. It increased from \$2.2 billion in 2021 to more than \$4 billion. Most of this investment was in biogas, offshore wind, electric vehicle charging and hydrogen. Going forward, we anticipate that more than 80% of our 2030 transition growth investment ★ being on low carbon activity ★.

## Our investment process continued

### Balanced investment criteria

All investment cases must set out their investment merits and are considered against a set of balanced investment criteria. This standardized approach is intended to create a level playing field for decision making and allows portfolio-wide comparisons of investment cases. The decision to endorse an investment based on the information provided represents our evaluation that it is consistent with what the 2019 CA100+ resolution★ refers to as “a range of other outcomes relevant to bp’s strategy”. In 2022 we further embedded sustainability into our investment governance process by developing our sustainability assessment template for investments linked to our sustainability frame, for use in all investment cases reviewed by RCM. The template provides information on a case’s impact on our net zero aims 1-3, its expected GHG intensity, and significant impacts on or contribution to certain aims concerning people and planet. This helps to maintain the consistency of our investments with our strategy and sustainability aims.

When taking investment decisions, we consider six investment criteria, although these decisions may also take other factors into account as appropriate:

**Strategic alignment:** For all investment cases, we consider whether the investment supports delivery of our strategy, including our net zero aims. We also assess if the investment case involves distinctive capability that bp has, or intends to develop, and whether it adds to an existing ‘scale’ business within the portfolio or could help us create one.

**Safety and risks:** For all investment cases, we provide an assessment of the key risks to the investment that have a significantly higher probability than usual or have a significantly greater impact (relative to the size of the project) were they to occur. Safety risk management at

bp is underpinned by our operating management system★ that is designed to help us sustainably deliver safe, reliable and compliant bp operations.

**Sustainability:** For all investment cases, we consider how any proposed business opportunity is connected to the energy transition, societal needs and the environment. This approach is underpinned by our purpose and sustainability frame. Investment cases above defined thresholds for anticipated annual GHG emissions from operations must estimate those anticipated emissions and incorporate carbon pricing for those emissions into the investment economics. All RCM cases must consider significant impacts of an investment on key sustainability aims, informed by the sustainability assessment template, referred to above.

**Investment economics:** For all investment cases, we consider investment economics against a range of relevant measures. Depending on the nature of the investment case, these may include internal rate of return (IRR), net present value, discounted payback, and profitability index, reflecting assumptions about relevant commodity prices, margins and carbon prices, see page 28. Investments are considered against differentiated return expectations, depending on business segment. We also refer to these expectations as hurdle rates, although as noted, each case is assessed according to its combined merit against our full set of balanced criteria.

1. For our resilient hydrocarbons portfolio, we seek a payback of less than 10 years for upstream oil and refining and 15 years for upstream gas; together with an IRR of 15-20%.
2. For bioenergy, we seek an IRR in excess of 15%.
3. For our convenience and EV charging businesses, we seek a portfolio-level IRR in excess of 15%.

4. For our hydrogen investments, we expect double-digit (unlevered) IRR.
5. For renewables & power investments, we seek an unlevered IRR of 6-8%.

For investments in our oil and gas and refined products businesses, as well as any other investments that do not fall within one of the specific hurdles set out above, we also compare the internal rate of return in our lower-price case to a cost of capital hurdle rate. For additional capital discipline for investments in oil and gas production, we also consider a case in which the Brent oil price starts at \$60/bbl in 2023 and later declines to the level of our key appraisal assumptions by 2050 (see page 28).

**Volatility and rateability:** Our investment economics metrics also consider the degree of uncertainty of the cash flows when considering investment cases. For example, some cases have more certainty of future costs and revenue projections. Variations in net present values for the key variables in an investment case are quantified by sensitivity analysis to give a range of potential outcomes against our key investment hurdles.

**Optionality and integration:** Our assessment considers the degree of optionality offered by a project – the ability to adapt our business to changing circumstances. This could be an option to sell a product with a floor price, or the right to purchase additional equity in a joint venture at specific terms. Other types of options include the right to develop (or not develop) extensions to existing projects, or to change the course of a project’s development depending on market circumstances. We likewise seek out integration along value chains across multiple products, services, geographies and customers. For example, our gas production can supply liquefaction plants whose LNG is monetized by our trading business. Likewise, future carbon sequestration projects may allow us to add value to our gas production by converting it to low carbon power.

### Paris consistency evaluation process

Our new material capex investments★ are intended to support the delivery of bp’s strategy.

For evaluations conducted in 2022, investments in scope for evaluation were defined as:

- **New:** investment in a new project or extension of an existing project/asset or share of an entity that is new to bp or a substantial increase in bp’s share.
- **Material:** more than \$250 million capex investment.

We evaluated new material capex investment using our central price assumptions (see page 28), and, where applicable, using our

lower-price case. Where relevant the evaluation also incorporated our carbon price assumptions, applied to the anticipated operational GHG emissions associated with the investment, through 2050 (see page 31).

#### Quantitative evaluations ①

For our investment economics and sustainability investment criteria we considered quantitative guide levels, as set out below, to inform the evaluation of each investment’s consistency with the goals of the Paris Agreement. As was the case last year, we have again lowered our operational carbon intensity guide level in line with our decreasing portfolio average. As our approach matures with experience, we may continue to adjust or supplement our

methodology. There may be instances when new material capex investments are evaluated as consistent with the Paris goals despite either the economic or sustainability guide levels not being met. The RCM may also take account, in its Paris consistency evaluation, of the six balanced investment criteria (above) using qualitative assessments.

**Investment economics:** We calculate economic indicators using our central price, and where applicable, our lower-price cases and applying our carbon price assumptions to relevant operational GHG emissions (for our key central case oil and natural gas price assumptions, see page 28 where we also set out our view on their consistency with achieving Paris goals. We then compare the economic indicators to the relevant

economic hurdles (see page 32), typically targeting a minimum threshold of >1.0x the relevant IRR guide levels, and <1.0x any relevant payback guide level.

**Sustainability:** Where appropriate, we compare the expected operational carbon intensity★ of the investment relative to that of the portfolio average shown in the *bp sustainability report 2021* for the segment or the related business activity (upstream and refining). We normally target a

ratio of less than 100%, meaning that the investment is expected to reduce the average operational carbon intensity of that portfolio. The potential impact of new material capex investments on bp's net zero aims is a further consideration.

### Evaluation outcome

In 2022 five new material capex investments were approved. All were evaluated as being consistent with the Paris goals.

#### Evaluation of investment performance against quantitative guide levels<sup>a</sup>

All five investments met the relevant IRR guide level, as shown in the chart. The guide level shown in the chart is typically based on the IRR hurdle for the central-price case, except where the investment case's business area does not have a specific hurdle rate assigned to it, in which case the guide level is based on our lower-price, cost-of-capital hurdle.

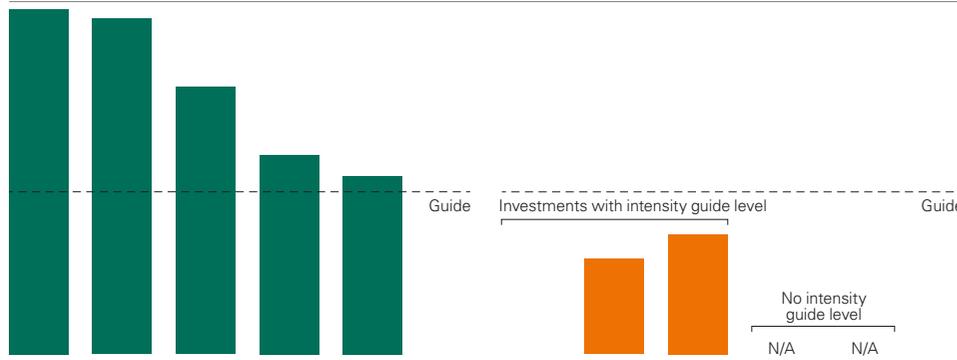
For three of the investment cases we have emissions intensity guide levels that were applied to the relevant expected operational carbon intensity. The carbon intensity of each evaluated investment was below the relevant guide level (one of the three had almost no incremental emissions, so no bar is visible). The other two investment cases were in transition growth businesses that do not have a carbon emissions intensity guide level.

#### Investment economics

Rate of return

#### Sustainability<sup>b</sup>

Carbon intensity (%)



a The 2022 investments have been compared to relevant guides (as applicable to the evaluation of each investment) and are presented here in order of the ratio to the relevant central-price case IRR or relevant carbon intensity guide level. As a result, the evaluations against the economic and sustainability benchmarks do not necessarily follow the same order.  
 b We applied the corresponding operational emissions intensity guide to the three investment cases with relevant guide levels.

### Decisions taken in 2022

In 2022 five new material capital expenditure investment decisions (more than \$250 million) were evaluated for Paris consistency.

#### Archaea Energy

bp acquired Archaea Energy, a leading US biogas producer focused on converting naturally occurring waste emissions from landfills and anaerobic digesters into low carbon biogas and electricity. The deal accelerates the growth of bp's strategic bioenergy transition growth engine, advancing our ongoing transformation to an integrated energy company.

#### EDF Energy Services energy supply

bp acquired EDF Energy Services, LLC (EDF ES), a US-based commercial and industrial retail energy supply business. The acquisition of EDF ES expands bp's reach down the power value chain, providing immediate scale and adjusted EBITDA★ contribution, and broadening our geographical reach. The acquisition supports our aim 3, delivering energy sales with a lifecycle carbon intensity below our current portfolio average to end-use customers.

#### Cypre development

The Cypre development is a subsea tieback to the existing Juniper platform in Trinidad & Tobago. Cypre will access power from Juniper, eliminating the need for additional power generation, allowing increased production without any significant increase in bp Trinidad's operating emissions. Output from the project will go towards satisfying existing gas supply commitments.

#### Angola New Gas Consortium

bp and Angola New Gas Consortium (NGC) partners are developing non-associated gas and condensate from the Quiluma and Maboqueiro fields. The project scope includes the installation of unmanned wellhead platforms and multiple production wells, as well as pipelines and an onshore gas treatment plant (GTP). bp's interest in Angola NGC has been transferred to the new Azure Energy joint venture.

#### Kwinana renewable fuels

We approved investment in detailed engineering design and long-lead contracts for the Kwinana renewable fuels project at our former refinery site in Western Australia. The project aims to produce renewable diesel, sustainable aviation fuel and bio-naphtha. The integrated energy hub will support our net zero ambition.

★ See glossary on page 389

# Performing while *transforming*



**\$(2.5)bn**

**loss attributable to bp shareholders**

(2021 profit \$7.6bn)

**\$27.7bn**

**underlying replacement cost (RC) profit ★**

(2021 profit \$12.8bn)

**\$40.9bn**

**operating cash flow ★**

(2021 \$23.6bn)

### Financial and operating performance

	\$ million except per share amounts		
	2022	2021	2020
<b>Sales and other operating revenues</b>	<b>241,392</b>	157,739	105,944
Profit (loss) before interest and tax	<b>18,039</b>	18,082	(21,740)
Finance costs and net finance expense relating to pensions and other post-retirement benefits	<b>(2,634)</b>	(2,855)	(3,148)
Taxation	<b>(16,762)</b>	(6,740)	4,159
Non-controlling interest	<b>(1,130)</b>	(922)	424
<b>Profit (loss) for the year attributable to bp shareholders</b>	<b>(2,487)</b>	7,565	(20,305)
Inventory holding (gains) losses ★, before tax	<b>(1,351)</b>	(3,655)	2,868
Taxation charge (credit) on inventory holding gains and losses	<b>332</b>	829	(667)
Replacement cost (RC) profit (loss) ★	<b>(3,506)</b>	4,739	(18,104)
Net (favourable) adverse impact of adjusting items ★ <sup>a</sup> , before tax	<b>29,781</b>	8,697	16,649
Total taxation charge (credit) on adjusting items	<b>1,378</b>	(621)	(4,235)
<b>Underlying RC profit (loss)</b>	<b>27,653</b>	12,815	(5,690)
<b>Adjusted EBIDA ★</b>	<b>45,695</b>	30,783	19,244
<b>Adjusted EBITDA ★</b>	<b>60,747</b>	37,315	19,987
<b>Dividend paid per ordinary share (cents)</b>	<b>22.93</b>	21.42	31.50
<b>Dividend paid per ordinary share (pence)</b>	<b>18.624</b>	15.538	24.458
<b>Profit (loss) per ordinary share (cents)</b>	<b>(13.10)</b>	37.57	(100.42)
<b>Profit (loss) per ADS (dollars)</b>	<b>(0.79)</b>	2.25	(6.03)
<b>Underlying RC profit (loss) per ordinary share ★ (cents)</b>	<b>145.63</b>	63.65	(28.14)
<b>Underlying RC profit (loss) per ADS ★ (dollars)</b>	<b>8.74</b>	3.82	(1.69)
<b>Adjusting items<sup>a</sup></b>	<b>3,866</b>	1,851	2,874
Gains on sale of businesses and fixed assets			
Net impairment and losses on sale of businesses and fixed assets	<b>(5,920)</b>	1,123	(14,369)
Environmental and other provisions	<b>325</b>	(1,536)	(212)
Restructuring, integration and rationalization costs	<b>34</b>	(249)	(1,296)
Fair value accounting effects (FVAEs) <sup>b</sup>	<b>(3,501)</b>	(8,075)	(212)
Rosneft	<b>(24,033)</b>	(291)	(205)
Gulf of Mexico oil spill	<b>(84)</b>	(70)	(255)
Other	<b>(43)</b>	(668)	(2,349)
Total before interest and taxation	<b>(29,356)</b>	(7,915)	(16,024)
Finance costs	<b>(425)</b>	(782)	(625)
Total before taxation	<b>(29,781)</b>	(8,697)	(16,649)
Adjusting items total taxation	<b>(1,378)</b>	621	4,235
	<b>(31,159)</b>	(8,076)	(12,414)

<sup>a</sup> See page 353 for more information.

<sup>b</sup> See page 354 for information on the cumulative impact of FVAEs.

// During 2022 we continued to deliver against our financial frame – raised our dividend by 21%, substantially reduced debt, invested \$16.3 billion with discipline and announced \$11.25 billion of share buybacks from 2022 surplus cash flow ★. As we look to 2023, we continue to focus on the disciplined delivery of our financial frame, with its five priorities, underpinned by a \$40/bbl balance point, unchanged. //

**Murray Auchincloss**  
Chief financial officer

At 31 December 2021, the group's reportable segments were gas & low carbon energy, oil production & operations, customers & products and Rosneft. The group has ceased to report Rosneft as a separate segment in the group's financial reporting for 2022. For more information see Financial statements – Note 1 Significant accounting policies, judgements, estimates and assumptions – Investment in Rosneft.

From the first quarter of 2022, the group's reportable segments are gas & low carbon energy, oil production & operations and customers & products. Each are managed separately, with decisions taken for the segment as a whole, and represent a single operating segment that does not result from aggregating two or more segments. See Financial statements – Note 5 Segmental analysis.

For the period from 1 January 2022 to 27 February 2022, net income from Rosneft is classified as an adjusting item. As the circumstances leading to this classification were not present prior to first quarter 2022 the net income from Rosneft has not been classified as an adjusting item for comparative periods.

## Results

The loss for the year ended 31 December 2022 attributable to bp shareholders was \$2.5 billion, compared with a profit of \$7.6 billion in 2021. Adjusting for inventory holding gains, RC loss was \$3.5 billion, compared with a profit of \$4.7 billion in 2021.

After adjusting RC profit for a net impact of items which bp has classified as adjusting of \$31.2 billion (on a post-tax basis), underlying RC profit for the year ended 31 December 2022 was \$27.7 billion. The result reflected higher gas and liquids realizations and higher refining margins, partially offset by higher tax and the absence of bp share of earnings from Rosneft.

For 2021, after adjusting RC profit for a net adverse impact of items, which bp has classified as adjusting of \$8.1 billion (on a post-tax basis), underlying RC profit was \$12.8 billion. The result reflected higher oil and gas prices and refining margins, and strong trading results.

For a discussion of bp's financial and operating performance for the year ending 31 December 2020 and 31 December 2021, see bp's *Annual Report and Form 20-F 2021*, pages 37-50.

## Adjusting items

In 2022 the net adverse pre-tax impact of items, which bp has classified as adjusting was \$29.8 billion including:

- A pre-tax charge of \$24.0 billion relating to bp's decision to exit its 19.75% shareholding in Rosneft.
- Adverse fair value accounting effects (FVAEs)

relative to management's measure of performance of \$3.5 billion primarily arising from an increase in forward gas prices during the year and the changes in the fair value of derivatives entered into by the group to manage currency exposure and interest rate risks relating to hybrid bonds. Under IFRS, reported earnings include the mark-to-market value of the hedges used to risk-manage LNG contracts, but not of the LNG contracts themselves. The underlying result includes the mark-to-market value of the hedges but also recognizes changes in value of the LNG contracts being risk managed. The impacts of FVAEs relative to management's internal measure of performance are provided on page 354.

- Net impairment charges of \$4.8 billion principally as a result of expected portfolio changes in our oil production & operations segment, the annual review of price assumptions used for investment appraisal and value-in-use impairment testing and the annual review of discount rates used for impairment tests; partially offset by
- A non-taxable gain of \$1.9 billion arising from the contribution of bp's Angolan business to Azule Energy.

In 2021 the net adverse pre-tax impact of items which bp has classified as adjusting was \$8.7 billion including:

- Adverse fair value accounting effects relative to management's measure of performance of \$8.1 billion primarily arising from the exceptional increase in forward gas prices.
- Net impairment reversals of \$1.3 billion and \$1.0 billion relating to a gain from the divestment of a 20% stake in Oman Block 61.

See Financial statements – Note 1 Significant accounting policies, judgements, estimates and assumptions – Investment in Rosneft and Note 4 for more information on impairments, and pages 353 and 354 for more information on adjusting items and fair value accounting effects.

## Taxation

The charge for corporate income taxes was \$16,762 million in 2022 compared with \$6,740 million in 2021. The increase mainly reflects higher taxable profits and the impact of the UK Energy Profits Levy. The effective tax rate (ETR) on the profit before taxation for the year in 2022 was 109%, compared with 44% in 2021. The ETR on the profit before taxation for the year in 2022 was impacted by the pre-tax charges relating to bp's decision to exit its shareholding in Rosneft, and the UK Energy Profits Levy. The ETR on the profit before taxation for the year in 2021 was impacted by fair value accounting effects. Excluding inventory holding impacts and

adjusting items, the underlying ETR★ in 2022 was 34% compared with 32% in 2021. The underlying ETR★ in 2022 is higher due to the absence of equity-accounted earnings from Rosneft, and the UK Energy Profits Levy on North Sea profits, partly offset by changes in the geographical mix of profits. The underlying ETR for 2023 is expected to be around 40% but is sensitive to the impact that volatility in the current price environment may have on the geographical mix of the group's profits and losses. Underlying ETR is a non-GAAP measure. A reconciliation to GAAP information is provided on page 398.

## Outlook for 2023

### Macro outlook

- We expect oil and gas prices and refining margins to remain elevated in 2023 as a result of the continuing impact of the war in Ukraine and the resulting energy supply repositioning.

### 2023 guidance

- We expect both reported and underlying upstream★ production to be broadly flat compared with 2022. Within this, we expect underlying production★ from oil production & operations to be slightly higher and production from gas & low carbon energy to be lower. We expect the start-up of Mad Dog Phase 2 in the second quarter of 2023 and first gas from the Tangguh expansion and GTA Phase 1 Tortue projects in the fourth quarter of 2023.
- In our customers business, we expect inflationary cost pressures to continue and in *Castrol* base oil prices to remain high, although lower than in 2022.
- In products, we expect industry refining margins to remain elevated due to low product stocks and sanctioning of Russian crude and product, although uncertainty remains depending on the implementation and enforcement of the EU ban on Russian products.
- The other businesses & corporate underlying annual charge is expected to be in a range of \$1.1-1.3 billion for 2023. The charge may vary from quarter to quarter.

## Group performance continued

### Cash flow and debt information

	\$ million		
	2022	2021	2020
<b>Cash flow</b>			
Operating cash flow★	<b>40,932</b>	23,612	12,162
Net cash used in investing activities	<b>(13,713)</b>	(5,694)	(7,858)
Net cash provided by (used in) financing activities	<b>(28,021)</b>	(18,079)	3,956
Cash and cash equivalents at end of year	<b>29,195</b>	30,681	31,111
<b>Capital expenditure★</b>	<b>(16,330)</b>	(12,848)	(14,055)
<b>Divestment and other proceeds<sup>b</sup></b>	<b>3,123</b>	7,632	6,586
<b>Debt</b>			
Finance debt	<b>46,944</b>	61,176	72,664
Net debt★	<b>21,422</b>	30,613	38,941
Net debt including leases★	<b>29,990</b>	39,411	48,196
Finance debt ratio★ (%)	<b>36.1%</b>	40.3%	45.9%
Gearing★ (%)	<b>20.5%</b>	25.3%	31.3%
Gearing including leases★ (%)	<b>26.5%</b>	30.4%	36.0%

a An analysis of capital expenditure by segment and region is provided on page 352.

b Divestment proceeds are disposal proceeds as per the group cash flow statement. See below for more information on divestment and other proceeds.

#### Operating cash flow

Operating cash flow for the year ended 31 December 2022 was \$40.9 billion, \$17.3 billion higher than 2021. Compared with 2021, operating cash flows in 2022 reflected higher profits from operations partly offset by working capital movements and higher tax payments.

Movements in working capital★ adversely impacted cash flow in the year by \$6.3 billion, including an adverse impact from the Gulf of Mexico oil spill of \$1.3 billion. Other working capital effects were principally an increase in other current assets and inventory offset by an increase in other current liabilities. bp actively manages its working capital balances to optimize and reduce volatility in cash flow.

Operating cash flow for the year ended 31 December 2021 was \$23.6 billion, \$11.4 billion higher than 2020. Compared with 2020, operating cash flows in 2021 reflected higher oil and gas realizations and higher refining margins partly offset by higher tax payments.

Movements in working capital adversely impacted cash flow in 2021 by \$0.6 billion, including an adverse impact on working capital from the Gulf of Mexico oil spill of \$1.4 billion. Other working capital effects were principally an increase in other current assets and inventory offset by an increase in other current liabilities.

#### Net cash used in investing activities

Net cash used in investing activities for the year ended 31 December 2022 increased by \$8.0 billion compared with 2021.

The increase mainly reflected \$3.0 billion for the acquisition of Archaea Energy, net of cash acquired, and \$0.5 billion for the earlier than expected completion of the acquisition of EDF Energy Service, and lower divestment proceeds received in 2022.

Total capital expenditure for 2022 was \$16.3 billion (2021 \$12.8 billion), of which organic capital expenditure★ was \$12.5 billion (2021 \$11.8 billion). Sources of funding are fungible, but the majority of the group's funding requirements for new investment comes from cash generated by existing operations. For 2023 bp expects capital expenditure of \$16-18 billion and for 2024-30 now expects capital expenditure in a range of \$14-18 billion including inorganic capital expenditure★.

Total divestment and other proceeds for 2022 amounted to \$3.1 billion including \$0.7 billion relating to the formation of Azule Energy and \$0.3 billion relating to the disposal of bp's interest in the Sunrise oil sands project in Canada. Other proceeds for 2022 consist of \$0.6 billion of proceeds from the disposal of a loan note related to the Alaska divestment. The cash was received in the fourth quarter 2021, reported as a financing cash flow and was not included in other proceeds at the time due to potential recourse from the counterparty.

Total divestment and other proceeds for 2021 amounted to \$7.6 billion, including \$2.4 billion from the divestment of a 20% stake in Oman Block 61, \$2.2 billion of proceeds relating to the 2020 divestment of bp's Alaska business to Hilcorp and the \$1.0 billion final instalment for the sale of the petrochemicals business. Other

proceeds for 2021 include \$675 million from the sale of a 49% interest in a controlled affiliate holding certain refined product and crude logistics assets onshore US and this transaction was reported within financing activities in the group cash flow statement.

As at 31 December 2022, \$15.9 billion of proceeds were received against our target of \$25 billion of divestment and other proceeds between the second half of 2020 and 2025. bp now expects divestment and other proceeds of \$2-3 billion in 2023.

#### Net cash provided by (used in) financing activities

Net cash used in financing activities for the year ended 31 December 2022 was \$28.0 billion, compared with \$18.1 billion in 2021. Compared with 2021, financing cash flows in 2022 primarily reflected the increase in share buybacks, as part of the share buyback programme announced on 27 April 2021, and an increase in net payments related to short-term and long-term debt including \$1.0bn related to the settlement of debt and warrant liabilities acquired with Archaea Energy.

In 2022, 1,900 million of ordinary shares (2021 707 million) were repurchased for cancellation for a total cost of \$10.0 billion (2021 \$3.2 billion), including transaction costs of \$54 million (2021 \$17 million).

Total dividends paid to shareholders in 2022 were 22.932 cents per share, 1.512 cents higher than 2021. This amounted to total dividends paid to shareholders of \$4.4 billion in 2022 (2021 \$4.3 billion). The board decided not to offer a scrip dividend alternative in respect of the 2022 and 2021 dividends.

#### Debt

Finance debt at the end of 2022 decreased by \$14.2 billion from the end of 2021 reflecting activity to manage the group's debt portfolio. The finance debt ratio at the end of 2022 decreased to 36.1% from 40.3% at the end of 2021.

Net debt at the end of 2022 decreased by \$9.2 billion from the 2021 year-end position. Gearing at the end of 2022 decreased to 20.5% from 25.3% at the end of 2021. The decrease in net debt and gearing reflected strong operating performance and related cash flow generation during the year. Net debt and gearing are non-GAAP measures. See Financial statements – Notes 26 and 27 for further information on finance debt and net debt.

For information on financing the group's activities see Financial statements – Note 29 and Liquidity and capital resources on page 356.

Group reserves and production<sup>a</sup>

	2022	2021	2020
<b>Estimated net proved reserves (net of royalties)</b>			
Liquids (mmb)	<b>3,997</b>	10,124	10,661
Natural gas (bcf)	<b>18,481</b>	39,615	42,467
Total hydrocarbons (mmbob) <sup>b</sup>	<b>7,183</b>	16,954	17,982
<i>Of which:</i>			
Equity-accounted entities <sup>b</sup>	<b>1,381</b>	10,065	10,100
<b>Production (net of royalties)</b>			
Liquids (mb/d)	<b>1,214</b>	1,951	2,106
Natural gas (mmcf/d)	<b>7,101</b>	7,915	7,929
Total hydrocarbons (mboe/d)	<b>2,438</b>	3,316	3,473
<i>Of which:</i>			
Subsidiaries	<b>2,000</b>	1,994	2,146
Equity-accounted entities <sup>c</sup>	<b>439</b>	1,322	1,326

a Because of rounding, some totals may not agree exactly with the sum of their component parts.

b 2021 and 2020 include bp's share of Rosneft and Russia joint ventures. See Supplementary information on oil and natural gas on page 263 for further information.

c Includes bp's share of Rosneft and Russia joint ventures (2022 193mboe/d). See Oil and gas disclosures for the group on page 364 for further information.

Total hydrocarbon proved reserves at 31 December 2022, on an oil equivalent basis including equity-accounted entities, decreased by 58% compared with 31 December 2021 (16% decrease for subsidiaries and 86% decrease for equity-accounted entities). Natural gas decreased by 53% (13% decrease for subsidiaries and 89% decrease for equity-accounted entities). This includes a 9,013mmbob reduction in our equity-accounted entities resulting from our decision to exit our Russia joint ventures and our shareholding in Rosneft.

Excluding the impact of our exit from Russia, there was a net decrease from acquisitions and disposals of 84mmbob (decrease of 434mmbob within our subsidiaries and increase of 350mmbob within our equity-accounted entities). Acquisition and divestment activity occurred in our equity-accounted entities in the Southern Cone and the North Sea, and divestment activity in our subsidiaries in Canada, the US and the North Sea. The creation of Azure Energy in Angola resulted in divestment of subsidiary entities and purchase of equity-accounted entities.

Total hydrocarbon production for the group was 26.5% lower compared with 2021. The decrease comprised a 0.2% decrease (6.1% decrease for liquids and 6.0% increase for gas) for subsidiaries and a 66.8% decrease (67.8% decrease for liquids and 63.5% decrease for gas) for equity-accounted entities. The production decrease in the equity-accounted entities is due to absence of bp share of production from Rosneft.

Excluding the impact of Rosneft, total hydrocarbon production for the group was 1.6% higher compared with 2021. The increase comprised a 0.2% increase (6.1% decrease for liquids and 6.0% increase for gas) for subsidiaries and a 13.5% increase (25.0% increase for liquids and 6.9% decrease for gas) for equity-accounted entities.

## Gas & low carbon energy

Gas & low carbon energy segment comprises our gas & low carbon businesses. Our gas business includes regions<sup>a</sup> with upstream activities that predominantly produce natural gas, integrated gas and power, and gas trading. Our low carbon business includes solar, offshore and onshore wind, hydrogen and CCS, power trading, and our share in bp Bunge Bioenergia<sup>b</sup>. Power trading and marketing includes trading of both renewable and non-renewable power.

### Financial and operating performance

	\$ million		
	2022	2021	2020
<b>Sales and other operating revenues<sup>c</sup></b>	<b>56,255</b>	30,840	16,275
Profit (loss) before interest and tax	<b>14,688</b>	2,166	(7,049)
Inventory holding (gains) losses <sup>★</sup>	<b>8</b>	(33)	(19)
<b>RC profit (loss) before interest and tax</b>	<b>14,696</b>	2,133	(7,068)
Net (favourable) adverse impact of adjusting items <sup>★d</sup>	<b>1,367</b>	5,395	7,757
<b>Underlying RC profit before interest and tax<sup>★</sup></b>	<b>16,063</b>	7,528	689
Taxation on an underlying RC basis	<b>(4,367)</b>	(1,677)	(773)
<b>Underlying RC profit (loss) before interest</b>	<b>11,696</b>	5,851	(84)
<b>Depreciation, depletion and amortization</b>	<b>5,008</b>	4,464	3,457
<b>Exploration write-offs<sup>e</sup></b>	<b>2</b>	43	1,741
<b>Adjusted EBITDA<sup>★f</sup></b>	<b>21,073</b>	12,035	5,214
<b>Capital expenditure<sup>★</sup></b>			
Gas	<b>3,227</b>	3,180	4,012
Low carbon energy	<b>1,024</b>	1,561	596
	<b>4,251</b>	4,741	4,608

a The AGT and Middle East regions have been further subdivided by asset to allow reporting in either gas & low carbon or oil production & operations as appropriate.

b From the first quarter of 2023, bp Bunge Bioenergia will be reported within customers & products.

c Includes sales to other segments.

d See page 354 for information on the cumulative impact of FVAEs.

e 2020 includes a write-off of \$673 million which has been classified within the 'other' category of adjusting items.

f A reconciliation to RC profit before interest and tax is provided on page 400.

### Financial results

Sales and other operating revenues for 2022 were higher mainly due to higher realizations, higher gas marketing and trading revenues and higher volumes.

RC profit before interest and tax for 2022 was \$14,696 million compared with \$2,133 million for 2021.

Items which bp has classified as adjusting for 2022 had a net adverse impact of \$1,367 million including adverse fair value accounting effects<sup>★</sup> of \$1,811 million, relative to management's view of performance, partially offset by a net impairment reversal.

After adjusting RC profit for the net impact of items which bp has classified as adjusting, underlying RC profit before interest and tax for 2022 was \$16,063 million, compared with \$7,528 million for 2021. The increase reflects higher realizations, higher production and an exceptional gas marketing and trading result.

Items which bp has classified as adjusting for 2021 had a net adverse impact of \$5,395 million including adverse fair value accounting effects of \$7,662 million (relative to management's view of performance) primarily arising from the exceptional increase in forward gas prices, partly offset by the gain on the partial divestment in Oman and net impairment reversals.

See Financial statements – Note 5 for further information on segmental analysis.

### Operational update

Reported production for 2022 was 957mboe/d, 4.9% higher than the same period in 2021. Underlying production<sup>★</sup> for the full year was 4.9% higher due to the ramp-up of major projects<sup>★</sup> partially offset by base decline.

Renewables pipeline<sup>★</sup> at the end of the year was 37.2GW (bp net). In 2022 the pipeline grew by 14.1GW primarily as a result of bp and its partner EnBW being awarded a lease option off the east coast of Scotland to develop an offshore wind project (1.5GW bp net) in the first quarter of 2022, net additions to Lightsource bp's pipeline

(3.8GW), and the additions to the renewables pipeline in the fourth quarter in support of hydrogen in Australia (10.3GW) offset by promotions of projects to final investment decision (FID).

In renewables by the end of 2022 we had brought 5.8GW developed renewables to FID<sup>★</sup>.

### Strategic progress

#### Gas

In Trinidad, we took the FID on the Cypre project offshore, our third subsea gas development, which is expected to start drilling in 2023, with first gas expected in 2025. The Cassia C compression platform safely delivered first gas in November. And we and the other shareholders reached an agreement to restructure Atlantic LNG with the Trinidad Ministry of Energy. The new structure is expected to be effective in October 2024 and will enable increased focus on operational efficiency and reliability and underpin future upstream investments.

In Indonesia, we participated in the Timpan-1 discovery offshore, the successful well was drilled in the Andaman II licence by Harbour Energy. We also extended the Tangguh PSC★ licence by 20 years to 2055, and signed 30-year PSC with the government of Indonesia for Agung I and II blocks.

In Egypt, we were awarded five exploration blocks in the Mediterranean Sea by the Egyptian Natural Gas Holding Company.

In Mauritania, we signed a 30-month exploration and production sharing agreement for the BirAllah resource. In January 2023, our floating production, storage and offloading (FPSO) vessel for GTA Phase 1 sailed away from China towards the project site in Mauritania and Senegal.

In February 2023 we completed the sale of bp's upstream business in Algeria to Eni, including the gas producing In Amenas and In Salah concessions.

#### Integrated gas and power and LNG trading

- In February 2022, construction started on the Gas Natural Acu (GNA) 2 power plant at the Port of Acu, Rio de Janeiro state, Brazil. GNA 2 is expected to have an installed capacity of 1.7GW. bp is the exclusive LNG supplier for GNA 1 and GNA 2 which, together, are expected to achieve 3GW of installed capacity. GNA is a joint venture among bp, Prumo, Siemens and SPIC.
- In April bp and the Korea Gas Corporation (KOGAS) signed a long-term agreement to supply 1.58 million tonnes of LNG per year from 2025 to KOGAS through a new 18-year contract.

See Oil and gas disclosures for the group on page 358 for more information on oil and gas operations in the regions.

#### Low carbon energy

Hydrogen and carbon capture and storage  
In Hydrogen and carbon capture and storage (CCS), we progressed 1.8mtpa net to bp of hydrogen opportunities to project pipeline (concept development stage).

Our progress in hydrogen is focused on growing scale in key regionally integrated markets, such as Europe and US, using our refineries as demand anchors. As hydrogen markets develop, we aim to create a portfolio of globally advantaged supply hubs.

- In the UK, in October, we submitted a bid to the UK government for our proposed green hydrogen★ project. HyGreen Teesside is one of the UK's largest proposed green hydrogen plants and aims to produce an initial 80 megawatts equivalent (MWe) of hydrogen by

2025 and 500MWe by 2030. In addition, we announced that Abu Dhabi's ADNOC will work with us in our blue hydrogen★ project H2Teesside, Masdar signed a memorandum of understanding to acquire a stake in bp's proposed HyGreen Teesside green hydrogen project, and that bp and ADNOC would commence a study for a new world-scale blue hydrogen project in Abu Dhabi.

- In Europe, in February 2022, jointly with HyCC we announced plans to develop H2-Fifty, a 250MWe green hydrogen production plant in the port area of Rotterdam. The facility could supply bp's refinery in the city and has the potential to reduce CO<sub>2</sub> emissions by up to 350,000 tonnes per year.
- In the US, in May 2022, we announced our plans to develop a major CCS project to advance decarbonization efforts to store up to 15 million metric tons of CO<sub>2</sub> across the Texas Gulf Coast. We expect that this project will enable low carbon hydrogen production and decarbonize bp facilities and third-party emitters.
- In Asia Pacific, in September 2022, we acquired a 40.5% equity stake in Australian Renewable Energy Hub (AREH) in the Pilbara region of Western Australia, which is one of the world's largest planned integrated green hydrogen hubs (InterContinental Energy 26.4%, CWP Global 17.8% and Macquarie Capital and Macquarie's Green Investment Group 15.3%).
- In January 2022, we and Oman's Ministry of Energy and Minerals signed a Strategic Framework Agreement (SFA) and a Renewables Data Collection Agreement which will support the potential development of a multiple gigawatt, world-class renewable energy and green hydrogen development in the country by 2030.
- In November and December 2022, we signed memoranda of understanding with the governments of Mauritania and Egypt, to explore the potential for establishing green hydrogen production facilities in the countries.

#### Renewables and power

##### Offshore wind

In offshore wind, in 2022 we built scale and progressed projects in two of the most attractive markets, US and UK. These positions in offshore wind will enable us to leverage integration opportunities with green hydrogen, EV mobility and power trading as we build the business.

In January 2022 in partnership with EnBW we were awarded a lease option off the east coast of Scotland to develop a major offshore wind project with a total generating capacity of 2.9GW (1.45GW net).

In the US, bp and its partner Equinor signed a 25-year purchase and sales agreement with the New York State Energy Research and Development Authority (NYSERDA) for 2.5GW of power sale agreements for our Empire Wind II and Beacon Wind I projects.

We are building global presence in offshore wind. In March 2022 we announced a partnership with Marubeni to explore a selected offshore wind development opportunity in Japan. We have agreed to form a strategic partnership for offshore wind and potentially other decarbonization projects.

In February 2023, we formed a joint venture with Deep Wind Offshore to develop up to 6GW offshore South Korea. We acquired a 55% stake in Deep Wind Offshore's early-stage offshore wind portfolio, which includes four projects across the Korean peninsula.

##### Onshore renewables

In solar, we continue accelerating growth in our pipeline through our Lightsource bp partnership, projects in service of hydrogen and developing our portfolio of US solar projects acquired in July 2021.

- Lightsource bp brought 2.7GW to FID (1.3GW bp net) in full year 2022, an increase of 32% compared with 2.0GW (1.0GW bp net) in 2021. In addition, through Lightsource bp, we have 28GW (14GW bp net) of pipeline and additional 19GW (9.5GW bp net) of early stage opportunities in the hopper for a total of 47GW.
- In Australia, we have added 4GW bp net in support of hydrogen as part of the AREH project.
- We started construction in Arche, our first US solar 134MWdc (107MWac) project in Fulton County, Ohio; Power Purchase Agreement secured with Meta.

In onshore wind, we agreed with our Flat Ridge 2 joint venture partner to purchase their 50% ownership in that wind farm. Since December, we own 100%, adding an additional 235MW of capacity to bp's renewables portfolio. We added 6.3GW to our pipeline in Australia in support of the hydrogen project as part of AREH.

##### Power trading

We acquired EDF Energy Services, expanding bp's presence in the US commercial and industrial retail power and gas business.

## Gas & low carbon energy continued

### Estimated net proved reserves and production<sup>a</sup> (net of royalties)

	2022	2021	2020
<b>Estimated net proved reserves</b> (net of royalties)			
Crude oil <sup>b</sup> (mmb)	151	228	292
Natural gas liquids (mmb)	9	32	37
<b>Total liquids</b> <sup>★c</sup>	160	260	329
Natural gas <sup>c</sup> (bcf)	9,708	11,882	15,367
<b>Total hydrocarbons</b> <sup>★c</sup> (mmboe)	1,834	2,309	2,979
<i>Of which equity-accounted entities<sup>d</sup>:</i>			
Liquids (mmb)	—	—	—
Natural gas (bcf)	—	—	—
Total hydrocarbons (mmboe)	—	—	—
<b>Production</b> (net of royalties)			
Crude oil <sup>b</sup> (mb/d)	103	97	77
Natural gas liquids (mb/d)	15	16	19
<b>Total liquids</b> (mb/d)	118	113	96
Natural gas (mmcf/d)	4,866	4,632	4,379
<b>Total hydrocarbons</b> (mboe/d)	957	912	851
<i>Of which equity-accounted entities<sup>d,e</sup>:</i>			
Liquids (mb/d)	2	3	2
Natural gas (mmcf/d)	—	—	—
Total hydrocarbons (mboe/d)	2	3	2
<b>Average realizations</b> <sup>★f</sup>			
Liquids (\$/bbl)	89.86	63.60	35.63
Natural gas (\$/mcf)	8.91	5.11	3.25
Total hydrocarbons (\$/boe)	56.34	33.75	20.71

a Because of rounding, some totals may not agree exactly with the sum of their component parts.

b Includes condensate and bitumen.

c Includes 3 million barrels of total liquids (10 million barrels at 31 December 2021 and 11 million barrels at 31 December 2020) and 547 billion cubic feet of natural gas (690 billion cubic feet at 31 December 2021 and 1,059 billion cubic feet at 31 December 2020) in respect of the 30% non-controlling interest in BP Trinidad & Tobago LLC.

d bp's share of reserves of equity-accounted entities in the gas & low carbon energy segment.

e bp's share of production of equity-accounted entities in the gas & low carbon energy segment.

f Realizations are based on sales by consolidated subsidiaries only – this excludes equity-accounted entities.

### Renewables

	2022	2021	2020
<b>Renewables</b> (bp net, GW)			
Installed renewables capacity	2.2	1.9	1.5
Developed renewables to FID	5.8	4.4	3.3
Renewables pipeline	37.2	23.1	10.9
<i>of which by geographical area:</i>			
Renewables pipeline – Americas	17.0	16.2	6.3
Renewables pipeline – Asia Pacific	11.8	1.4	0.8
Renewables pipeline – Europe	8.3	5.3	3.7
Renewables pipeline – Other	0.1	0.2	0.1
<i>of which by technology:</i>			
Renewables pipeline – offshore wind	5.2	3.7	2.2
Renewables pipeline – onshore wind	6.3	—	—
Renewables pipeline – solar	25.7	19.4	8.7
<b>Total developed renewables to FID and renewables pipeline</b>	43.0	27.5	14.1

## Oil production & operations

Oil production & operations segment comprises regions<sup>a</sup> with upstream activities that predominantly produce crude oil, including bpx energy.

### Financial and operating performance

	\$ million		
	2022	2021	2020
<b>Sales and other operating revenues<sup>b</sup></b>	<b>33,193</b>	24,519	17,234
Profit (loss) before interest and tax	<b>19,714</b>	10,509	(14,585)
Inventory holding (gains) losses <sup>★</sup>	<b>7</b>	(8)	2
<b>RC profit (loss) before interest and tax</b>	<b>19,721</b>	10,501	(14,583)
Net (favourable) adverse impact of adjusting items <sup>★</sup>	<b>503</b>	(209)	8,695
<b>Underlying RC profit (loss) before interest and tax<sup>★</sup></b>	<b>20,224</b>	10,292	(5,888)
Taxation on an underlying RC basis	<b>(9,143)</b>	(4,123)	70
<b>Underlying RC profit (loss) before interest</b>	<b>11,081</b>	6,169	(5,818)
<b>Depreciation, depletion and amortization</b>	<b>5,564</b>	6,528	7,787
<b>Exploration write-offs<sup>c</sup></b>	<b>383</b>	125	8,179
<b>Adjusted EBITDA<sup>★d</sup></b>	<b>26,171</b>	16,945	8,777
<b>Capital expenditure<sup>★</sup></b>	<b>5,278</b>	4,838	5,829

a The AGT and Middle East regions have been further subdivided by asset to allow reporting in either gas & low carbon or oil production & operations as appropriate.

b Includes sales to other segments.

c 2020 includes a write-off of \$1,301 million which has been classified within the 'other' category of adjusting items.

d A reconciliation to RC profit before interest and tax is provided on page 400.

#### Financial results

Sales and other operating revenues for 2022 were higher than 2021 mainly due to higher realizations offset by lower volumes.

RC profit before interest and tax for 2022 was \$19,721 million compared with \$10,501 million for 2021.

Adjusting items for 2022 had a net adverse impact of \$503 million principally relating to impairments as a result of expected portfolio changes, partially offset by gains on disposals, mainly arising from the contribution of bp's Angolan business to Azule Energy.

After adjusting RC profit for the net adverse impact of adjusting items, underlying RC profit before interest and tax for 2022 was \$20,224 million, compared with \$10,292 million for 2021. The higher profit reflects primarily higher realizations.

Adjusting items for 2021 had a net favourable impact of adjusting items of \$209 million primarily relating to gains on sales of businesses and net impairment reversals, partly offset by updates to decommissioning provisions related to previously sold assets.

See Financial statements – Note 5 for further information on segmental analysis.

#### Operational update

Reported production for 2022 was 1,297mboe/d, 0.8% lower than the same period of 2021.

Underlying production<sup>★</sup> for the year was 2.1% higher compared with the same period of 2021 reflecting bpx energy performance, major projects<sup>★</sup> and reduced weather impacts in the US Gulf of Mexico partly offset by base performance.

Progressed operational performance in upstream<sup>★</sup> in 2022, delivering the highest bp-operated upstream plant reliability<sup>★</sup> on record at 96%.

#### Strategic progress

- In 2022 we started up a major project – Herschel Expansion in the US deepwater Gulf of Mexico.
- We completed the creation of Azule Energy, a 50:50 joint venture combining our Angolan assets with those of Eni.
- bp has strengthened its renewal options partnering with Petrobras in a successful drill stem test at the Cabo Frio discovery in the Campos Basin offshore Brazil.
- The transaction to sell bp's 50% interest in the Sunrise oil sands project in Alberta, Canada, to Calgary-based Cenovus Energy completed in August. As part of the deal, bp acquired Cenovus's interest in the Bay du Nord project in eastern Canada, adding to its sizeable acreage position offshore Newfoundland and Labrador.

- bp expects the start-up of the Mad Dog Phase 2 project in the Gulf of Mexico in the second quarter of 2023 (bp operator 60.5%, Woodside Energy 23.9%, Chevron 15.6%).
- bp was awarded operatorship of the Bumerangue block, in the Santos Pre Salt Basin, in Brazil.
- The National Agency for Petroleum, Gas and Biofuels (ANPG), ExxonMobil Angola and the Angola Block 15 partners announced a new discovery at the Bavuca South-1 exploration well. Azule Energy, the bp and ENI 50:50 joint venture, owns 42% of block 15.
- In the Permian, methane flaring intensity averaged <0.5% in 2022, the lowest recorded in bpx energy.

See Oil and gas disclosures for the group on page 358 for more information on oil and gas operations in the regions.

## Oil production & operations continued

### Estimated net proved reserves and production<sup>a</sup> (net of royalties)

	2022	2021	2020
<b>Estimated net proved reserves</b> (net of royalties)			
Crude oil <sup>b</sup> (mmb)	<b>3,380</b>	3,872	4,287
Natural gas liquids (mmb)	<b>457</b>	361	361
Total liquids	<b>3,836</b>	4,234	4,648
Natural gas (bcf)	<b>8,774</b>	11,499	10,776
Total hydrocarbons <sup>c</sup> (mmb)oe	<b>5,349</b>	6,216	6,506
<i>Of which equity-accounted entities<sup>d</sup>:</i>			
Liquids (mmb)	<b>968</b>	795	782
Natural gas (bcf)	<b>2,394</b>	4,880	4,758
Total hydrocarbons (mmb)oe	<b>1,381</b>	1,637	1,602
<b>Production</b> (net of royalties)			
Crude oil <sup>b</sup> (mb/d)	<b>866</b>	898	1,041
Natural gas liquids (mb/d)	<b>86</b>	81	93
Total liquids (mb/d)	<b>952</b>	978	1,133
Natural gas (mmcf/d)	<b>1,998</b>	1,903	2,264
Total hydrocarbons (mboe/d)	<b>1,297</b>	1,307	1,524
<i>Of which equity-accounted entities<sup>d</sup>:</i>			
Liquids (mb/d)	<b>176</b>	140	143
Natural gas (mmcf/d)	<b>436</b>	468	480
Total hydrocarbons (mboe/d)	<b>251</b>	221	226
<b>Average realizations<sup>e</sup></b>			
Liquids (\$/bbl)	<b>89.62</b>	62.57	36.21
Natural gas <sup>f</sup> (\$/mcf)	<b>10.46</b>	5.49	1.53
Total hydrocarbons <sup>f</sup> (\$/boe)	<b>82.23</b>	55.65	29.88

a Because of rounding, some totals may not agree exactly with the sum of their component parts.

b Includes condensate and bitumen.

c bp's share of reserves of equity-accounted entities in the oil production & operations segment, which includes bp's share of reserves of Russia joint ventures in 2020 and 2021. During 2022 gas operations in Angola, Argentina, Bolivia, Mexico and Norway were conducted through equity-accounted entities.

d bp's share of production of equity-accounted entities in the oil production & operations segment. Includes bp's share of production of Russia joint ventures.

e Realizations are based on sales by consolidated subsidiaries only – this excludes equity-accounted entities.

f Realizations calculation methodology has been changed to reflect gas price fluctuations within the North Sea region. 2021 was restated. There is no impact on financial results.

## Customers & products

Customers & products segment comprises our customer-focused businesses, which include convenience and retail fuels, EV charging, as well as *Castrol*, aviation and B2B and midstream. It also includes our products businesses, refining & oil trading, as well as our bioenergy businesses.

### Financial and operating performance

	\$ million		
	2022	2021	2020
<b>Sales and other operating revenues<sup>a</sup></b>	<b>188,623</b>	130,095	90,744
Profit before interest and tax	<b>10,235</b>	5,563	622
Inventory holding (gains) losses <sup>★</sup>	<b>(1,366)</b>	(3,355)	2,796
<b>Replacement cost (RC) profit before interest and tax</b>	<b>8,869</b>	2,208	3,418
Net (favourable) adverse impact of adjusting items <sup>★b</sup>	<b>1,920</b>	1,044	(330)
<b>Underlying RC profit before interest and tax<sup>★</sup></b>	<b>10,789</b>	3,252	3,088
<i>Of which:</i>			
customers – convenience & mobility	<b>2,966</b>	3,052	2,883
<i>Castrol – included in customers</i>	<b>700</b>	1,037	818
products – refining & trading	<b>7,823</b>	200	(28)
petrochemicals	<b>–</b>	–	233
Taxation on an underlying RC basis	<b>(2,308)</b>	(1,210)	(537)
<b>Underlying RC profit before interest</b>	<b>8,481</b>	2,042	2,551
<b>Depreciation, depletion and amortization</b>	<b>2,870</b>	3,000	2,990
<i>Of which:</i>			
customers – convenience & mobility	<b>1,286</b>	1,306	1,200
<i>Castrol – included in customers</i>	<b>153</b>	150	161
products – refining & trading	<b>1,584</b>	1,694	1,686
petrochemicals	<b>–</b>	–	104
<b>Adjusted EBITDA<sup>★c</sup></b>	<b>13,659</b>	6,252	6,078
<i>Of which:</i>			
customers – convenience & mobility	<b>4,252</b>	4,358	4,083
<i>Castrol – included in customers</i>	<b>853</b>	1,187	979
products – refining & trading	<b>9,407</b>	1,894	1,658
petrochemicals	<b>–</b>	–	337
<b>Capital expenditure<sup>★</sup></b>	<b>6,252</b>	2,872	3,315
<i>Of which:</i>			
customers – convenience & mobility	<b>1,779</b>	1,564	2,157
<i>Castrol – included in customers</i>	<b>235</b>	173	173
products – refining & trading	<b>4,473</b>	1,308	1,067
petrochemicals	<b>–</b>	–	91

a Includes sales to other segments.

b See page 354 for information on the cumulative impact of FVAEs.

c A reconciliation to RC profit before interest and tax by business is provided on page 367.

### Financial results

Sales and other operating revenues in 2022 were higher than in 2021, due to higher oil and product prices.

RC profit before interest and tax for 2022 was \$8,869 million, compared with \$2,208 million for 2021.

Items which bp has classified as adjusting for 2022 had a net adverse impact of \$1,920 million (including favourable fair value accounting effects of \$309 million – relative to management's view of performance), principally relating to net impairments arising from changes in economic assumptions in the products

business and announced portfolio changes.

After adjusting RC profit for the net adverse impact of items, which bp classified as adjusting, underlying RC profit before interest and tax was \$10,789 million, compared with \$3,252 million for 2021. The higher result reflects a stronger performance in refining and oil trading.

Items which bp has classified as adjusting for 2021 had a net adverse impact of \$1,044 million (including favourable fair value accounting effects of \$436 million – relative to management's view of performance), principally relating to impairment charges arising due to increased future expenditure and anticipated

portfolio changes in the products business (see Financial statements – Note 4).

Customers – the convenience and mobility result, excluding *Castrol*, for 2022 was higher than 2021. The result benefited from stronger convenience, retail fuels, aviation and midstream, including biofuels performance. The full-year results were partially offset by inflationary cost pressures and adverse foreign exchange impacts.

*Castrol* result for 2022 was lower than 2021, due to higher input costs, ongoing COVID-19 restrictions, notably in China, and adverse foreign exchange impacts.

★ See glossary on page 389

## Customers & products continued

Products – the result for 2022 was higher than 2021. In refining, the result for the full year was higher due to higher realized margins, partially offset by higher energy costs, and turnaround and maintenance activity. The result for the full year also reflected an exceptionally strong oil trading performance in the first half of 2022.

### Operational update

bp-operated refining availability★ for the full year was 94.5%, compared with 94.8% in 2021. Refinery utilization for the full year was similar to 2021.

### Strategic progress

#### Convenience & retail fuels

Strong convenience performance despite a challenging environment, with 9% convenience gross margin★ growth in 2022, compared to 2021 at constant foreign exchange. Strategic convenience sites★ grew to 2,400, an increase of more than 250 compared to 2021.

- In March 2022, bp announced a global convenience partnership with Uber, aiming to make around 3,000 retail locations available on Uber Eats by 2025.
- In March 2022, bp completed the sale of its retail assets in Switzerland to Oel Pool AG, who will continue to operate the retail sites under the bp brand.
- On 5 April 2022, bp completed the acquisition of the public units of BP Midstream Partners LP (BPMP) which has resulted in BPMP becoming a wholly-owned subsidiary of bp.
- In July 2022, bp signed a new supply contract and brand partnership with Julius Stiglechner GmbH, in Austria, to establish the bp brand in the majority of the 160 Stiglechner filling station network by the end of 2023.
- In February 2023, bp announced the agreement to purchase TravelCenters of America. It is one of the biggest networks of roadside travel centres in the US and is expected to add around 280 sites to our retail network, strategically located on major highways in 44 states in the US. To support growing demand for lower carbon mobility solutions, over time we plan to expand and develop new offers, such as electric vehicle (EV) charging, biofuels, renewable natural gas and hydrogen. This deal is subject to regulatory and shareholder approval.

#### EV charging

EV charge points installed and energy sold grew by more than 65% and around 150%, respectively, compared to 2021, with charge points now at around 22,000. In addition:

- In March 2022, bp announced plans to invest £1 billion over the next 10 years to support the roll-out of fast, convenient charging infrastructure across the UK and to nearly triple our number of UK public charge points.

- In June 2022, bp signed a contract with Shenzhen Huize New Energy Co. Ltd to operate China's largest fast<sup>a</sup> EV charging hub, in Shenzhen, offering charging options for consumers, fleets and heavy-duty truck users.
- In July 2022, bp and Iberdrola announced their intent to form a strategic collaboration to accelerate EV charging infrastructure roll-out. This includes plans to install 5,000 fast<sup>a</sup> EV charge points by 2025 and up to a total of 11,000 by 2030 in Spain and Portugal.
- In August 2022, bp and Hertz signed a memorandum of understanding (MOU) for the development of a national network of EV charging solutions across North America powered by bp pulse.
- In August 2022, bp and AVATR technology Co. Ltd. signed a strategic collaboration agreement to accelerate the development of an EV ultra-fast charging network in China, with the intent to roll out around 100 charging hubs in 15 cities.
- In October 2022, bp announced the expansion of its strategic partnership with leading retailer REWE in Germany, to install fast, reliable, convenient charging for customers at up to 180 of their sites.
- In October 2022, bp announced plans to establish a bp pulse Gigahub network, a series of large, EV fast<sup>a</sup> charging hubs designed to serve ridehail and taxi fleets, near US airports and high-demand locations, with an initial location near Los Angeles Airport in collaboration with Hertz.
- In December 2022, bp announced an exclusive agreement in the UK with its convenience partner M&S for bp pulse to install fast<sup>a</sup> charge points in around 70 of their stores, with initial ambition to add up to 900 charge points within the next two years.

#### Castrol

Extended our *Castrol* branded service and maintenance offers globally, we now have 30,000 independent branded car workshops. In addition:

- In January 2022, *Castrol* and BYD, a leading new energy vehicle brand in China, signed a strategic cooperation agreement for the supply of the *Castrol ON* range of EV fluids.
- In January 2022, *Castrol* signed a new commercial agreement with Tesco, the UK's largest supermarket chain, to stock a range of *Castrol* products.
- In June 2022, *Castrol*, signed a memorandum of understanding with Submer, liquid cooling specialists, to accelerate the adoption of liquid immersion coolants for data centres.
- In August 2022, bp announced plans to invest around \$60 million in a new, state-of-the-art EV battery testing centre and analytical laboratory in Pangbourne, UK. The new facilities will help advance the development of engineering, battery technology and fluid

technology into new applications such as electric vehicles, charging and data centres.

- In September 2022, *Castrol* and Renault Group announced the extension of their lubricants aftermarket supply partnership until 2027.
- In November 2022, *Castrol* announced an investment in Ki Mobility Solutions (KMS) to create a co-branded service and maintenance network in India, supported by KMS's digitally integrated multi-brand service platform. The investment supports *Castrol's* aim to grow its presence in service and maintenance for both EV and non-EV vehicles.

#### Bioenergy

In December 2022, bp completed its purchase of Archaea Energy Inc., a leading US provider of renewable natural gas, rapidly advancing our access to feedstock, and marking a milestone in the growth of bp's strategic bioenergy business. In addition:

- In February 2022, bp announced it had acquired a 30% stake in Green Biofuels Ltd, the UK's largest provider of low emission hydrogenated vegetable oil fuels. This investment will expand bp's global biofuels portfolio and its lower carbon solutions for UK customers.
- In March 2022, Air bp signed a strategic collaboration agreement with DHL Express to supply SAF until 2026, and also signed a SAF supply contract with Rolls-Royce in the UK and Germany.
- In September 2022, Air bp signed an MoU with China National Aviation Fuel (CNAF) to explore opportunities to help decarbonize the aviation sector, and in October made its first commercial delivery of sustainable aviation fuel to Aberdeen International Airport.
- In November 2022, bp announced its Cherry Point refinery in the US had doubled its renewable diesel production capacity compared to the fourth quarter in 2021. The refinery now has the capability to co-process more than 7,000 barrels a day of renewable diesel.

#### Refining

We continue to high grade our portfolio:

- In February 2022, SAPREF shareholders (bp and Shell) announced the pause of refinery operations in South Africa for an indefinite period from the end of March 2022.
- In April 2022, the New Zealand Whangarei refinery, in which bp holds a share, converted to an import-only terminal.
- On 28 February 2023, bp completed the sale of its 50% interest in the bp-Husky Toledo refinery in Ohio, US, to Cenovus Energy, its partner in the facility.

<sup>a</sup> 'Fast charging' comprises rapid charging  $\geq 50\text{kW}$  and ultra-fast charging  $\geq 150\text{kW}$ .

## Other businesses & corporate

Other businesses & corporate comprises innovation & engineering, bp ventures, Launchpad, regions, corporates & solutions, our corporate activities & functions and any residual costs of the Gulf of Mexico oil spill. From the first quarter 2022 the results of Rosneft, previously reported as a separate segment, are also included in other businesses & corporate. Comparative information for 2021 and 2020 has been restated to reflect the changes in reportable segments. For more information see Financial statements – Note 1 Significant accounting policies, judgements, estimates and assumptions – Investment in Rosneft.

### Financial and operating performance

	\$ million		
	2022	2021	2020
<b>Sales and other operating revenues<sup>a</sup></b>	<b>2,299</b>	1,724	1,666
Profit (loss) before interest and tax	<b>(26,737)</b>	(89)	(817)
Inventory holding (gains) losses <sup>★</sup>	–	(259)	89
<b>Replacement cost (RC) profit (loss) before interest and tax</b>	<b>(26,737)</b>	(348)	(728)
Net (favourable) adverse impact of adjusting items <sup>★b</sup>	<b>25,566</b>	1,685	(98)
<b>Underlying RC profit (loss) before interest and tax<sup>★</sup></b>	<b>(1,171)</b>	1,337	(826)
Taxation on an underlying RC basis	<b>439</b>	25	34
<b>Underlying RC profit (loss) before interest</b>	<b>(732)</b>	1,362	(792)
<b>Depreciation, depletion and amortization</b>	<b>876</b>	813	655
<b>Capital expenditure<sup>★</sup></b>	<b>549</b>	397	303

a Includes sales to other segments.

b See page 354 for information on the cumulative impact of FVAEs.

#### Financial results

RC loss before interest and tax for 2022 was \$26,737 million, compared with \$348 million for 2021.

Adjusting items for 2022 had a net adverse impact of \$25,566 million mainly relating to bp's decision to exit its 19.75% shareholding in Rosneft and including adverse fair value accounting effects of \$1,381 million.

Adjusting items for 2021 had a net adverse impact of \$1,685 million, including adverse fair value accounting effects of \$849 million and \$113 million restructuring costs.

After adjusting RC profit for the adjusting items, underlying RC loss before interest and tax for 2022 was \$1,171 million, compared with a profit of \$1,337 million for 2021 which includes a profit of \$2,720 million from Rosneft.

Compared with 2020, the underlying RC loss before interest and tax for 2021 for other businesses & corporate reflected lower uplifts in valuation of ventures investments, and underlying RC profit before interest and tax for Rosneft primarily reflected higher oil prices and favourable foreign exchange effects.

#### Strategic progress

In 2022 we made progress in the following areas, partnering with countries, cities and corporates as they shape their own paths to net zero.

- On 5 July bp and Thyssenkrupp Steel signed a memorandum of understanding (MoU) focused on the development of long-term supply of low carbon hydrogen and renewable power to support decarbonization of steel.
- On 8 April bp and AENA signed an agreement to work on the decarbonization of the energy and mobility system of the airports operated by AENA, starting with Valencia airport.
- On 19 April the Australian Federal Government announced that bp's Kwinana Integrated Clean Energy Hub project in Perth, Western Australia had been awarded up to A\$70 million (US\$52 million) of grant funding.

In addition, on 2 February 2023, bp and Chubu Electric signed an MoU to explore opportunities for decarbonization in Japan and the wider Asia region, including plans for a feasibility study for a carbon capture, utilization and storage (CCUS) hub in the Nagoya port area.

bp continued to invest in a portfolio of technology businesses, which we see as having the potential for high growth and to benefit and extend our core businesses, through bp ventures. Our main investments in 2022 were:

- Freebee, an all-electric ride-hailing business, which, provides free, on-demand, 100% electric transportation in the US as part of the public transit network of many municipalities, colleges and universities, and private entities such as corporate business parks and hotels and resorts, on 20 September.
- 5B Holdings Pty Ltd, an Australian renewables company with technology that enables rapid deployment of solar power at scale, in December.

We have taken the decision to no longer seek new companies for bp's Launchpad accelerator, with our focus now to scale and build businesses within our five transition growth engines – bioenergy, convenience, EV charging, renewables & power and hydrogen.

## Other businesses & corporate continued

### Other businesses & corporate excluding Rosneft

	\$ million		
	2022	2021	2020
Profit (loss) before interest and tax	(2,704)	(2,777)	(579)
Inventory holding (gains) losses	—	—	—
<b>Replacement cost (RC) profit (loss) before interest and tax</b>	<b>(2,704)</b>	<b>(2,777)</b>	<b>(579)</b>
Net (favourable) adverse impact of adjusting items	1,533	1,394	(303)
<b>Underlying RC profit (loss) before interest and tax</b>	<b>(1,171)</b>	<b>(1,383)</b>	<b>(882)</b>
Taxation on an underlying RC basis	439	294	37
<b>Underlying RC profit (loss) before interest</b>	<b>(732)</b>	<b>(1,089)</b>	<b>(845)</b>

### Rosneft

	\$ million		
	2022	2021	2020
Profit (loss) before interest and tax	(24,033)	2,688	(238)
Inventory holding (gains) losses	—	(259)	89
<b>Replacement cost (RC) profit (loss) before interest and tax</b>	<b>(24,033)</b>	<b>2,429</b>	<b>(149)</b>
Net (favourable) adverse impact of adjusting items	24,033	291	205
<b>Underlying RC profit (loss) before interest and tax</b>	<b>—</b>	<b>2,720</b>	<b>56</b>
Taxation on an underlying RC basis	—	(269)	(3)
<b>Underlying RC profit (loss) before interest</b>	<b>—</b>	<b>2,451</b>	<b>53</b>

	2022	2021	2020
<b>Estimated net proved reserves (net of royalties) (bp share)</b>			
Crude oil <sup>a</sup> (mmb)	—	5,490	5,533
Natural gas liquids (mmb)	—	140	151
Total liquids <sup>★b</sup>	—	5,630	5,683
Natural gas <sup>c</sup> (bcf)	—	16,233	16,324
Total hydrocarbons <sup>★</sup> (mmboc)	—	8,429	8,498
<b>Production<sup>d</sup> (net of royalties)</b>			
Crude oil <sup>a</sup> (mb/d)	144	857	873
Natural gas liquids (mb/d)	—	3	3
Total liquids (mb/d)	144	860	877
Natural gas (mmcf/d)	238	1,380	1,286
Total hydrocarbons (mboe/d)	185	1,098	1,098

a Includes condensate.

b Includes 396mmb at 31 December 2021 for the 7.04% non-controlling interest and 405mmb at 31 December 2020 for the 7.12% non-controlling interest in Rosneft held assets in Russia including 22 million barrels at 31 December 2021 and 19mmb at 31 December 2020 held through bp's interests in Russia other than Rosneft.

c Includes 1,656bcf at 31 December 2021 and 1,640bcf at 31 December 2020 for the 10.01% non-controlling interest in Rosneft held assets in Russia including 621bcf at 31 December 2021 and 614bcf at 31 December 2020 held through bp's interests in Russia other than Rosneft.

d 2022 reflects bp's estimated share of Rosneft production for the period 1 January to 27 February only. The estimated share of production for that period has been averaged over the full year.

## Sustainability

## Sustainability at bp

Our sustainability frame links our strategy to our purpose – to reimagine energy for people and our planet. It focuses on three areas – getting to net zero, improving people’s lives and caring for our planet.

## Reporting on sustainability

For the purposes of this section, we have covered selected sustainability issues – informed by our sustainability report materiality assessment, which took into account external developments related to sustainability and ESG issues - along with information in the following areas:

- Getting to net zero, see pages 45-46.
- Climate-related financial disclosures, see pages 50-62.
- Improving people’s lives, see page 63.
- Caring for our planet, see page 64.
- Our approach – values and code of conduct, safety, people, ethics and compliance, see page 65.

 We report on our progress embedding sustainability and delivering our frame in our latest sustainability report at [bp.com/sustainability](https://bp.com/sustainability).

## Getting bp to net zero

Our ambition to be a net zero★ company by 2050 or sooner, and to help the world get to net zero, remains unchanged. Since 2020 we have made the following updates:

- We now aim for a 50% reduction in our operational Scopes 1 and 2 emissions in 2030 (formerly 30-35%).
- For aim 3 we are aiming to reduce to net zero the average carbon intensity of sold energy

products★ by 2050 or sooner (previously an aim for a reduction of 50%). For 2030 we are aiming for a 15-20% reduction in the lifecycle carbon intensity of these products. (previously >15%). We also expanded aim 3 to include physically traded energy products★.

- Our aim 5 is now aligned with our transition growth engines (see page 46). This means we expect to invest more than 40%,

or \$6-8 billion, of our capital expenditure in transition growth engines in 2025, and aim for this to reach around 50% in 2030.

- For aim 2 we are now targeting a 10-15% reduction by 2025 (previously 20%) in the emissions associated with the carbon in our upstream oil and gas production★ and are aiming for a 20-30% reduction by 2030 (previously 35-40%).

## Net zero performance

Progress against our five aims to help bp get to net zero in 2022.

Aim	Measure / coverage	2022 performance	2025 target	2030 aim	2050, or sooner, aim
1 Net zero operations★	Scope 1 and 2	41% <sup>a</sup>	20% <sup>a</sup>	50% <sup>a</sup>	Net zero★
2 Net zero production★	Scope 3★	15% <sup>a</sup>	10-15% <sup>ab</sup>	20-30% <sup>ab</sup>	Net zero★
3 Net zero sales★	Average lifecycle carbon intensity	2% <sup>ch</sup>	5% <sup>c</sup>	15-20% <sup>c</sup>	Net zero★
4 Reducing methane	Methane intensity★	0.05% <sup>d</sup>	0.20% <sup>e</sup>	50% reduction <sup>e</sup>	
5 More \$ into transition	Transition growth investment★	\$4.9bn <sup>f</sup>	\$6-8bn <sup>g</sup>	\$7-9bn <sup>g</sup>	

a Reduction in absolute emissions against the 2019 baseline.

b Updated February 2023. We are now targeting 10-15% reduction by 2025 compared to a 2019 baseline (previously a 20% reduction) and aiming for 20-30% reduction by 2030 (previously a 35-40% reduction).

c Reduction in the average carbon intensity of sold energy products★ against the 2019 baseline

d The 2022 methane intensity is calculated using existing methodology and, while it reflects progress in reducing methane emissions, will not directly correlate with progress towards delivering the 2025 target under aim 4.

e The 0.20% methane intensity target is based on our new measurement approach, which we aim to have in place across the relevant operations by the end of 2023. The 50% reduction we are aiming for is against a new baseline, which we plan to set based on that new measurement approach.

f In 2022 capital expenditure against aim 5 activities (transition growth investment★) increased from \$2.4 billion on an equivalent basis, in 2021 (\$2.2 billion based on previous aim 5 low carbon investment metric). Most of this spend related to investments in biogas, EV charging, offshore wind, power and convenience.

g 2025 target has been updated from \$3-4 billion (in low carbon activity investment★) to \$6-8 billion in transition growth investment and 2030 aim has increased from ~\$5 billion to \$7-9 billion, respectively.

h Calculated in accordance with the expanded sales boundary (now the average carbon intensity of our sold energy products including physically traded energy products★), methodology improvements for power, updated carbon intensity factors and physical/chemical properties, and so differs from those presented in the bp Annual Report and Form 20-F 2019-2021, sustainability report and ESG datasheet. For more detail on how this metric is calculated see the basis of reporting.

# Sustainability continued

**1 Aim 1** is to be net zero across our entire operations on an absolute basis by 2050 or sooner.

We are targeting a 20% reduction in our aim 1 operational emissions by 2025 and will aim for a 50% reduction by 2030 against our 2019 baseline.

Our combined Scope 1 and Scope 2 emissions, covered by aim 1, were 31.9MtCO<sub>2</sub>e in 2022 – a decrease of 41% from our 2019 baseline of 54.4MtCO<sub>2</sub>e. The total decrease of almost 22.5MtCO<sub>2</sub>e includes 16MtCO<sub>2</sub>e in divestments and 4.1MtCO<sub>2</sub>e in sustainable emission reductions (SERs)<sup>★</sup>. Compared with 2021 (35.6MtCO<sub>2</sub>e), Scope 1 and 2 emissions decreased by 10% in 2022.

Scope 1 (direct) emissions, covered by aim 1, were 30.4MtCO<sub>2</sub>e – a decrease of 8% from 33.2MtCO<sub>2</sub>e in 2021. Of these Scope 1 emissions, 29.7MtCO<sub>2</sub>e were CO<sub>2</sub> and 0.7MtCO<sub>2</sub>e methane. Emissions decreased due to divestments, delivery of SERs and other temporary operational changes.

Scope 2 (indirect) emissions decreased by 0.9MtCO<sub>2</sub>e, to 1.5MtCO<sub>2</sub>e, a 38% reduction compared with 2021. This decrease resulted from lower carbon power agreements, including those at our Gelsenkirchen, Cherry Point and Rotterdam sites.

We report our Scope 1 and 2 emissions on an equity share basis in our ESG datasheet, [bp.com/ESGdata](https://bp.com/ESGdata).

**2 Aim 2** is to be net zero on an absolute basis across the carbon in our upstream<sup>★</sup> oil and gas production<sup>★</sup> by 2050 or sooner.

This is our Scope 3<sup>★</sup> aim and is based on bp's net share of production<sup>a</sup> (around 361MtCO<sub>2</sub> in 2019). It is associated with the CO<sub>2</sub> emissions from the assumed combustion of upstream production of crude oil, natural gas and natural gas liquids (NGLs).

The estimated Scope 3 emissions from the carbon in our upstream oil and gas production<sup>★</sup> were 307MtCO<sub>2</sub><sup>a</sup> in 2022, a slight increase from 304MtCO<sub>2</sub> in 2021, mainly associated with an increase in underlying production<sup>★</sup> due to the ramp-up of major projects<sup>★</sup> and higher asset performance.

## Average carbon intensity of sold energy products (gCO<sub>2</sub>e/MJ)<sup>b,c</sup>

	2022	2021	2020	2019
Average carbon intensity of sold energy products	77	78	77	79
Refined energy products	92	92	92	95
Gas products	67	67	67	68
Bioproducts	43	43	44	47
Power products	52	56	59	57

Since 2019, these estimated Scope 3 emissions covered by aim 2 have reduced by 15% which is at the upper end of our revised 2025 target of a 10-15% reduction against our 2019 baseline.

However, between now and 2025, we expect to see growth in underlying production due to major project start-ups, deferred divestments and growth in bpx production. Our aim to reduce our oil and gas production from 2019 levels by around 25% by 2030 underpins our 2030 aim of a 20-30% reduction in Scope 3 emissions covered by aim 2 against a 2019 baseline.

**3 Aim 3** is to reduce to net zero the average carbon intensity of sold energy products<sup>★</sup> by 2050 or sooner.

This aim applies to the average carbon intensity of sold energy products. It is estimated on a lifecycle (full value chain) basis from the use, production, and distribution of sold energy products per unit of energy (MJ) delivered.

In February 2022, we expanded aim 3 to include physically traded energy products as well as marketed sales. In future, it may also cover certain other products, for example, those associated with land carbon projects.

We are reporting on this basis for the first time this year and have recalculated our 2019-2021 data accordingly.

In 2022, the average carbon intensity of the energy products we sell was 77gCO<sub>2</sub>e/MJ. This represents a 2% decrease from our 2019 baseline, primarily driven by a reduction in lifecycle emissions associated with the energy products we sell.

**4 Aim 4** is to install methane measurement at all our existing major oil and gas processing sites by 2023, publish the data, and then drive a 50% reduction in methane intensity of our operations.

And we will work to influence our joint ventures<sup>★</sup> to set their own methane intensity<sup>★</sup> targets of 0.2%.

Our methane intensity in 2022 was 0.05%, an improvement from 0.07% in 2021. Methane emissions from upstream operations, used to calculate our intensity, continued on the declining trend they have followed since 2016, when we reported 111kt, decreasing by 35% to around 28kt, from 43kt in 2021. Variations in production and divestments accounted for approximately 85% of the absolute reductions reported for 2022, and methane reductions from SERs, accounted for 14%. Marketed gas volumes increased by 4.8% from 3,057bcf in 2021 to 3,205bcf in 2022. We remain on track to deliver against the World Bank's Zero Routine Flaring Initiative by 2030, and in our bpx energy operations by 2025.

And we remain on course to deliver our methane measurement aim by the end of 2023.

**5 Aim 5** is to increase the proportion of investment we make into our non-oil and gas businesses.

Over time, as investment goes up in low and zero carbon, we see it going down in oil and gas.

In 2022 transition growth investment<sup>★</sup> was \$4.9 billion compared to \$2.4 billion in 2021, this was around 30% of total capital expenditure<sup>★</sup> for the year, up from around 3% in 2019. As we pursue our net zero ambition, we are targeting increasing our transition growth investment to \$6-8 billion in 2025 and we are aiming for \$7-9 billion in 2030, see page 29. Some capital investment goes into large transactions, like our acquisition of Archaea Energy and EDF Energy Services in 2022.

a Excluding bp's share of production in Rosneft. On 27 February 2022, following the war in Ukraine, the bp board announced that bp intends to exit its 19.75% shareholding in Rosneft Oil Company (Rosneft).

b Please see the bp basis of reporting for more information on the list of energy products covered at [bp.com/basisofreporting](https://bp.com/basisofreporting).

c The aggregate lifecycle emissions and energy values used in the calculation of the average carbon intensity of sold energy products<sup>★</sup> is provided in our ESG datasheet on [bp.com](https://bp.com).

d In 2022 capital expenditure against aim 5 activities (transition growth investment<sup>★</sup>) increased from \$2.4 billion on an equivalent basis, in 2021 (\$2.2 billion based on previous aim 5 low carbon investment metric). Most of this spend related to investments in biogas, power and offshore wind, and convenience and EV charging.

e Values have been restated to align with transition growth investment metric.

It is often not possible to predict the timing of such investments, which means the progress we make on aim 5 may fluctuate.

The level – and proportion – of the overall investment going into our transition growth engines, or into the low carbon activity subset may vary as we pursue our target and aim.

Our disciplined approach to capital investment means that individual investments will be made when we consider there to be a clear and compelling business case.

### Aim 5 transition growth investment (annual \$ billion)

	2022	2021	2020	2019
More \$ into the transition	4.9 <sup>d</sup>	2.4 <sup>d</sup>	1.0 <sup>d</sup>	0.6 <sup>d</sup>

## Helping the world get to net zero

We have 5 aims to help the world get to net zero. For more detailed information on our performance in 2022, see the *bp sustainability report 2022*.

**6** Aim 6 is to more actively advocate for policies that support net zero, including carbon pricing. **G**

Advocacy takes place at regional, country, state and international levels. It focused on several themes during 2022, including methane emissions reductions, the need for increased climate policy and regulation, and zero and low carbon transportation.

The Climate Action 100+ Net Zero Company Benchmark assessed our Climate Policy Engagement as 'Aligned' – on the basis that we take up Paris Agreement-aligned climate lobbying positions.

We publish examples of our activity in support of aim 6 online at [bp.com/advocacyactivities](https://bp.com/advocacyactivities).

**7** Aim 7 is to incentivize our global workforce to deliver on our aims and mobilize them to become advocates for net zero. **E**

This will include continuing to allocate a percentage of remuneration linked to emissions reductions for leadership and around 32,000<sup>a</sup> employees. Our annual bonus for all eligible employees, including the bp leadership team, has been linked to a sustainability measure since 2019. The bonus scorecard against which our employees are measured incentivizes our

people based on three themes: safety and sustainability (30%), operational performance (20%) and financial performance (50%).

In 2022 we expanded the sustainability measures in our long-term incentive plan scorecard for group leaders. This included explicitly linking performance to progress on our net zero operations aim. We also included two social measures – on employee engagement and on improved ethnic minority representation in our senior-level leader population. Collectively, these changes mean that more than 30% of our long-term incentive plan is linked to sustainability measures.

**See the Directors' remuneration report on page 112 and Share ownership on page 68**

**8** Aim 8 is to set new expectations for our relationships with trade associations around the globe.

We periodically assess the alignment of key associations with our position on climate. In 2022 we reviewed 51 of our most significant trade association memberships. In comparison, we reviewed 30 memberships in our inaugural 2020 report. In 2022 we found that 41 associations aligned with our climate positions, and 10 were partially aligned – this means we disagreed on some positions or they did not take a public stance.

We plan to provide an update on partially aligned associations in 2023.

**See [bp.com/tradeassociations](https://bp.com/tradeassociations)**

**9** Aim 9 is to be recognized as an industry leader for the transparency of our reporting. On 12 February 2020, we declared our support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). We intend to work constructively with the TCFD and others – such as the International Sustainability Standards Board (ISSB) – to develop good practices and standards for transparency.

We support work to align global reporting standards and want to play our part in the development of quality, reliable, comparable standards that enable companies to prepare and disclose material, decision-useful information to stakeholders. In 2022 we

shared our views on consultations from the SEC, ISSB and UK Transition Plan Taskforce. Our responses are available at [bp.com/advocacyactivities](https://bp.com/advocacyactivities).

For the second year running, we have reported in line with the FCA Listing Rule LR 9.8.6(8). It requires us to report on a 'comply or explain' basis against the TCFD Recommendations and Recommended Disclosures. We consider our 2022 climate-related financial disclosures to be consistent with all of the TCFD Recommendations and Recommended Disclosures, and therefore compliant with the Listing Rule.

**See TCFD disclosures on page 50**

**10** Aim 10 is to provide integrated clean energy and mobility solutions. **P**

Our regions, corporates and solutions team is working to help countries, cities and corporations around the world decarbonize.

We do this through our one-stop-shop offer and integrated approach. In 2022 this included:

- Working to advance components of the East Coast Cluster – a vision for decarbonizing local heavy industries at scale, with CO<sub>2</sub> from their emissions taken offshore for permanent storage through Northern Endurance Partnership's carbon capture and storage facilities.
- Signing a memorandum of understanding with Thyssenkrupp Steel that focuses on developing a long-term supply of low carbon hydrogen and renewable power in steel production.

**See [bp.com/rcs](https://bp.com/rcs)**

<sup>a</sup> This figure reflects the number of employees eligible for a cash bonus in 2022. The number of eligible employees in 2021 was 30,000.

## Streamlined energy and carbon reporting (SECR) information

Further information on our greenhouse gas (GHG) emissions, energy consumption and energy efficiency is set out here and on the following page and includes disclosures in respect of the SECR requirements.

Further breakdown of our GHG and energy data is available in our ESG datasheet at [bp.com/ESG](https://bp.com/ESG).

Operational control <sup>ab</sup>	Unit	2022	2021	2020
<b>Scope 1 (direct) emissions</b>	MtCO <sub>2</sub> e	<b>30.4</b>	33.2	41.7
UK and offshore	MtCO <sub>2</sub> e	<b>1.0</b>	1.0	1.7
Global (excluding UK and offshore)	MtCO <sub>2</sub> e	<b>29.4</b>	32.1	40.0
<b>Scope 2 (indirect) emissions – location-based<sup>c</sup></b>	MtCO <sub>2</sub> e	<b>2.1</b>	2.4	3.2
UK and offshore	MtCO <sub>2</sub> e	<b>0.02</b>	0.03	0.05
Global (excluding UK and offshore)	MtCO <sub>2</sub> e	<b>2.1</b>	2.37	3.13
<b>Scope 2 (indirect) emissions – market-based<sup>c</sup></b>	MtCO <sub>2</sub> e	<b>1.5</b>	2.4	3.8
UK and offshore	MtCO <sub>2</sub> e	<b>0.02</b>	0.03	0.04
Global (excluding UK and offshore)	MtCO <sub>2</sub> e	<b>1.4</b>	2.38	3.77
<b>Energy consumption<sup>d</sup></b>	GWh	<b>121,697</b>	128,805	180,004
UK and offshore	GWh	<b>4,376</b>	4,386	7,005
Global (excluding UK and offshore)	GWh	<b>117,321</b>	124,419	172,999
<b>Ratio of Scope 1 (direct) and Scope 2 (indirect) emissions to gross production<sup>e</sup></b>	teCO <sub>2</sub> e/te	<b>0.15</b>	0.17	0.20
UK and offshore	teCO <sub>2</sub> e/te	<b>0.12</b>	0.13	0.17
Global (excluding UK and offshore)	teCO <sub>2</sub> e/te	<b>0.15</b>	0.17	0.20

a Operational control data comprises 100% of emissions from activities operated by bp, going beyond the IPIECA guidelines by including emissions from certain other activities such as contracted drilling activities.

b Due to rounding some totals may not agree exactly to the sum of their component parts.

c Value rounded to one decimal place.

d Energy content of flared or vented gas is excluded from energy consumption reported as although it reflects loss of energy resources, it does not reflect energy use required for production or manufacturing of products.

e Gross production comprises upstream★ production, refining throughput and petrochemicals produced.

## Streamlined energy and carbon reporting (SECR) information continued

### Energy efficiency measures

Since 2016 we have delivered 8.0MtCO<sub>2</sub>e of sustainable emissions reductions (SERs) across our operated sites.

This is our key metric for tracking annual reductions in GHG emissions from energy efficiency savings and direct GHG emissions.

A total of 152 SERs were delivered in 2022 leading to reductions of 1.5MtCO<sub>2</sub>e. This compares with 120 SERs and a reduction of 1.6MtCO<sub>2</sub>e in 2021, which included reduced fuel consumption in the North Sea, waste heat recovery in the Azerbaijan Georgia Türkiye (AGT) region, the automation of gas turbine generators (power export optimization) in Oman, projects across bpx energy sites in the US Permian basin including electrification and removal of existing compressors to reduce fuel use.

Energy efficiency projects delivered in 2022 include:

- bpx energy – projects across its sites, which focused on improving energy efficiency including the removal of redundant compressors and installation of smart control systems which optimize engine fuel use.
- Tangguh LNG – a steam heat recovery project delivering reduced fuel gas consumption through rerouting excess steam to drive turbines.
- Refining – projects delivered across refining including cogeneration (combined heat and power) at Whiting refinery and waste heat recovery at Castellón where steam from hydrotreaters is routed to new heat exchangers to recover energy.
- bp shipping – advanced hull coatings have been applied on a selected class of vessels. This reduced the speed of biofouling, improving the efficiency of ships and enabling a reduction in fuel consumption. Application of advanced hull coating will be applied to further class vessel types in the coming years.
- North Sea – existing sea water lift pumps were replaced with smaller pumps leading to energy savings of 125KWh. Glen Lyon reduced fuel consumption through delivering spinning reserve reductions.

As part of managing energy efficiency, we take a portfolio-wide approach to assessing and prioritizing spinning reserve reduction opportunities.

Spinning reserve involves running additional power generation machines to provide an excess of energy supply. This can help to protect production from plant vulnerabilities, including power generation reliability.

Reducing spinning reserve can increase exposure to power fluctuations for production. We take a risk-based approach when considering reducing the number of running machines. This allows bp to realize emissions and maintenance cost reductions from fewer running machines, while managing the associated production risk.

In 2022 we worked on improving operational performance through updating unit key energy indicators and developing real-time digital carbon and energy dashboards. We also developed maintenance, operational and project opportunities to improve emissions and energy performance at several sites. New carbon and energy steering committees were also set up at some sites.

bp is involved in several external groups working on energy efficiency including the Oil & Gas Climate Initiative (OGCI), International Association of Oil & Gas Producers (IOGP) and Energy Star. We run an annual training course for new chemical engineers which includes energy efficiency and offers GHG emissions and energy efficiency training for more experienced engineers and practitioners.

### Reporting methodology

Our approach to reporting GHG emissions broadly follows the IPIECA, API, IOGP and Petroleum Industry Guidelines for Reporting GHG Emissions. We calculate GHG emissions based on the fuel consumption and fuel properties for major sources, such as flares. We report CO<sub>2</sub> and methane. We do not include nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride as they are not material to our operations and it is not currently practical to collect this data at scale.

Energy consumption is monitored and reported centrally from all operated sites by fuel type. This includes all energy, both imported and self-produced, used to run our operations aligned with our GHG reporting boundary, but excludes energy content of flared or vented gas. Although flaring and venting reflects loss of energy resources, it does not reflect energy use required for production or manufacturing of products.

### Ratio of Scope 1 and Scope 2 emissions to gross production

bp reports a ratio of Scope 1 and Scope 2 emissions to gross production, see SECR table on page 48. This covers all our Scope 1 and Scope 2 emissions on an operational control boundary and uses gross operated sales from our operated oil and gas facilities, refinery throughput and petrochemicals produced. The denominator uses output from production businesses, refineries and petrochemical facilities, which account for 95% of total operated emissions. The intensity ratio has improved due to our aim 1 reductions, as described on page 46.

The ratio provided in the SECR table uses production and throughput from our operated upstream, refining and chemicals businesses as a measure of output which can be consistently reported against. We report data on a consolidated basis in the Annual Report and Form 20-F and this differs to the production and throughput used for the ratio in the SECR table which aligns with the operated emissions reporting boundary.

## Climate-related financial disclosures

We support the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), which was established by the Financial Stability Board to improve the reporting of climate-related risks and opportunities.

Our aim 9 is to be a recognized industry leader in the transparency of reporting and we want to work constructively, where possible, with the TCFD, and others, to develop good practices and standards for transparency. In 2022 we continued to engage with the World Business Council for Sustainable Development (WBCSD) in relation to their 'Climate Scenario Analysis Reference Approach for Companies in the Energy System'. Read about how we have used the WBCSD Scenario Catalogue<sup>a</sup> to inform our own scenario analysis on page 60.

### TCFD statement

We report in line with the FCA Listing Rule LR 9.8.6(8)<sup>b</sup>, which requires us to report on a 'comply or explain' basis against the TCFD Recommendations and Recommended Disclosures in respect of the financial year ended 31 December 2022<sup>c</sup>.

We consider our climate-related financial disclosures to be consistent with all of the TCFD Recommendations and Recommended Disclosures and that they are therefore compliant with Listing Rule 9.8.6(8). We have set out our disclosures against each TCFD Recommended Disclosure and in doing so have covered both the Recommended Disclosure and the related Recommendation<sup>d</sup>. We have made disclosures that take into consideration references made to the materiality of information in the Recommendations related to Strategy and Metrics & Targets. In determining materiality for these purposes we considered whether particular information may have the potential to influence the economic decisions of our shareholders. We have also, where appropriate, considered the TCFD guidance and other supporting materials referred to in the Listing Rules<sup>e</sup>. In the Strategy (b) section below, we describe elements of our plans for the transition to a lower carbon economy as we execute our strategy.

As explained on page 26, we consider our strategy to be consistent with the goals of the Paris Agreement. The strategy has been developed taking into consideration, among other things, the *bp Energy Outlook 2023* scenarios (described on page 8), which themselves take account of climate commitments and pledges made by countries in which we operate alongside a range of other factors.

In preparing our disclosures we have made several judgements, and while we are satisfied that they are consistent with the Recommendations and Recommended Disclosures, we will continue to evaluate our options for future TCFD disclosures. We will monitor TCFD guidance as it evolves and consider opportunities to enhance our disclosures.

### Governance

#### TCFD Recommendation:

Disclose the organization's governance around climate-related issues and opportunities.

#### Recommended Disclosure:

- Describe the board's oversight of climate-related risks and opportunities.
- Describe management's role in assessing and managing climate-related risks and opportunities.

The role of the board is to promote the long-term sustainable success of the company, generating value for our shareholders while having regard to the interests of our other stakeholders and the impact of our operations on the communities where we operate and the environment.

In performing this role, the board sets and monitors bp's strategy. It is responsible for monitoring bp's management and operations and obtaining assurance about the delivery of its strategy.

Any changes to the company's purpose, strategy and values are reserved for the board for approval in accordance with the board-approved corporate governance framework.

The board's responsibilities extend to oversight of bp's internal control and risk management framework, including bp's climate-related risks and opportunities. These responsibilities are set out in the terms of reference of the board, available online at [bp.com/governance](https://bp.com/governance).

The board considers that the strategy allows us to be flexible to adapt to the evolution of the external environment, including market changes to remain consistent with the Paris goals, see page 30.

The board and its committees have oversight of climate-related issues<sup>e</sup>, which include climate-related risks and opportunities. Committee activities in respect of climate-related risks and opportunities are set out within the respective committee reports, which can be found on the pages detailed in the table below.

Climate-related risks and opportunities were discussed at all six board meetings covering strategy in 2022. The board committees consider climate-related issues where it is appropriate to do so in fulfilling their responsibilities. Oral reports from each of the committee chairs are given at board meetings to keep the board apprised of the relevant matters discussed including, where applicable, climate-related risks and opportunities.

The board also reviewed documents containing climate-related disclosures.

<sup>a</sup> Our 2022 analysis used data from the WBCSD Climate Scenario Catalogue version 1.0, published on 23-03-2022 and downloaded on 11-01-2023.

<sup>b</sup> [https://www.handbook.fca.org.uk/instrument/2020/FCA\\_2020\\_75.pdf](https://www.handbook.fca.org.uk/instrument/2020/FCA_2020_75.pdf).

<sup>c</sup> In considering the consistency of our disclosures with the TCFD Recommendations and Recommended Disclosures we have had regard to, among other things, the documents referred to in LR 9.8.6B and 6C, as applicable to the financial year 2022.

<sup>d</sup> In preparing the disclosures we have referred to the TCFD implementation guidance 'Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures (October 2021)', available from [fsb-tcfid.org/publication](https://fsb-tcfid.org/publication).

<sup>e</sup> LR 9.8.6B and LR 9.8.6C.

<sup>e</sup> We interpret the term 'climate-related issues' to relate primarily to those climate-related risks and opportunities for bp which are relevant to the delivery of long-term shareholder value in the context of the low carbon transition.

The board continues to develop its knowledge and expertise on climate-related and sustainability matters. For example, in 2022, the board took part in the following:

<b>TCFD deep dive</b>	Held to assist the board in its oversight of climate change and sustainability matters, which include climate-related risks and opportunities and external climate disclosures.
<b>Hydrogen deep dive</b>	The teach-in included a deep dive into hydrogen technology. Held to assist the board in remaining abreast of key energy transition risks and opportunities.
<b>Energy and economic update</b>	The briefing was given by the chief economist on developments shaping the key political and societal trends currently affecting the energy transition, ahead of publication of the <i>bp Energy Outlook 2022</i> in March 2022. Given to assist the board in remaining abreast of key developments fundamental to implementation of its strategy and net zero ambition and aims.

The board believes its members possess the necessary expertise related to climate change and sustainability to support the group’s strategy. In particular, six of our non-executive directors have specific climate change and sustainability expertise. This determination is based on an assessment of the non-executive directors’ background and experience, with focus on their background in the energy sector, experience in executive roles and depth of experience in sustainability and climate change, including climate-related risks and opportunities.

For more information see the director skills matrix on page 100. For director biographies – which include skills and experience related to climate matters – see pages 80-83.

Our company secretary’s office manages the process by which board and committee agendas are set and works closely with teams in bp to develop materials that assist the board to discharge its responsibilities, including in respect of climate-related issues.

### Board and committees’ consideration of climate-related issues

For examples from the year ended 31 December 2022, see the pages set out below within the highlighted TCFD disclosure boxes (indicated with a .

#### The board

 See board activities on page [87](#)

#### Safety and sustainability committee

 See page [110](#)

#### Audit committee

 See page [102](#)

#### Remuneration committee

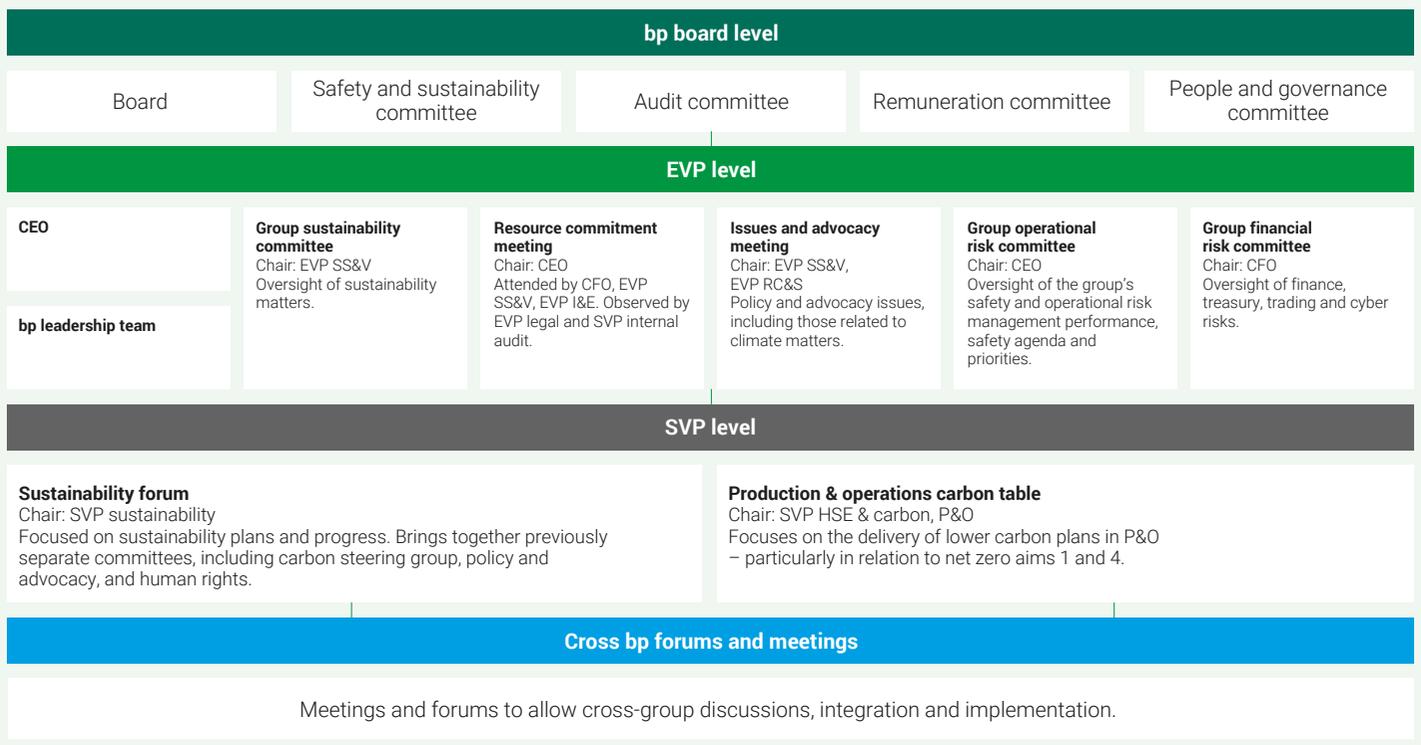
 See page [112](#)

#### People and governance committee

 See page [98](#)

## Climate governance: management of climate-related matters

As at 1 January 2023



## Climate-related financial disclosures continued

### The role of management

The board, subject to certain conditions and limitations, delegates day-to-day management of the business of the company to the CEO. The CEO is responsible for proposing bp's strategy to the board for approval and leading the bp leadership team in delivering bp's strategy and annual plan.

Under this delegation, the CEO is responsible for overseeing the implementation of a comprehensive system of internal controls that are designed to, among other things (a) identify and manage risks that are material to bp, (b) protect bp's assets, and (c) monitor the application of bp's resources in a manner that meets external regulatory standards. Risks, for these purposes, include the climate-related risks and opportunities for bp associated with the issue of climate change and the transition to a lower carbon economy. This is set out in the CEO role profile at [bp.com/board](http://bp.com/board).

The assessment and management of climate-related risks and opportunities is embedded across bp at various levels and delegated authority flows down from the board through the CEO. See page 69 for more information on risk governance and oversight.

### 2022 activity

Where considered appropriate, climate-related risks and opportunities were discussed at bp leadership team meetings in 2022 as part of regular business performance updates produced for these meetings.

The bp leadership team provides oversight of risk, including climate-related risk, through the various committees described on page 69. The leadership team is informed about and monitors emerging risks via the 'emerging risk' paper, produced by the SVP, treasury which focuses primarily on short to medium term emerging risk. The members of the leadership team are also updated on the longer-term risks and

opportunities associated with the energy transition via the 'tracking the energy transition, paper produced by our chief economist. These papers are shared with the board.

### SVP level and beyond

The bp leadership team is supported by bp's senior-level leadership and their respective teams, with dedicated business and functional expertise focused on climate-related risks and opportunities or on matters which may be affected by such risks and opportunities, including health, safety, environment and carbon; risk; strategy and sustainability (which includes our carbon ambition, policy and economics teams). Alignment between group, business and functional leaders is fostered through other meetings, for example, the C&P Sustainability Management Forum or the TCFD working group which leads the preparation of bp's TCFD disclosures.

### Management consideration of climate-related risks and opportunities is organized as follows:

<b>Resource commitment meeting</b>	Forum for approval of investments related to existing and new lines of business above \$250 million (organic) and \$25 million (inorganic), or which exceed the relevant EVP financial authority, and any project considered strategically important such as a new market entry, see page 29.
<b>Group sustainability committee</b>	Provides oversight, challenge and support in the implementation of bp's sustainability frame and the management of potentially significant non-operational sustainability (including climate-related) risks and opportunities. It met four times in 2022. During 2022 the committee considered progress embedding sustainability, performance against targets and bp's position on certain strategic sustainability issues that present risks or opportunities to delivery. This committee is chaired by the EVP strategy, sustainability & ventures (SS&V) and comprises members of the bp leadership team. The outputs from the committee are shared with the board and its committees, including the safety and sustainability committee, as appropriate.
<b>Group operational risk committee</b>	Provides oversight of safety and operational risk management performance for the group, where appropriate. Climate-related factors may affect certain sources of safety and operational risk, such as severe weather events.
<b>Group financial risk committee</b>	Monitors the effectiveness of bp's financial reporting, systems of internal control and financial risk management, namely material group financial risks. In 2022, in relation to climate-related risks and opportunities, it considered the proposed TCFD strategy disclosures and planned approach to assurance and verification of non-financial reporting (including climate-related reporting) ahead of discussion with the audit committee.

## Risk Management

### TCFD Recommendation:

Disclose how the organization identifies, assesses and manages climate-related risks.

### Recommended Disclosure:

a. Describe the organization's processes for identifying and assessing climate-related risks.

bp's risk management system and policy, described on page 69, are designed to address all types of risks including our principal risks and uncertainties described on page 73.

As part of this system, our businesses, integrators and enablers are responsible for identifying, assessing, managing, and monitoring risks associated with their business or functional area. The process for identifying risks is outlined on page 70 and guidance to support consistency has been made available to our businesses, integrators and enablers to provide them with a climate-related framework and taxonomy, which they are able to use as they see fit in their identification and assessment of risk.

Where risks – including climate-related risks – are identified, businesses, integrators and enablers are required to assess them, in line with our risk management policy. This includes an impact and likelihood assessment which supports the consideration of relative significance and prioritization of risk management activities.

The impact criteria outlined on page 70 include health and safety, environmental, financial and non-financial (such as regulatory impact) criteria and are used for assessing risks, including climate-related risks. This provides a consistent basis for assessment across bp.

For the purposes of our TCFD disclosures, we have made use of the TCFD's distinction between 'physical' and 'transition' climate-related risks.

**Recommended Disclosure:**

- b. Describe the organization's processes for managing climate-related risks
- c. Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall Risk Management.

**Risk Management process**

Risks which may be identified include potential effects on operations at asset level, performance at business level and developments at regional level from extreme weather or the transition to a lower carbon economy.

As part of our annual process the bp leadership team and board review the group's principal risks and uncertainties. Climate change and the transition to a lower carbon economy has been identified as a principal risk, see page 74. It covers various aspects of how risks associated with the energy transition could manifest. Similarly, physical risks such as extreme weather, which may be affected or intensified by climate change, are covered in our principal risks related to safety and operations.

**Physical risk**

Physical risks are typically identified at the asset or project level and are managed depending on the level of risk assessed.

In the North Sea and Gulf of Mexico, regions more prone to severe weather conditions, our offshore facilities monitor meteorological and oceanographic conditions through the collection of measurements. This data is collated and periodically compared against the 'Basis of Design' for the facility. If significant differences are observed, then this may trigger an update to the 'Basis of Design', prompting action to reassess risks such as structural integrity and station-keeping and if necessary, implement additional risk mitigations, for example updating procedures for shutting down and removing personnel from facilities ahead of severe weather events. Updates may also be made as a result of other new knowledge, analysis methods and data, including climate projections where appropriate.

Our major projects★ are required to assess the potential impact of severe weather and projected climate-related physical impacts. Where relevant, potential changes in environmental conditions, such as sea level rise and ambient temperatures, over the expected lifetime of a project are to be considered as part of the design process.

In 2022 we undertook a top-down climate modelling exercise to help further understand potential changes in key parameters, including extreme precipitation, temperatures and sea level rise, at our major operating sites. Further analysis of the results of this exercise will be carried out to determine whether and how they might inform physical risk identification, assessment and management at those sites.

For other assets, such as our retail sites★, that are typically not exposed to a comparable level of severe weather risk, climate-related risks such as flooding or wind damage may be managed where appropriate through the emergency response plans and business continuity plans which are mandated through company-wide policies.

Additionally, at a group level we recognize risk associated with the potential for increased water scarcity due to climate change and other factors and the impact this could have on our operations and in the catchments where we operate. In order to understand the water-related challenges that we face, we review our water impacts, risks and opportunities at our major operating sites. These reviews consider the quantity and quality of water used as well as any regulatory requirements. Over time, we anticipate site-level activities in support of our aim 17 contributing to our management of water-related risks and opportunities. Under aim 17, we aim to replenish more fresh water than we consume in our operations by being more efficient in operational fresh water use and effluent management. And, by collaborating with others to replenish fresh water in stressed and scarce catchment areas where we operate.

**Transition risk**

The board appraises bp's strategy and monitors bp's management and operations to obtain assurance over the delivery of its strategy. This approach enables the effective management of climate-related transition risks and opportunities facing bp associated with the energy transition. For the purposes of our TCFD disclosures, we have grouped transition risks identified by our businesses, integrators and enablers, into the three broad material climate-related transition risks to bp, see page 55. However, we continue to assess and manage the component parts of those broad transition risks, including:

**Policy and legal risks**

Our policy and partnerships team monitors and develops policy positions in line with bp's sustainability aims. This team works with our regional organization as well as corporate entities to discuss regional and global policy trends and support external positioning and interactions relating to policy and advocacy topics. Our group sustainability committee provides oversight of sustainability matters

and our issues and advocacy meeting covers emerging advocacy issues.

Our legal team manages bp's litigation, including climate-related litigation and advises on the management of associated risks. This includes the use of internal lawyers and, where appropriate, external counsel.

**Market risks**

In developing our business strategies, we consider market risks, controls and mitigations including future demand in the different geographies in which we might operate, the competitive landscape and the potential value proposition. We manage these risks through our investment decisions, our hedging and optimization activity, and through key business processes including the group investment assurance and approval process.

**Reputational risks**

Our investor relations and communications & external affairs (C&EA) teams work to mitigate reputation-related risks, which include the risk of shareholder action. Our investor relations team co-ordinates engagement with key investors on both a bilateral basis and through investor initiatives to support understanding of bp's strategy and gain insights to inform feedback they provide to the group.

Our C&EA team manages corporate reputation through identification and monitoring of key issues and both proactive and reactive engagement with relevant stakeholder groups to communicate bp's positions. Under our aim 6, which is to actively advocate for policies that promote net zero, the team also leads advocacy campaigns for policies that support net zero, see page 47.

**Technology risks**

Our technology insights team work to both mitigate risks and identify opportunities associated with evolving and emerging technologies that play a role in the changing global energy system. The team generates technology assessments and disruptive technology reports for review by bp senior executives and the recommendations are overseen by the board through the Innovation Advisory Council. In appropriate cases this helps to underpin and appraise the business case for new investments, new partnerships, new customer offers or new business models where these are being driven by technology innovation.

# Climate-related financial disclosures continued

## Strategy

### TCFD Recommendation:

Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy and financial planning where such information is material.

### Recommended Disclosure:

a. Describe the climate-related risk and opportunities that the organization has identified over the short, medium, and long term.

In setting and monitoring delivery of bp's strategy, the board and leadership team consider climate-related risks and opportunities across the:

- **Short term** (to 2025): aligning with our near-term business and financial planning timeframe.
- **Medium term** (to 2030): aligning with our group business outlook timeframe, and enabling us to think beyond our short-term targets and adjust course if appropriate.
- **Long term** (to 2050): using scenarios to help explore the wide range of uncertainties surrounding the energy transition over the next 30 years. For more detail on our approach, see page 9.

TCFD categorizes climate-related transition risk and opportunity as follows: policy and legal, market, reputation and technology. It also refers to climate-related acute and chronic physical risks and opportunities. Risks in each of these categories have been identified using a risk management process that our businesses, integrators and enablers are required to follow. For more about how the relative significance of identified risks is evaluated, see Risk Management on page 52.

### Climate-related transition risks and opportunities

At a group level, we have identified three broad, material climate-related transition risks, underpinned by underlying risks that are assessed and managed through the risk process outlined overleaf on page 55. These transition risks may cut across our short, medium and long-term time horizons; however, we indicate below wherever there is a particular time horizon in which the risk has been considered.

The transition risks are also global in nature, so we do not discuss specific geographies here, but the underlying risks refer to specific geographies where appropriate<sup>a</sup>.

We also see significant potential for upside – or opportunity – associated with some of these risks. These are discussed under each risk on page 55 and in respect of Recommended Disclosure (b) we also describe the potential impacts of both the risks and opportunities to bp.

### Climate-related physical risks

The physical risks we have identified primarily relate to severe weather and often represent potential for increased drivers for safety and operational risks to our operations, particularly process safety, personal safety, and environmental risks, see Risk factors page 73. In addition, we have identified the potential for changes in the availability of freshwater, including as a result of climate change, as a risk to some of our operations.

We also recognize that we could also face other forms of physical climate-related risk over the longer term, for example associated with changes in sea level rise, extreme temperatures and flooding, which could impact our operations. As these risks are primarily operational, and location-specific, they are not grouped in the same way as transition risks.

### Offshore facilities

In the case of our offshore facilities, climate change could create greater uncertainty around frequency and/or intensity of severe weather events, such as extreme waves, loop currents, and storms, particularly in the medium to long term. These factors could affect the future risk profile of an asset over its lifetime, and could also impact production or costs.

### Water resources

Water resources are increasingly under pressure from various factors, including climate change, and this poses a potential risk to some of our operations that depend on the availability of freshwater. Based on analysis using the World Resources Institute (WRI) Aqueduct Global Water Risk Atlas, five of our 17 major operating sites in 2022 were located in regions with medium to extremely high water stress. We have identified the potential for this risk to increase in the medium term. For more information on water consumption, see page 64.

In common with other businesses around the world, in the longer term we could face adverse market or value chain conditions associated with large-scale cumulative impacts of physical climate change if global mitigation and adaptation efforts are insufficient or unsuccessful. We support the goals of the Paris Agreement and believe that the best mitigation against these types of physical risk is to seek to contribute along with others to the success of global climate mitigation efforts. Our strategy seeks to position us to make such a positive contribution.

We do not currently foresee any material opportunities arising from changes in the physical environment as a result of climate change. However, the actions we are taking to make our operations more resilient, for example through improving efficiency of our freshwater use, may also bring about benefits such as reduced costs.

### Recommended Disclosure:

b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.

## bp's plans for the energy transition

We describe below how we believe our strategy and net zero ambition are both good for business and support society's drive towards the Paris goals.

In this section we talk about some of our plans for the transition and where we do so we have identified these with **TP**.<sup>b</sup>

Throughout the strategic report we set out bp's strategy and plans for the energy transition. This includes our progress against our strategic focus areas and transition growth engines, see pages 10, 14-19.

Our progress against our net zero aims and the actions we are taking to help the world get to net zero are described on pages 45-47.

**TP** Our strategy is to transition to be an integrated energy company, focused on delivering solutions for customers. This strategy, together with our net zero ambition and aims (see page 45), has been informed by various inputs, including the climate-related risks and opportunities associated with the energy transition described above; the same is true of our financial and business processes. We describe how we use scenarios to inform our strategy on page 9.

<sup>a</sup> Underlying risks are specific, for example, local or business-specific risks identified by specific bp entities through the risk processes described above under Risk Management.

<sup>b</sup> This is not intended to be an exhaustive list of our plans for the transition, but rather illustrative of some of the core elements of our plans.

## Climate-related transition risks and opportunities

### #1 The value of our hydrocarbon business could be impacted by climate change and the energy transition.

Changes in policy, legislation, consumer preferences or markets as a result of growing concerns about climate change and the energy transition could reduce demand for fossil fuels or lower their price relative to our financial planning assumptions, particularly in the medium to long term, negatively impacting returns from or the value of our hydrocarbon businesses. Changes in regulations, including carbon pricing and fossil fuel policies, could also impact compliance and operating costs in our oil and natural gas production and refining businesses.

Alternatively, demand and/or prices for oil and natural gas and refined products during the next decade could remain higher than our financial planning assumptions under certain transition pathways, including those aligned with 1.5°C. This could strengthen returns from our hydrocarbon businesses (including securing higher proceeds from assets we choose to divest) which may enable us to deliver enhanced shareholder value, further strengthen our balance sheet and grow investment in the transition, in line with our financial frame.

### #2 Our ability to grow or deliver expected returns from our transition growth engines could be impacted by the energy transition.

Several factors could restrict the growth of our transition engines or returns from them. These factors include lack of, or insufficient development and application of, policies, regulations and frameworks that support low carbon businesses; insufficient consumer demand for our low carbon offering; strong competition in the market; or the insufficiently rapid development of supporting technologies and infrastructure or constraints on supply chains for low carbon energies. This could particularly impact bp in the short to medium term as we seek to grow our low carbon businesses but could also represent a longer-term risk.

Alternatively, demand, policy support or enabling technology and supply chain growth for renewables could support a more rapid portfolio shift with expansion of our low carbon businesses and higher returns from them.

Some low carbon businesses, including renewable power, bioenergy and emerging technologies such as hydrogen and carbon capture and storage (CCS), rely on policy support to promote growth. Our aim 6 is to advocate more actively for policies that support net zero, including carbon pricing (see page 47).

Changes in customer preferences, pace of technology and infrastructure development and costs could impact the markets for low carbon products and services. For example, the pace of adoption of electric vehicles (EV) could impact utilization rates, and consequently returns, from our EV charging networks.

We recognize that the pace of our transition relative to our core low carbon target sectors and regions is important. If we move more slowly than those markets, we may miss investment opportunities and customers may prefer different suppliers with potential negative consequences to demand for our products and to our reputation. If we move faster than these markets, we risk investing in technologies or low carbon products that are unsuccessful because there is insufficient demand for them. However, our investment may also help to stimulate demand and provide us with a leading position in growth markets.

### #3 Our ability to implement our strategy could be impacted by changing stakeholder attitudes towards the energy sector, climate change and the energy transition.

Negative perceptions of the energy sector, or bp, could have a number of consequences, for example: adverse litigation; reputational impacts, including our ability to attract and retain talent; and shareholder action. These consequences could affect us in the short, medium or long term.

Alternatively, increased support from our stakeholders could enable access to additional capital and new investors, strengthening our ability to deliver our strategy and enabling faster growth of our low carbon businesses. The *bp Energy Outlook 2023* (see page 8) suggests that the increased attention on energy security is likely to accelerate the energy transition. Together with the strategic progress we are already making, this gives us growing confidence in the opportunities of the energy transition.

Perceived inconsistencies between the pace of bp's transition and societal expectations could have reputational and commercial impacts that might impair our ability to deliver our strategy. However, we also see potential to positively differentiate bp, by delivering against our strategy, ambition and aims.

Our ambition is to be a net zero company by 2050 or sooner, and to help the world get to net zero.

**TP Resilient hydrocarbons:** recognizing the uncertainty that the energy transition presents to our hydrocarbons business, our focus for that area of our business remains on high-grading our portfolio while maximizing returns and cash flow and working to reduce operational emissions.

This focus is underpinned by a deep and high-quality resource base that allows us to choose the best investments and the optionality to allocate capital through the transition; we also plan to divest around 200,000 barrels of oil equivalent per day of lower margin assets by 2030. This is less than previously assumed given the strong progress we have made improving operational reliability and commerciality across our portfolio over the past few years, which we expect to help enhance the resilience of those assets through the transition.

As a result, our 2030 production aim is now around 2mmboe/d after divestments.

To enable resilience to lower oil and gas prices which could result from the transition, as well as to deliver value, we intend to maintain the disciplined application of our balanced investment criteria, which include the consideration of hurdle rates of 15-20% from a balanced portfolio across oil and gas. We also intend to drive capital productivity through strong execution capability and sustain cost efficiency and reliability improvements. See more about our investment process on page 28.

## Climate-related financial disclosures continued

In 2022 we announced our agreement to sell our upstream businesses in Algeria to Eni and completed the formation of the Azule Energy joint venture★ with Eni in Angola. We also took steps to make our business in Canada more focused, resilient and competitive through the sale of our 50% interest in the Sunrise oil sands project together with the acquisition of a 35% position in the offshore Bay du Nord project.

We are aiming for the Scope 1 and 2 emissions from our operations – the majority of which are associated with the operating assets in our hydrocarbons portfolio – to be 50% lower in 2030 than in 2019, and the Scope 3 emissions from our upstream oil and gas production to be 20-30% lower in 2030 than in 2019 – see page 45.

We see cash flow from our oil and gas businesses as helping to fund our investment into transition growth engines, while delivering shareholder value and helping maintain a strong balance sheet.

The climate-related transition risks we have identified may also impact demand for certain refined products in the future, potentially leading to lower refinery margins and requiring less efficient refineries to be retired. Consequently, we are continuing to drive greater competitiveness and value from our refineries, targeting around 96% Solomon refining availability★ by 2025 and to maintain Solomon first quartile net cash margins.

Our refineries are also a foundation for both our bioenergy and hydrogen transition growth engines. In biofuels, we plan to grow production to around 100,000 barrels per day by 2030 (of which ~20,000 barrels would be from co-processing at our refineries, focused on SAF). In hydrogen, our existing refining demand is intended to be an anchor to build scale. As a result, we expect throughput to be sustained around current levels while the average carbon intensity of our refined products declines.

Taking account of some of the climate-related transition opportunities we have identified, we also aim to increase biogas supply volumes by around six times compared to 2022 levels, to about 70mboe/d by 2030, leveraging our position as the largest US biogas supplier to the road transportation sector and expanding our presence in Europe and internationally. Our acquisition of Archaea Energy, completed in December 2022, advances our access to feedstock and scales our upstream participation in the biogas value chain.

**TP Convenience & mobility:** recognizing the growing opportunities in low carbon mobility that the energy transition offers, we are growing our EV charging network with the aim of having >100,000 charge points installed by 2030 and expanding our *Castrol* business into the EV sector. We see these and other businesses being supported by our focus to install on-the-go fast<sup>a</sup> charging and an end-to-end integrated fleet offer. As the aviation industry also transitions, we are aiming to be a sector leader in SAF.

We recognize the risk of a decline in demand for conventional vehicle fuels and products due to the energy transition and we are working to increase the efficiency and resiliency of our existing fuels and lubricants businesses through operating cost reductions and margin optimization. We are also using digital platforms to become more customer-centric, integrate our EV charging solutions, and expand our customer and loyalty engagement platforms.

Our convenience business, which serves a broad range of customer needs (not only fuels-led) further serves to mitigate the risk of decreasing fuel demand at our retail sites★, while providing the opportunity for us to bring our capabilities and reach in convenience together with EV charging – we see this enabling us over time to provide customer-focused, lower carbon transport solutions.

Integration of the customer-facing aspects of our strategy with our production of biofuels, hydrogen, liquefied natural gas (LNG) and electricity also helps to provide security of supply and to safeguard margins in a potentially supply-constrained faster transition or during periods of high market volatility.

The speed of the energy transition may impact the pace at which the EV, SAF, biofuels, hydrogen and LNG sectors develop, impacting the number of customer touchpoints★ and revenue from these opportunities. If these sectors develop quicker or slower, or demand for products is different to that anticipated, it could result in under-utilization of assets in the short term, therefore impacting returns on capital we have allocated into these sectors.

**TP Low carbon energy:** we recognize the opportunity to scale up our low carbon energy businesses over the next decade underpinned by growing demand and regulatory support.

In hydrogen, our ambition remains to become a global leader. We aim to leverage bp's existing refinery demand and growing biofuels ambitions to build regional supply positions, providing low carbon energy solutions to our customers. As the hydrogen sector develops, we aim to create

a portfolio of global export hubs for hydrogen and hydrogen derivatives, aiming to scale our production to 0.5-0.7 million tonnes each year of primarily green hydrogen★ by 2030 while selectively pursuing blue hydrogen★ opportunities where there is regulatory support and CCS access.

In renewable power, we are focusing our investments in opportunities where we can create integration value and enhanced returns, participating in service of green hydrogen, green and e-fuels, EV charging and power trading (including low carbon flexible generation). We are building a global position in offshore wind, enabled by our capability in large-scale, complex offshore projects, and continue to progress a solar development and sell model with Lightsource bp. Within this, we aim to deliver, and largely operate, around 10GW net installed capacity in offshore wind, solar and onshore wind by 2030.

As the energy transition drives increasing electrification of the global energy system, our power trading business, which trades renewable and non-renewable electricity, allows us to optimize across the power value chain, from generation, including renewables and flexible generation, across grid markets, to customers. This becomes a differentiating factor in unlocking the full potential value of renewables for bp and helps position us for further electrification of the energy system as well as for further decarbonization of electricity. It may also increasingly help optimize across other value chains like green hydrogen and advanced mobility, that may be dependent on power as an anchor commodity.

We retain the ability to flex capital between our transition growth engines to optimize returns, recognizing the potential for the transition to occur faster or slower than anticipated and on different pathways. To help maintain resilience to the possibility of a slower transition, we also continue to consider whether the necessary regulatory support is in place and seek to secure a customer-backed route to market for a reasonable share of energy produced by our renewable power and hydrogen projects prior to final investment.

### Impact on technology

We are investing in technology that can help to generate value for bp and also help to accelerate the transition through focused scale-up and innovation. Over time, we expect our research and development spend to be increasingly focused on technologies with the potential to reduce carbon emissions and enable our new low carbon businesses. See page 43 for examples of technology investments in 2022.

a <sup>a</sup> 'Fast' charging comprises rapid charging ≥50kW and ultra-fast charging ≥150kW.

We recognize the potential for disruptive technologies to impact our strategy, our bp ventures portfolio includes investments in emerging technologies and business models that may help enable the transition to a low carbon economy.

### Physical risk

The potential impacts of the types of physical risks we have identified could include reduced production, throughput, or sales – for example as a result of damage to facilities or supply chain disruption – or in a most extreme case loss of life or an asset. Due to uncertainties associated with the impact of climate change on severe weather events in the future, it is difficult to quantify the potential impacts associated with any increase in these risks as a result of climate change.

Having considered both geographic factors and the ability of climate models to adequately represent future trends in physical climate parameters, we seek to take the uncertainties concerning climate-related physical risk into account in our approach to design and operating criteria for existing assets and new major projects★. Where appropriate, we have updated our metocean design criteria to include consideration of both forward-looking and historic models including climate and synthetic models, in an attempt to mitigate both models and extrapolation uncertainty. The particular models chosen will depend in part on geographic location. See Risk Management, page 52, for how we manage these uncertainties.

As a step in seeking to improve the resilience of our operations to the physical changes that might result from climate change that we have described above, we have undertaken screening of present-day and future potential physical risk exposure for selected key assets and identified those sites with potential for heightened exposure to physical risks in order to prioritize these for further site-based assessment.

As part of this prioritized approach, in 2022 we completed a detailed site-based study at our Whiting refinery in the US, which found that the weather hazards contributing the most to risks at site include intense summer rainfall events, extremes of air temperature and coastal surge. Taking account of the results of the study, the Whiting integrity management team are assessing new risk barriers to support mitigation of potential risks.

Recognizing the potential impact of climate change on water resources, as part of our aim 17 to become water positive by 2035, we are taking steps to be more efficient in operational freshwater use and effluent management (see page 64).

### Impacts on our financial planning

**Capital allocation:** We plan to invest sufficient capital to execute our strategy, enabling us to mitigate the risks and capture the opportunities we have identified. As part of our annual planning processes, we assess the distribution of capital across our business areas, including consideration of market evolution. In February 2023 we announced up to \$2 billion each year more investment, on average, to 2030 than the plans underpinning our February 2022 strategy update previously anticipated. In aggregate this includes up to \$8 billion more this decade in transition growth engine investment★ and up to \$8 billion more this decade into oil and gas. We now expect capital investment including inorganics to be in a range of \$14-18 billion through 2030<sup>a</sup>, with the proportion of that investment directed annually towards our five transition growth engines growing to around 50% in 2030. To help maintain resilience to the pace of transition and access opportunities, we will continue to flex capital as policies, technologies and markets evolve.

**Access to capital:** While there is potential for concerns about the energy transition to impact banks' or debt investors' appetite to finance hydrocarbon activity, we do not anticipate any material change to funding in the short to medium term, and our financial frame includes working to reduce net debt★ as well as targeting further progress within the 'A' range of a strong investment grade credit rating. In 2022 we reduced our net debt by over \$9 billion. Since the end of 2019 we have repurchased around \$15 billion of short-dated existing bonds and issued over \$11 billion of new bonds with a duration of 20 years or longer, more than doubling the duration of our debt book to over 10 years. Additionally, we have continued to have good access to the commercial paper markets. We intend to allocate 40% of surplus cash flow★ in 2023 to further strengthen the balance sheet, targeting further progress within the 'A' range. We provide more detail on financial risk factors, including liquidity risk in Financial statements – Note 29.

**Investment criteria:** investments are evaluated against a balanced set of investment criteria; the economic criteria utilize a set of price assumptions that reflect our view of market evolution (for our key investment appraisal price assumptions see page 28). In addition, the investment economics for all investment cases where annual greenhouse gas (GHG) emissions from operations are anticipated to exceed specific thresholds include a carbon price for those emissions, that rises to \$100/teCO<sub>2</sub>e (2021 \$ real) in 2030.

In 2022 we further embedded sustainability into our investment governance process by developing our sustainability assessment template for investments, for use in all investment cases reviewed by the resource commitment meeting. This provides information about an investment case's impact on our net zero aims 1-3, its expected GHG intensity, and significant impacts on or contribution to certain aims concerning people and planet. This helps to maintain the consistency of our investments with our strategy and sustainability aims, see page 30 for further information.

### Impacts on financial performance and position

Assessing the impact of climate change and the energy transition requires the use of a number of judgements and estimates. We have set out the significant accounting policies, judgements and estimates used in assessing the impact of climate change in Financial statements – Note 1.

This includes information on pricing, useful economic lives, timing of implementation of policies or decommissioning provisions, and assumptions related to how each might change over time and how such assumptions may impact our currently reported assets and liabilities.

Our price assumptions, including those set out on page 28, reflect a range of future possible scenarios and take account of the potential impact of climate-related risks and opportunities as well as current economic and geopolitical factors. Consequently, impairment losses and impairment reversals consider inputs that arise from climate change and the energy transition. It is not possible to quantify separately the impact of these different inputs on our impairments. However in conducting our impairment sensitivity tests, that in part reflect transition downside risk, we consider prices consistent with the 1.5°C scenario family within the WBCSD data sets used for TCFD resilience testing below.

Financial statements – Note 1 provides information on impairment assumptions and sensitivities. Note 4 provides information on gains and losses on disposal or closure of business and operations, and impairments and impairment reversals, and Note 8 provides information on impairment losses relating to exploration for and evaluation of oil and natural gas resources. See Financial statements – Note 1, Note 4 and Note 8 for more information.

<sup>a</sup> For 2023 we plan for capital investment of \$16-18 billion.

## Climate-related financial disclosures continued

### Recommended Disclosure:

c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

Our strategy is designed to be resilient to a range of climate-related scenarios including those consistent with well-below 2°C and 1.5°C outcomes, see page 26.

To help test our view of this, we have assessed the resilience of our strategy to different climate-related scenarios, including 1.5°C consistent scenarios. We did this in three steps:

1. First, we evaluated all business areas in our portfolio by i) quantitatively assessing their financial materiality, in the context of bp's total financial frame, to understand the potential scale of financial/strategic impact that could be put at risk if exposed to transition uncertainty, including 1.5°C; and ii) considered whether there is a key variable – such as price, margin or demand – which would represent a principal transition driver of such risk.
2. Second, we quantitatively assessed the impact, to each business area, of potential transition exposure scenarios in 2030 – the point in our planning horizon at which there is widest uncertainty.
  - For each of those business areas with both sufficient scale and for which a specific transition risk driver was identified – which collectively represent over 80% of our 2030 adjusted EBITDA★ outlook – we performed a scenario analysis focused on that transition risk driver, across a range of transition pathways<sup>a</sup>, including 1.5°C, as set out below and in our methodology summary on page 60.
  - For each of the remaining business areas we performed a simplified quantitative scenario analysis, by testing the financial impact of 'a scenario in which each business area's expected 2030 adjusted EBITDA is assumed to be reduced to zero – an outcome at least as detrimental to that business area's adjusted EBITDA as could reasonably be expected to result from business-as-usual (BAU), well-below 2°C and 1.5°C transition pathways.'

In this way, all business areas were quantitatively tested at, or beyond, a range of transition scenarios.

3. Finally, on the basis of the results of steps 1 and 2, we identified those business areas for which the possible consequences of the downside scenario(s) were sufficiently material to potentially jeopardize group strategic resilience – the only business areas for which this was found to be the case were oil and gas production with respect to their exposure to oil price. For these business areas we assessed the potential implications for bp's strategic resilience (as defined below) over the full period from 2024 to 2030.

To undertake steps 2 and 3, we identified financial criteria which can be modelled as proxies for strategic resilience – choosing to do this through three lenses: our ability to continue to (i) deliver a resilient dividend to shareholders, (ii) maintain a strong investment grade credit rating, and (iii) make disciplined investment allocations within our capital frame.

This is not intended to represent a 'definition' of resilience beyond the purposes of this exercise, and a core assumption of this analysis is necessarily that, aside from any implications of the scenarios being tested, including potential controllable mitigations such as capital or cost management that we might naturally expect to take in response, bp will deliver the assumed underlying strategic and financial priorities out to 2030.

Our approach, described in more detail in box 'Our approach to testing resilience to transition risk' on page 60, is directly applicable to transition risks #1 and #2 – as well as their associated opportunities – as these lend themselves to a financially quantified scenario-based analysis. The approach does not directly address transition risk #3 – however, we believe that some of the potential drivers for transition risk #3, namely policy and societal trends, may be implicit in these scenarios, and we believe that the successful execution of our strategy will, over time, help to mitigate this risk to bp as well as positioning us to take advantage of the potential associated opportunities. This scenario analysis exercise also does not directly

address climate-related physical risk, our strategic resilience to which is further discussed below.

### Key insights from our scenario analysis and resilience test

While the results of any such analysis must be treated with caution – each is necessarily dependent on numerous assumptions and methodological choices, and each has its own limitations – overall, this analysis and resilience test reinforced our confidence in the resilience of our strategy to a wide range of transition scenarios, including those consistent with limiting temperature rise to 1.5°C, and in particular, as our greatest transition exposure, to oil price scenarios, tested to 2030. In undertaking this analysis we observed:

- There is considerable uncertainty across, and often within, each WBCSD Scenario Catalogue family in the pace and nature of the transition to 2030 – and therefore considerable range of financial impact across some of the variables selected for the analysis, reflecting the complexity and interdependencies of the energy transition (see table on page 61). Generally, we observed that the faster the pace of transition, the greater the uncertainty in the exact shape of the resulting energy system in 2030.
- Oil price is likely to remain the main source of climate-related transition uncertainty for our strategy through to 2030, reflecting both the wide range of potential pathways and the contribution to our expected total adjusted EBITDA over this period, that oil-price-linked businesses represent. In the 1.5°C family, the potential downside suggested by the lowest oil prices is around 28% of group adjusted EBITDA in 2030. However, in a number of the 1.5°C, well-below 2°C and BAU scenarios, based on the WBCSD Scenario Catalogue ranges, oil price could offer a financial upside relative to our reference 2030 group business outlook.
- Even with the most extreme low oil price environment in any of the scenarios, sustained over the period from 2024-30, in our analysis we are able to deliver across the three lenses we use to consider strategic resilience, described above.

a Although such scenarios do not and cannot represent all possible futures, we value them as a simplified and schematic way to consider the potential implications of, and uncertainty inherent within, a range of possible energy transition pathways to a future bp portfolio mix.

b Note that for the purposes of our scenario analysis and resilience test, we have assessed the impact of oil price across both our oil production businesses and those natural gas businesses for which commercial outcomes are linked to oil price.

c Our multi-year (2023-30) oil price resilience test considered sustained low oil prices consistent with the most extreme WBCSD Scenario Catalogue 2025 and 2030 scenarios – for 2025 the IEA (World Energy Model Net Zero Energy 2050) price at \$36/bbl, and for 2030 the UN PRI (Inevitable Policy Response Required Policy Scenario) at \$30/bbl (both 2019 \$ real, and then inflated in line with bp's other planning assumptions).

- The maximum potential scale of downside impact on our 2030 expected group adjusted EBITDA (across the 1.5°C, well-below 2°C and BAU scenarios) from our other natural gas businesses was <8%, from our conventional refining and fuels businesses each <4% and from our low carbon activities<sup>a</sup> each being <3%.
- Our diversified portfolio helps mitigate the implications for our strategic resilience of the exposure of any of one of the individual business areas to the identified risk. It is reasonable to consider each potential outcome in isolation since the outcomes for different business areas vary across scenarios (see table on page 61).
- In a BAU scenario, we believe our transitioning strategy mitigates the risk of what we and others have referred to as a 'delayed and disorderly' transition, which might follow in the medium to long term. Should the growth of any one of our in-scope transition growth engine areas be challenged by the downside range in the relevant variable, our analysis suggests that the impact of this on group adjusted EBITDA in 2030 would not be sufficient to impact the resilience of our strategy, as described above, in that timeframe.

It is important to note that insights from this analysis are necessarily limited by the scenarios, methodologies and business assumptions used. The analysis should not be taken as a prediction of the future.

### Maintaining strategic resilience to the transition

Taking into consideration potential constraints associated with factors such as long-term capital investment, contractual commitments and organizational capabilities at any given time, bp's ability to maintain strategic resilience rests, in part, on the governance used to keep the strategy under review in light of new information and changing circumstances. To enable us to understand and respond to the changing pace of the energy transition, we monitor and assess key indicators and metrics, such as policy development, renewables installed capacity, electric vehicle sales and low carbon technology costs. Our strategy and capital allocation, the associated risks, opportunities and their implications for our resilience are all reviewed by the bp leadership team and the board and updated as they consider appropriate.

### Resilience to physical risk

As described on page 57, we have identified a number of physical risks which may affect our business and assets, the frequency or severity of which could be affected by climate change. Exposure to physical climate-related risk is highly dependent on geographical location and on factors such as asset design, and we seek to manage these risks accordingly. We consider that our approach to managing these risks, described in Risk Management Recommended Disclosure b) on page 53, supports our strategic resilience to them. For the purposes of this Recommended Disclosure, we have considered the potential for physical risks to bp-operated assets to increase as a result of climate change (namely, increases in the potential frequency or intensity of extreme weather events) to such an extent as to have the potential to impact the resilience of our strategy.

During 2022, we undertook an analysis of potential changes in certain physical conditions, such as air temperature, precipitation, sea level rise and wave heights, for our onshore and offshore major operating sites, based on Shared Socioeconomic Pathway (SSP) emission scenarios 1-2.6, 2-4.5 and 5-8.5. Even in the highest emissions pathway (SSP5-8.5) the results of our analysis suggest that, on the basis of the 50th percentile values and compared to the baseline used (1991-2020), changes in the physical parameters considered are generally unlikely to be significant over the medium term. There is, however, uncertainty across different scenarios and wider variances were observed when looking at the 5th and 95th percentile values. Where the data do suggest greater potential for climate-related changes in physical conditions, we intend to consider whether further work is necessary to understand the potential for those changes to adversely impact our operations. For example, modelled changes in extreme precipitation by 2030 (50th percentile values) are less than 10% across all onshore major operating sites apart from Oman – where we have already undertaken hydrological studies and flood risk assessments that have supported the development of our operations there.

Our transition risk scenario analysis identified impacts on the earnings of our oil-priced businesses as having the most potential to impact the resilience of our strategy in 2030. Therefore, and viewing resilience through the same lenses that we describe above, we have considered the extent to which our oil and gas production business would need to be impacted by evolving physical risk over the same timeframe for the scale of financial impact to be sufficient to jeopardize the resilience of our strategy out to 2030. We concluded that a significant proportion of our combined oil and gas portfolio would need to be either permanently shut in or temporarily shut down to jeopardize our strategic resilience in this way.

Historically, severe weather risks to our operated assets have not occurred at a scale which could reduce earnings so significantly as to jeopardize the resilience of our strategy. As reflected in the latest science from the IPCC, it is in the nature of climate-induced severe weather events that their occurrence, intensity and severity are unpredictable and uncertain. Our own analysis on major operating sites, described above, is consistent with this IPCC view.

Despite this uncertainty, we have found no definitive basis in either the IPCC report or the limited number of detailed studies we have undertaken (see page 57), to conclude that climate-change-induced increases in the frequency or severity of severe weather events would be likely to result, at any point in time out to 2030, in disruption and shutdowns across our oil and gas portfolio on a scale that would reduce earnings so significantly as to jeopardize the resilience of our strategy.

For the purposes of this Recommended Disclosure, the resilience of our strategy was considered separately for the relevant transition and physical risks; accordingly, we did not seek to take account of any interdependencies or cumulative effects between the two types of climate-related risk, and the associated potential financial impact.

<sup>a</sup> The Shared Socioeconomic Pathways (SSPs) have been developed by the climate change research community to describe plausible major global developments that together would lead in the future to different challenges for mitigation and adaptation to climate change. The SSPs are based on five narratives describing alternative socioeconomic developments, including sustainable development, regional rivalry, inequality, fossil-fuelled development and middle-of-the-road development.

## Climate-related financial disclosures continued

### Our approach to testing resilience to transition risk

Most of our analysis focused on our medium-term time horizon (2030) – far enough ahead to provide a divergent range of scenarios, while not so far ahead that it is unrealistic to attempt to generate credible financial metrics for bp, or an individual business area within bp. For variables considered most material (see below), we also assessed resilience over the period 2024-30.

Our analysis sought to quantify the potential impact of a range of scenarios, including those consistent with 1.5°C, on bp's currently held (at the time the analysis was completed) internal reference group business outlook to 2030. This outlook is used for internal corporate planning and holds a current deterministic view of our portfolio, activity set, cost and capital frame. The outlook used in our analysis aligned to the strategic direction shared in the 'bp update on strategic progress' announced on 7 February 2023, and the financials lie within the range of financial outcomes set out in that announcement.<sup>a</sup>

The steps we took as part of our scenario analysis approach are outlined here at a high level.

1. **Whole company assessment:** We defined, through quantitative analysis, which business areas could have both the financial scale and clear transition exposures to potentially impact bp's strategic resilience.
  - a. We assessed the business areas in our portfolio by i) quantitatively evaluating each business area's 'potential significance' – i.e. its expected contribution to bp group adjusted EBITDA★ in 2030 and therefore the quantum of financial impact that might be put at risk by transition uncertainty (including pathways consistent with 1.5°C); and ii) by identifying, for each, whether there were primary potential value driver(s) that different transition pathways might impact ('transition risk driver(s)'). This was performed to allocate the most appropriate analysis technique to that business (see 1b and 1c).
  - b. Ten business areas (see table on page 61), representing over 80% of our expected 2030 adjusted EBITDA, were identified as both providing a potentially significant financial contribution and facing primary transition risk drivers, and accordingly were subjected to the driver-based scenario analysis set out in steps 2a-2c below.
  - c. The remaining business areas were taken forward to a simplified scenario analysis, per step 2d below.
2. **Scenario analysis:** We tested the financial impact of transition on all of bp's business areas in 2030 through either specific 'driver-based' scenario modeling (that includes 1.5°C and current policies), or by 'simplified' conservative scenario analysis, that modeled cases likely to be beyond these ranges.
  - a. For the driver-based scenario analysis, we selected the primary transition risk driver(s) for each business area – the variable(s) from the WBCSD Scenario Catalogue representing what we consider to be the primary driver(s) of that business area's exposure to the energy transition. For each transition risk driver, we extracted the full range of 2030 outcomes within each scenario 'family'. Given the global nature of the transition risks and opportunities we have identified, we used the 'world' values in the Catalogue except for gas price (see table on page 61).
  - b. By calibrating the WBCSD Scenario Catalogue 2030 scenarios to relevant business metrics underpinning our strategic planning (for example, oil price or EV demand/utilization), we modelled the impact of each variable, across the full range of scenarios and each scenario family, on the 2030 expected earnings (adjusted EBITDA) for the associated business area(s). For example, we applied an earnings rule of thumb deemed appropriate to the period in question to the deviation of oil prices in WBCSD versus our reference case price. This analysis was unmitigated (see 'Other key considerations').
  - c. This enabled us to assess the potential for each scenario to materially impact group adjusted EBITDA in 2030 (and by implication associated cash flows), against the reference group business outlook. By modelling the specific business area within the reference group business outlook (described in step 1b above), its exposure to the most extreme range of the respective scenario could be assessed to identify which (if any) variables(s) and scenario(s) could have the potential to impact strategic resilience (as defined below) most materially, and as such, which business areas should be carried forward into a multi-year resilience assessment.
  - d. For the simplified scenario analysis, we took a simpler conservative approach, by evaluating whether a scenario in which each business area's expected 2030 adjusted EBITDA is assumed to be reduced to zero – an outcome at least as detrimental to that business area's adjusted EBITDA as could reasonably be expected to result from ranges associated with the trajectory of each of the 1.5°C, 2°C or BAU scenario families – could have the potential to impact strategic resilience (as defined below) materially.
3. **Multi-year resilience test:** This step tested bp's resilience to the exposure of any sufficiently material business areas to downside scenarios that may have the potential to jeopardize the ability to generate surplus cash flow★ and a strong cash cover ratio and gearing level – financial metrics that were treated for the purposes of the analysis as representing financial evidence of delivery of bp's strategic priorities.

From step 2, only the exposure to oil price was assessed as sufficiently material in this sense, and hence carried forward for multi-year resilience analysis. Our multi-year (2024-30) oil price resilience test considered sustained low oil prices consistent with the most extreme WBCSD Scenario Catalogue 2025 and 2030 scenarios – for 2025 the IEA (World Energy Model Net Zero Energy 2050) price at \$36/bbl, and for 2030 the UN PRI (Inevitable Policy Response Required Policy Scenario) at \$30/bbl (both 2019 \$ real).

### Other key considerations

- For the purposes of steps 2 and 3, we considered the resilience of our strategy to climate-related transition risk through the three lenses described on page 55. We defined the following as proxy indicators for these lenses:
  - Group surplus cash flow, to confirm whether after funding, among other things, our disclosed capital frame (7 February 2023 investor update) and the dividend/share assumed in our reference group business outlook, sufficient surplus cash flow remains to maintain or reduce net debt and/or make share buybacks.
  - Healthy cash cover ratio and gearing★ as indicators of the ability to maintain a strong investment grade credit rating.

<sup>a</sup> As was the case for the analysis presented in the *bp Annual Report and Form 20-F 2021*, the financials used do not include any reference to the shareholding in Rosneft that bp announced its intention to exit from on 27 February 2022.

- For steps 2 and 3, we made the simplifying assumption that, aside from the driver being modelled, our strategy, operating model, cost basis, volumes, margins, sales proceeds and taxes would remain unchanged out to 2030. We have also not deviated from bp's reference view of potential future shareholder distributions and uses of surplus cash as a basis for analysis.
- Therefore, for steps 2 and 3, while there are mitigations that we might naturally be expected to take in response to external trends, including cost reductions, portfolio adjustments or capital reallocation or reduction within the frames set out in our strategy, we have not applied these mitigations to the multi-year analysis. In reality, we keep our strategy under review and would seek to make use of opportunities to maintain our strategic flexibility in the face of the many uncertainties of the energy transition.
- The design of a strategic resilience analysis involves numerous methodological choices and assumptions – any one of which could reasonably have been different, leading to different outcomes. We have found value in conducting this analysis; however, we are mindful of the limitations to any such exercise and the highly qualified nature of any conclusions which may be drawn from it. The disclosures provided here should be read in conjunction with the rest of our strategic report, where we discuss how we have developed, and continue to evolve, our approach to strategy.
- As outlined above, we utilized our latest internal reference group business outlook as the basis against which resilience has been tested, as this is our latest deterministic view against which to model the transition sensitivities to 2030 and aligns to the strategic update provided to investors in February 2023. Alongside disclosed elements such as the capital frame to 2030, this includes shaping assumptions such as future distribution and net debt management. Through conducting this analysis, we do not intend to imply or commit to a specific forward trajectory of usage of cash, beyond those disclosed in the full year and 4Q results update on 7 February 2023. While we cannot disclose, for confidentiality reasons, the detail of the deterministic case, the test assesses whether the resilience indicators in our reference group business outlook are impacted by the transition uncertainties tested. Further, by the nature of the timeframes considered, a variety of uncertainties exist around this deterministic case (including transition risk itself) as indicated by the range of adjusted EBITDA disclosed in the full year and 4Q results update on 7 February 2023. It is not practical, and we have not attempted, to extend the analysis conducted here to any other potential outcomes within the disclosed range of group adjusted EBITDA.
- Where rules of thumb have been applied, to convert variance in hydrocarbon price to variance in adjusted EBITDA, these are deemed appropriate to the period in question – i.e. they reflect the respective 2030 (step 2) and 2024-30 (step 3) production portfolios and price leverage for this period. Due to the evolution of bp's portfolio, these rules of thumb may diverge from any short-term rule of thumb that we publish.

## WBCSD Scenario Catalogue family ranges for 2030 key transition variables

Business area	TCFD/WBCSD variable	BAU		Below 2°C		1.5°C		
		Min	Max	Min	Max	Min	Max	
Resilient hydrocarbons	Oil and natural gas production	Oil price <sup>a</sup> (\$2019/bbl)	62.82	81.77	45.00	78.45	30.00	71.22
		Natural gas price <sup>b</sup> (\$2019/mmbtu)	2.59	3.60	2.63	3.48	1.90	4.17
	Refining – refined oil demand	Primary energy demand for oil (% vs 2020)	17.2%	17.2%	11.6%	11.6%	-20.8%	-1.0%
		– bio-jet demand	Final demand for liquid biofuels in aviation (EJ/yr)	0.38	0.40	0.38	0.51	0.26
Biogas	Biogas demand in road transport (EJ/yr)	0.01	0.01	0.01	0.01	0.01	0.18	
Convenience and mobility	EV charging	Final energy demand for electricity in road transport (EJ/yr)	1.69	3.80	1.64	3.87	1.85	6.69
	Aviation fuel sales	Liquid fuel consumption in aviation (EJ/yr)	15.36	18.00	15.55	17.18	9.05	15.40
	Conventional fuels retail	Final energy demand for liquid oil in road transport (EJ/yr)	57.86	85.00	58.32	85.44	45.43	76.76
	Conventional B2B & supply							
	Conventional road lubricants							
Low carbon energy	Renewables	Renewable capacity additions (GW vs 2020)	1,682	3,935	1,682	6,237	4,968	8,474
	Hydrogen production	Hydrogen consumption (EJ/yr)	0.02	1.43	0.02	3.09	0.04	18.00

For the other business areas not shown above, we applied the generic scenario analysis methodology described in 2d above, thereby ensuring coverage of all of bp's business areas.

a Oil price sensitivities have been applied to the oil and gas production portfolio that is linked to oil marker prices – as such it not only reflects oil production exposure, but also a proportion of bp's natural gas production that is contracted off oil marker prices.

b Gas prices shown reflect Henry Hub price ranges. Where available in the TCFD/WBCSD data sets Asian and UK gas price sensitivities have also been selected and compared to the Henry Hub sensitivity percentages with the maximum deviation selected and applied to the respective Asian and NBP rules of thumb for these parts of the gas portfolio, in order to provide the most conservative uncertainty range.

# Climate-related financial disclosures continued

## Metrics and targets

### TCFD Recommendation:

Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

We present the principal group-wide metrics and targets used to assess and manage climate-related risks and opportunities in line with our strategy and risk management process below, with metrics and targets mapped to the

most relevant of TCFD's cross-industry, climate-related metric categories (such as 'transition risks'). The metrics and targets themselves are disclosed at the most appropriate locations in this strategic report.

## TCFD recommended disclosures – metrics and associated targets/goals

### a) Disclose the metrics used by the organization to assess material climate-related risks and opportunities in line with its strategy and risk management process.

#### Transition risks

- Note 5 to financial statements: Segmental analysis. Segment revenue (in table), pages 209-213.
- Estimated net proved reserves and production (net of royalties), page 35.
- Note 4 to financial statements: Disposals and impairments, page 206.
- Note 8 to financial statements: Impairment losses (in table), page 214.
- Oil and natural gas prices used for value-in-use impairment testing and recoverability of asset carrying values, pages 192 and 296.

#### Physical risks

- Number of major operating sites in regions with medium to extremely high water stress, page 54.
- Freshwater withdrawals and consumption at major operating sites in regions with high or extremely high water stress, page 64.

#### Climate-related opportunities

- Our strategic metrics, page 11 (in table, relevant metrics with **T**).
- Note 4 to financial statements: Segmental analysis. Segment revenue (in table), page 209.
- Adjusted EBITDA★ from transition growth engines, page 10.
- Renewables – installed capacity, developed to FID and pipeline, page 36.

#### Capital deployment

- Disciplined investment allocation: 2022-2025 guidance, capital allocation and internal rate of return (IRR), page 24.
- Price assumptions, key investment appraisal assumptions, page 28 (in table, indicated with **T**).
- Amount invested in transition growth engines (aim 5), page 46.
- Additional information – capital expenditure by segment, page 352.
- Note 7 to financial statements: expenditure on research and development (in table), page 213.
- Note 8 to financial statements: exploration and evaluation costs (in table), page 214.

#### Internal carbon prices

- Internal carbon price, page 28.

#### Remuneration

- Directors' remuneration report metrics: Sustainable emissions reductions, pages 120, 128 and 132.

### c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

- Our strategic 2025 targets and 2030 aims – resilient hydrocarbons, pages 14 and 15.

- Aim 17 (water positive): progress update, page 64.

- Our strategic 2025 targets and 2030 aims – convenience and mobility, and low carbon energy, pages 16 and 17.

- Aim 5 (more \$ into the transition): progress update, page 46.

- Aim 7 (incentivizing employees): progress update, page 47.

### b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3<sup>a</sup> greenhouse gas (GHG) emissions, and the related risks

#### GHG emissions

- Key performance indicators (relevant KPIs shown with **T**), page 20.
- Scope 1 and 2, in SECR table page 48.
- Ratio of Scope 1 and 2 emissions: gross production, in SECR table page 48.
- Scope 3 (category 11, to which our aim 2 relates) performance, page 46.
- TCFD: risks as described in Strategy A, page 54.
- Risk factors, page 73.

A further breakdown of our GHG and energy data by business group is available in our ESG datasheet at [bp.com/ESG](https://bp.com/ESG).

- Aim 1 (net zero operations): progress update, page 46.
- Aim 2 (net zero production): progress update, page 46.
- Aim 3 (net zero sales): progress update, page 46.
- Aim 4 (reducing methane): progress update, page 46.

a In determining the Scope 3 emissions that are 'appropriate' to be disclosed for the purposes of this Recommended Disclosure, we have considered this term in the context of the recommendation to disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities. The relevant target that we use in respect of Scope 3 emissions is our aim 2, which is broadly aligned to category 11 of Scope 3.

## Improving people's lives

Our aims provide focus and structure for the actions we take to improve people's lives whether they work for bp or for our suppliers, or live in communities close to our operations.

These aims build on our environmental impact and risk management requirements and guidance in our operating management system★.

### Progress summary

In 2022, we took further steps to embed social sustainability more systematically and consistently – from independent assessments of our conformance with the bp human rights policy, to confirming that in 2022 we paid all our employees a fair wage.

For detailed information on our aims 11-15 and performance in 2022 go to [bp.com/sustainability](https://bp.com/sustainability).

11

### More clean energy

#### What we've achieved

Developed 1.4GW of renewable energy generating capacity to FID

This brings the cumulative total of developed renewables to FID★ to 5.8GW from 2.6GW in 2019.

12

### Just transition

#### What we've achieved

Forged partnerships and collaborations to help communities benefit from the energy transition

We are partnering with others to help local communities build skills in low carbon such as in offshore wind, solar and hydrogen.

13

### Sustainable livelihoods

#### What we've achieved

Confirmed that in 2022 all bp employees worldwide were paid a fair wage<sup>a</sup>

Analysis in 2022 based on Fair Wage Network benchmark data and factors such as local market conditions confirmed that in 2022 all our employees were paid a fair wage. We plan to implement processes to make sure this continues.

14

### Greater equity

#### What we've achieved

Launched a social mobility framework for action and business resource group

We are taking action to support people from disadvantaged backgrounds, with more than 1,000 employees showing their support by joining our business resource group.

15

### Enhance wellbeing

#### What we've achieved

Provided access to health and wellbeing programmes for all employees

We have introduced new programmes to help employees and their families improve their health and wellbeing.

## Human rights

We believe everyone deserves to be treated with fairness, respect and dignity. At bp we strive to conduct our business in a responsible way, respecting the human rights of our workers and everyone we come into contact with.

Our human rights policy and our code of conduct help us do that. We respect internationally recognized human rights as set out in the International Bill of Human Rights and the International Labour Organization's

Declaration on Fundamental Principles and Rights at Work, including the core Conventions.

These include the rights of our workforce and those living in communities potentially affected by our activities.

We incorporate the UN Guiding Principles on Business and Human Rights, which set out how companies should prevent, address and remedy human rights abuses, into our business processes.

When working to remediate any impacts on the rights of local communities we are open to co-operating in good faith to agree remedial actions through state-led mechanisms such as the Organisation for Economic Co-operation and Development National Contact Points.

We recognize the importance of accessible and effective operational-level grievance mechanisms in addressing our impacts.

**E P**

 [bp.com/humanrights](https://bp.com/humanrights)

<sup>a</sup> A wage that meets employees' basic needs.

# Sustainability continued

## Caring for our planet

Our sustainability frame includes a focus on making a positive difference to the environment in which we operate.

These aims are focused on how we think bp can make the biggest difference in the places where we work. They build on strong social impact and risk management requirements and guidance in our operating management system★.

### Progress summary

We made progress across all our aims in 2022 and are starting to see impacts on the ground – from the identification of tangible water efficiency opportunities at our refinery in Castellón, Spain, to our support for direct biodiversity restoration in Trinidad & Tobago.

For detailed information on our aims 16-20 and performance in 2022, see [bp.com/sustainability](https://bp.com/sustainability).

16

### Enhancing biodiversity

#### What we've achieved

Launched three new biodiversity restoration projects

Working with local partners we are supporting projects in Türkiye, Georgia and Trinidad & Tobago.

17

### Water positive

#### What we've achieved

First water efficiency assessment completed

Introduced site-based water efficiency assessments to identify operational efficiencies, starting with our refinery in Castellón, Spain.

18

### Championing nature-based solutions

#### What we've achieved

Developed a carbon credit integrity centre of excellence

We have established a centre of excellence in our trading and shipping business to conduct due diligence on bp-originated projects, and scaled up our work to originate high-integrity nature-based carbon credits.

19

### Unlock circularity

#### What we've achieved

Launched our new circularity framework and waste metrics

Our new framework and waste metrics will guide bp businesses to identify, implement and measure opportunities for circularity.

20

### Sustainable purchasing

#### What we've achieved

Targeted high-impact procurement categories to reduce emissions and improve circularity

We have focused on logistics, utilities and EV chargers to test our approach to sustainable procurement.

## Biodiversity

Our biodiversity position, published in 2020, builds on the robust practices we already had in place to manage biodiversity across bp projects up to that date.

We have integrated our net positive impact (NPI) methodology on biodiversity into several new bp projects, including a pipeline replacement project under way in Trinidad & Tobago. We are also trialling new digital technologies to monitor biodiversity and we contributed to a number of cross-industry groups during 2022, including IPIECA's Biodiversity & Ecosystem Services Working Group.

 [bp.com/biodiversity](https://bp.com/biodiversity)

## Water consumption

We saw a 9.8% fall in freshwater withdrawals and a 7.5% fall in freshwater consumption, compared with our 2020 baseline<sup>a</sup>. This was largely due to a decrease at some of our refineries brought about by higher maintenance activity and withdrawal restrictions at Gelsenkirchen because of dry summer weather.

At major operating sites, 0.1 % of our total freshwater<sup>a</sup> withdrawals and 0.6 % of freshwater consumption were from regions with high or extremely high water stress in 2022 (no change from 2021).

## Air emissions

We monitor our air emissions and where possible, put measures in place to reduce the potential impact of our operational activities on local communities and the environment. In 2022, our total air emissions decreased by 9% compared with 2021.

bp energy contributed to this decrease through reducing its non-methane hydrocarbon emissions by 4% through various interventions including electrification, compressor optimization and flaring reduction projects.

 [bp.com/ESGdata](https://bp.com/ESGdata)

<sup>a</sup> The baseline freshwater consumption is defined as 55.9 million m<sup>3</sup>.

## Our approach to sustainability

Our sustainability frame is built on strong foundations: our beliefs, our continued focus on safety, our commitment to ethics and compliance, our people and the economic value we create.

### Safety

Safety defines our beliefs, which guide how we work, and what we call 'Who we are'.

Everyone at bp is expected to be a safety leader. We always want to do better on safety so we have refreshed our code, which helps us do the right thing, and made our operating management system (OMS) simpler, clearer and even more rigorous, to help prevent incidents. Updates to our OMS emphasize an even closer focus on human performance, our safety leadership principles and the IOGP Life Saving Rules.

The aim we set in 2021, to eliminate fatalities, life-changing injuries and tier 1 process safety events, provided the basis for our strategic focus in 2022 along with our work to embed a consistent safety culture.

We deeply regret that in 2022, four people lost their lives while at work for bp.

In February 2022 a contractor driving for Aral in Germany lost his life in a vehicle collision on a highway.

In April 2022 a specialist tank contractor lost his life in an explosion while repairing a tank at an Aral retail site in northern Germany.

In September 2022 two bp employees lost their lives in a fire at our Toledo refinery in the US.

We have offered our condolences to everyone affected and have supported their families and colleagues. We will take action to learn from these incidents and drive improvements in safety.

#### Keeping people safe

We monitor and report on key workforce personal safety metrics in line with industry standards. We include both employees and contractors in our data.

In addition to the fatalities reported for 2022, we recorded an increase of 14% in our recordable injury frequency (RIF) and an increase of 34% in our days away from work case frequency (DAFWCF), compared with 2021. We attribute this to an increase in the number of hand or ankle injuries suffered by retail employees in our customers and products business and consequently we have put in place a safety intervention plan to help avoid these injuries in future.

In our production and operations business, RIF and DAFWCF decreased compared with 2021. We attribute this to our sustained effort to improve safety, including our work on safety leadership, safety culture and human performance.

We expect to see further performance improvements as we roll out and embed the Life Saving Rules across bp.

 See our RIF key performance indicator on page 20

	2022	2021	2020
Day away from work case frequency	<b>0.068</b>	0.051	0.044
Severe vehicle accident rate	<b>0.037</b>	0.034	0.009

#### Our operating management system

The way our businesses around the world are expected to understand and manage their environmental and social impacts is set out in our OMS. This includes requirements on engaging with stakeholders who may be affected by our activities. OMS is a group-wide framework designed to help us manage risks in our operating activities and drive performance improvements.

It brings together bp requirements on health, safety, security, the environment, social responsibility and operational reliability, as well as related issues, such as maintenance, contractor relations and organizational learning, into a common management system. Our OMS also helps us improve the quality of our activities by setting a common framework that our operations must work to.

We review and amend these requirements from time to time to reflect our priorities. Any variations in the application of our OMS, in order to meet local regulations or circumstances, are subject to a governance process. Recently acquired operations need to transition to our OMS.

In planning our projects, we identify potential impacts from our activities and use the results to identify actions and mitigation measures and look to implement these in project design, construction and operations. Our OMS requires each of bp's operating businesses and functions to create and maintain its own OMS handbook,

describing how it will carry out its local operating activities. Through self-verification, local business processes are reviewed and areas for improvement are prioritized, allowing focus on delivering safe, reliable and compliant operations.

We use a 'three lines of defence' model to improve the effective management of all types of risk, including safety. The nature and extent of first, second and third lines of defence activities are based on the type and level of risk.

#### Driving safety

Driving safely is one of the greatest personal safety risks we face at bp. In 2022, we recorded one driving-related contractor fatality and one vehicle accident that resulted in life-changing injuries to the driver. In total, 10 severe vehicle accidents occurred, the same as in 2021. The number of kilometres driven fell by almost 0.2% compare with 2021.

We took action to improve safety for those driving on behalf of bp in several ways – for example, issuing a group-wide alert that emphasized how important it is to be aware of vulnerable road users. A second alert was issued to help improve contractors' oversight processes for land transportation. We require all newly purchased or leased light vehicles used on behalf of bp to have a 5-star New Car Assessment Program safety rating (where available).

#### Preventing incidents

We carefully plan our operations, with the aim of identifying potential hazards and having rigorous operating and maintenance practices applied by capable people to manage risks at every stage. We design our new facilities in line with process safety, good design and engineering principles. We track our safety performance using industry-aligned metrics such as those found in the American Petroleum Institute recommended practice 754 and the International Association of Oil & Gas Producers recommended practice 456.

Our combined tier 1 and tier 2 process safety events★ (PSEs) have generally decreased over the last 10 years, apart from in 2019. This downward trend continued in 2022, with 12 fewer (19%) reported than in 2021, due to a 28% reduction in tier 2 PSEs.

## Sustainability continued

We investigate incidents including near misses, and we also use leading indicators, such as inspections and equipment tests, to monitor the strength of controls to prevent incidents.

	2022	2021	2020
Tier 1 and tier 2 process safety events★	50	62	70
Oil spills – number	108	121	121
Oil spills – contained	57	73	70

### Emergency preparedness

The scale and spread of bp's operations means we must be prepared to respond to a range of possible disruptions and emergency events. We maintain disaster recovery, crisis and business continuity management plans and work to build day-to-day response capabilities to support local management of incidents.

### Security

We monitor for hostile actions that could harm our people or disrupt our operations. These actions might be connected to political or social unrest, terrorism, armed conflict or criminal activity. We take these potential threats seriously and assess them continuously. Our 24-hour response information centre in the UK uses state-of-the-art technology to monitor evolving high-risk situations in real time. It helps us to assess the safety of our people and provide them with practical advice if there is an emergency.

### Cyber security

The severity, sophistication and scale of cyber attacks continues to evolve. The increasing digitalization and reliance on IT systems and cloud platforms makes managing cyber risk an even greater priority for many industries, including our own. Direct or collateral impact can come from a variety of cyber threat actors, including nation states, criminals, terrorists, hackers and insiders. As in previous years, we have experienced threats to the security of our digital systems and our barriers have worked well to mitigate and contain them to minimize any impact on our business.

We have a range of measures to manage this risk, including the use of cyber-security policies and procedures, security protection tools, threat monitoring and event detection capabilities, and incident response plans. We conduct exercises to test our response to, and recovery from, cyber attacks.

To encourage vigilance among our employees, our cyber security training and awareness programme covers topics such as phishing and the correct classification and handling of our information. We collaborate closely with governments, law enforcement and industry peers to understand and respond to threats.

### Working with contractors

Through documents that help bridge between our policies and those of our contractors, we define the way our safety management system co-exists with those of our contractors to manage risk on a site. For our contractors facing the most risks, we conduct quality, technical, health, safety and security audits before awarding contracts. Once they start work, we continue to monitor their safety performance. Our OMS includes requirements and practices for working with contractors. Our standard model contracts include health, safety and security requirements. We expect and encourage our contractors and their employees to act in a way that is consistent with our code of conduct and take appropriate action if those expectations, or their contractual obligations, are not met.

### Our partners in joint arrangements

In joint arrangements where we are the operator, our OMS, code of conduct and other policies apply. We aim to report on aspects of our business where we are the operator – as we directly manage the performance of these operations. We monitor performance and how risk is managed in our joint arrangements, whether we are the operator or not. Where we are not the operator, our OMS is available as a reference point for bp businesses when engaging with operators and co-venturers. We have a group framework to assess and manage bp's exposure related to safety, operational and bribery and corruption risk from our participation in these types of arrangements.

Where appropriate, we may seek to influence how risk is managed in arrangements where we are not the operator.

The people and governance committee reviews workforce policies and practices and their alignment with bp's strategy, purpose, values and culture and conducts workforce engagement measures.

 For more on the people and governance committee, see page [98](#)

## Our beliefs and code of conduct

In 2022 we launched 'Who we are' – our new beliefs and supporting behaviours. They define what we stand for, building on our best qualities and the things most important to us. It comprises three key beliefs – 'Live our purpose', 'Play to win' and 'Care for others'. 'Who we are' is integrated into our updated code of conduct (our code), and is already guiding our approach to recruitment, development, performance management and reward.

Our code sets standards and expectations for how we do the right thing and also empowers us to speak up without fear of retaliation. It puts safety first, and together with our safety leadership principles and OMS, helps us make safe and ethical decisions, act responsibly and comply with applicable laws.

We relaunched the code in January 2023, including updated content to incorporate our sustainability frame and 'Who we are'. The code also contains a new tool to help employees navigate difficult decisions.

Employees, contractors or other third parties who have a question about our code of conduct or see something that they feel is unethical or unsafe can discuss this with their managers, supporting teams, works councils (where relevant) or through OpenTalk, a confidential and anonymous helpline operated by an independent company.

We received more than 1,350 concerns or enquiries through these channels in 2022 (2021 1,400). We take steps to identify and correct areas of non-conformance and take disciplinary action where appropriate. In 2022, around 50 separations resulted from nonconformance with our code or unethical behaviour. This total excludes exits of contractors, vendors and staff employed at our retail stations

## Our people

### Workforce by gender

As at 31 December 2022	Male		Female		Female %	
	2022	2021	2022	2021	2022	2021
Board directors	6	6	5	4	45	40
Leadership team	5	7	6	4	55	36
Group leaders	187	192	91	89	33	32
Subsidiary directors	488	674	212	303	30	31
All employees	41,000	39,900	26,500	25,900	39	39

### Number of employees as at 31 December 2022<sup>a</sup>

	2022	2021	2020
Gas & low carbon energy	4,200	4,000	–
Oil production & operations	8,600	8,800	–
Customers & products	44,700	43,600	–
Other businesses & corporate	10,100	9,500	–
Total	67,600	65,900	63,600

### Developing our people

Our people are crucial to delivering our purpose and strategy. We aim to recruit talented people from diverse backgrounds, and invest in training, development and competitive rewards for all our people. We focus our attraction, recruitment, development and retention activities to provide the support and skills they need to thrive and help bp succeed. In 2022 we continued our work to build skills forecasts and implement capability plans for our transition growth engines including hydrogen, offshore wind, digital and our EV charging network, bp pulse. Following the launch of 'Who we are', we integrated our beliefs into our core talent practices and leadership development, to inform how we assess, select, develop and reward our people.

In 2022 bp employees collectively completed more than 1.1 million hours of formal learning (2021 750,000 hours). This learning takes place within a development frame, applicable to all employees, which covers safety, technical depth, future skills (such as digital and agility) and leadership. Our training portfolio also includes a rigorous mandatory curriculum focused on compliance with applicable laws and regulations and conformance with our internal standards.

And we launched a new global learning platform, grow@bp, which gives our employees access to a wealth of learning content through a single point of access. This includes learning pathways that support our 20 aims, like 'sustainability at bp' which has now become one of our most utilized pathways.

### Diversity, equity and inclusion

Our aim 14 is greater diversity, equity and inclusion for our workforce and our customers, and to increase supplier diversity spend to \$1 billion. For more information see page 63.

In 2022 we expanded our long-term incentive plan scorecard for group leaders to include DE&I measures. We have equipped our leaders with better DE&I data which they can use to help identify areas for improvement, and better understand areas of progress. Our data is refreshed monthly, and available 24/7.

We also report information and disclose against targets on the representation of women and ethnic minorities on our board and executive management on a voluntary basis, see page 83.

### Gender equality

Overall, the proportion of women employed across bp remained at 39% of our global workforce in 2022. At the end of 2022 we had five female directors (2021 4) on our board. Our people and governance committee remains mindful of diversity when considering potential candidates.

We have committed to an ambition of gender parity for the top levels of leadership (top 120 roles) by 2025 and an ambition of parity for all executive-level employees (group leaders) by 2030. And we have committed to an ambition of 40% female representation (senior-level leaders) for the next layer of senior leadership by 2030.

Our early engagement programmes, including Discovery Weeks and our new Future Talent Scholarship, support our future intern and graduate pipelines.

Our understanding of gender identity is evolving and our ambitions will reflect this over time.

 [Read our gender pay gap report at bp.com/ukgenderpaygap](https://bp.com/ukgenderpaygap)

### Ethnic diversity

In 2022 we rolled out our LIFT programme to support the progression of Black and African American colleagues into senior leadership roles. Participants partner with each other and with senior leaders to enhance understanding of the experiences of working at bp and to build networks.

And we rolled out our mandatory Race for Equity racial equity and inclusion training programme to all UK and US employees. The programme focuses on leadership and accountability and explores how we show up, speak up in tough situations and cultivate a culture of care.

In 2022, 33% of our group leaders came from countries other than the UK and the US (2021 31%).

 [Read our DE&I report at bp.com/diversity](https://bp.com/diversity)

 [For more on the composition of our board, see page 80](#)

### Inclusion

To promote an inclusive culture, we provide leadership training and support employee-run advocacy groups in areas such as gender, ethnicity, sexual orientation and disability. As well as bringing employees together, these groups support our recruitment programmes and provide feedback on the potential impact of policy changes. Each group is sponsored by a senior executive.

We aim to provide equal opportunity in recruitment, career development, promotion, training and reward for all employees – regardless of ethnicity, national origin, religion, gender, age, sexual orientation, marital status, disability or any other characteristic protected by applicable laws.

We have launched 'Hiring Inclusively', a set of globally consistent recruiting principles to help enable an inclusive, equitable approach to hiring. It allows recruiters to review internal and external market data for skills availability by gender and by other historically under-represented groups in some geographies.

<sup>a</sup> We do not report number of employees data against our financial reporting segments for 2020 as the numbers are not comparable following our reorganization in 2020.

# Sustainability continued

## Supporting disabled employees

We have taken a number of steps to help improve the experience of the workplace for employees with disabilities, including:

- Offering inclusive recruitment training, disability awareness training and neurodiversity training, as well as specific internships and apprenticeships.
- Access to assistive technology support (such as voice recognition software and screen readers) for all employees.

Where existing employees become disabled, our policy is to engage and use reasonable accommodations or adjustments to enable continued employment.

We have also formed partnerships to help source talent, assist with research and training and support students with disabilities build the skills they need to access the workplace, including the National Organization on Disability in the US, and the Business Disability Forum in the UK. bp is also part of the Valuable 500 – a global business collective made up of 500 CEOs and their companies, to drive lasting change for people around the world living with a disability.

## Employee engagement

Our managers hold team and one-to-one meetings with their team members, complemented by formal processes through works councils in parts of Europe.

We regularly communicate with employees on factors that affect bp's performance, and seek to maintain constructive relationships with labour unions formally representing our employees.

We monitor employee sentiment through our 'Pulse' annual survey, which is sent to all eligible employees, and through our 'Pulse Live' survey, which is sent to a representative sample of employees weekly. Our overall engagement metric, employee engagement, increased to 70% (2021 64%), while pride in working for bp increased to a record 78% (2021 73%).

We focused on three action areas to drive employee engagement in 2022 – strategy and purpose, inclusive culture and career development.

 How the board engaged with members of the workforce, see page [94](#).

Our employee engagement key performance indicator, see page [23](#).

## Mental health and wellbeing

Our aim 15 is to enhance the health and wellbeing of our employees, contractors and local communities.

We offer employees access to a range of mental health support services, including our well-established 24/7 Employee Assistance Programme.

In 2022, we continued our efforts to create a workplace in which people can talk openly about mental health and get help if they need it. We updated our mental health training programmes and provided specific training for line managers so they can discuss mental health with their teams. bp is a founding partner of The Global Business Collaboration for Better Workplace Mental Health and in 2022 we formed a new partnership with MindForward Alliance, to promote global standards for workplace mental health.

We use a wellbeing index, which is included in our Pulse employee surveys, to assess health and wellbeing across bp. In 2022 our wellbeing index was slightly higher than in 2021 at 68% (2021 67%), reflecting improved perceptions of leadership support and workload manageability.

We continued promoting our new wellbeing platform, Thrive@bp, to support our workforce and their friends and families. We also launched the Thrive Together global physical activity challenge along with a new approach to our health and wellbeing campaigns globally. We focused on six relevant health topics: cancer awareness, women's health, men's health, LGBT+ health, heart health and mental health.

## Share ownership

We encourage employee share ownership and have a number of employee share plans in place. For example, we operate a ShareMatch plan, matching bp shares purchased by our employees. We also make annual share awards as part of our total reward package all for senior and mid-level employees globally, and a portion of our more junior professional grade employees.

See Directors' remuneration report on page 112 and our sustainable GHG emission reductions key performance indicator on page 23.

## Ethics and compliance

### Anti-bribery and corruption

We operate in parts of the world where bribery and corruption present a high risk. We have a responsibility to our employees, our shareholders and the countries and communities in which we do business to be ethical and lawful in all our work.

Our code of conduct explicitly prohibits engaging in bribery or corruption in any form. Our group-wide anti-bribery and corruption policy and procedures include measures and guidance to assess risks, understand relevant laws and report concerns. They apply to all bp-operated businesses.

We provide training to employees appropriate to the nature or location of their role. In 2022 more than 7,500 employees completed anti-bribery and corruption training (2021 12,700). We assess any exposure to bribery and corruption risk when working with suppliers and business partners. Where appropriate, we put in place a risk mitigation plan or we reject them if we conclude that risks are too high.

We also conduct anti-bribery compliance audits on selected suppliers to assess their conformance with our anti-bribery and corruption contractual requirements. We take corrective action with suppliers and business partners that fail to meet our expectations, which may include terminating contracts. In 2022 the number of audit reports we issued increased to 37 (2021 4), due to the completion of a backlog of audits from 2021.

### Political donations and activity

We prohibit the use of bp funds or resources to support any political candidate or party. We recognize the rights of our employees to participate in the political process and these rights are governed by the applicable laws in the countries where we operate. Our stance on political activity is set out in the code.

In the US we provide administrative support for the bp employee political action committee (PAC) which is a non-partisan, employee-led committee that encourages voluntary employee participation in the political process. All bp employee PAC contributions are weighed against the PAC's criteria for candidate support, reviewed for compliance with federal and state law, and publicly reported in accordance with US election laws.

### Tax transparency

Our code of conduct informs the responsible approach we take to managing taxes. We have adopted the B Team responsible tax principles and we engage in open and constructive dialogue with governments and tax authorities. We comply with the tax legislation of the countries in which we operate and we do not tolerate the facilitation of tax evasion by people who act for or on behalf of bp.

We are committed to transparency around our tax principles and the taxes we pay. We paid \$12.5 billion in corporate income and production taxes to governments in 2022 (2021 \$5.4 billion).

## How we manage risk and risk factors

# How we manage risk

bp manages, monitors and reports on the principal risks and uncertainties we have identified that can impact our ability to deliver our strategy. These risks are described in Risk factors on page 73.

bp's system of internal control is a holistic set of internal controls that includes policies, processes, management systems, organizational structures, culture and standards of conduct employed to manage bp's business and associated risks.

### bp's risk management system

bp's risk management system and policy is designed to be a consistent and clear framework for managing and reporting risks from the group's business activities and operations to management and to the board. The system seeks to avoid incidents and enhance business outcomes by allowing us to:

- Understand the risk environment, identify the specific risks and assess the potential exposure for bp.
- Determine how best to deal with these risks to manage overall potential exposure.
- Manage the identified risks in appropriate ways.
- Monitor and seek assurance of the effectiveness of the management of these risks and intervene for improvement where necessary.
- Report up the management chain and to the board on a periodic basis on how principal risks are being managed, monitored and assured, with any identified enhancements that are being made.

### Day-to-day risk management

Management and employees at our facilities, assets, and within our businesses, integrators and enablers (see page 14) seek to identify and manage risk, promoting safe, compliant and reliable operations. bp requirements, which take into account applicable laws and regulations, underpin the practical plans developed to help reduce risk and deliver safe, compliant and reliable operations as well as greater efficiency and sustainable financial results.

### Business and strategic risk management

Our businesses, integrators and enablers integrate risk management into key business processes such as strategy, planning, performance management, resource and capital allocation and project appraisal. We do this by using a standard framework for collating risk data, assessing risk management activities, making further improvements and in connection with planning new activities.

### Oversight and governance

Throughout the year, management, the leadership team, the board and relevant committees provide oversight of how principal risks to bp are identified, assessed and managed. They support appropriate governance of risk management including having relevant policies in place to help manage risks.

Such oversight may include internal audit reports, group risk reports and reviews of the

outcomes of business processes including strategy, planning and resource and capital allocation. bp's group risk team analyses the group's risk profile and maintains the group's risk management system. bp's internal audit team provides independent assurance to the chief executive and board as to whether the group's system of internal control is adequately designed and operating effectively to respond appropriately to the risks that are significant to bp.

### Risk oversight and governance

Key risk oversight and governance committees include the following:

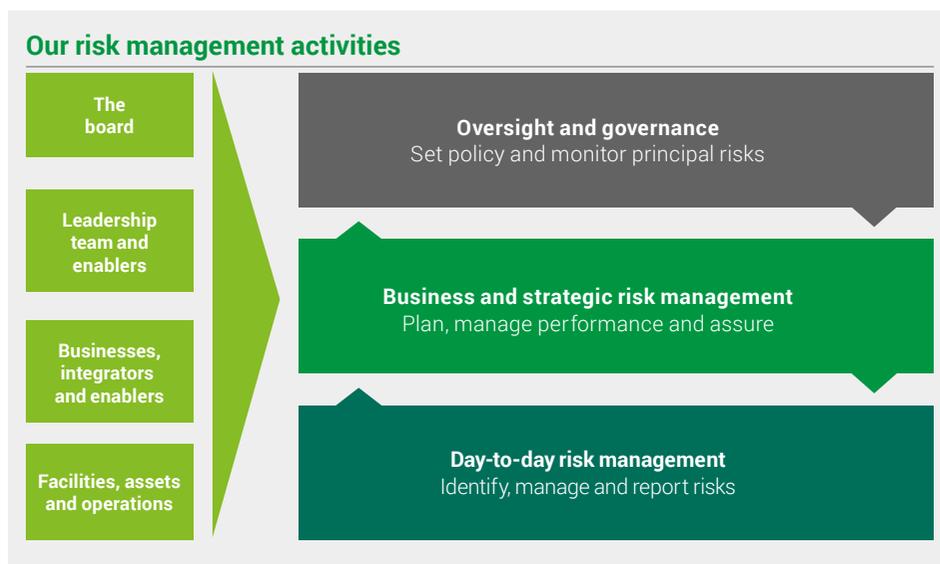
#### Board and committees

- bp board.
- Audit committee.
- Safety and sustainability committee.
- Remuneration committee.
- People and governance committee.

#### Leadership team and committees

- Leadership team meeting – for oversight and for strategic and commercial risks.
- Group operations risk committee – for health, safety, security, environment and operations integrity risks.
- Group financial risk committee – for finance, treasury, trading and cyber risks.
- Group disclosure committee – for financial reporting risks.
- People and culture committee – for employee risks.
- Group ethics and compliance committee – for legal and regulatory compliance and ethics risks.
- Group sustainability committee – for non-operational sustainability risks.
- Resource commitment meeting – for investment decision risks.
- bp quarterly internal audit meeting – for assurance on the oversight of bp's principal risks.

 Board activities see page [87](#), bp governance framework see page [86](#), committee reports see pages [98-112](#) and Risk management and internal control see page [149](#).



## How we manage risk and risk factors continued

### Risk management processes

We aim for a consistent basis of measuring risk to:

- Establish a common understanding of risks on a like-for-like basis, taking into account potential impact and likelihood.
- Report risks and their management to the appropriate levels of the organization.
- Inform prioritization of specific risk management activities and resource allocation.

bp's risk management policy sets out requirements for businesses, integrators and enablers to follow. These requirements support the consideration of the following risk types:

- Strategic and commercial
- Safety and operational
- Compliance and control

**Risk identification** – businesses, integrators and enablers identify risks across the three risk types.

Risks are identified on an ongoing basis – this can be done using a range of approaches including workshops, subject matter expertise, hazard identification processes and engineering requirements.

**Risk assessment** – identified risks are assessed for potential impact across a number of criteria including:

- Health and safety
- Environmental
- Financial
- Non-financial (includes reputation and regulatory impact levels)

Likelihood is also assessed using a standardized set of criteria. This aims to provide a consistent basis for the evaluation of potential impact and likelihood, facilitating a comparison across risks.

**Risk management and monitoring** – risk management activities can be prioritized where improvements are needed based on a number of factors, including the risk assessment, strength of existing risk management measures, strategy and plans and legal and regulatory requirements. Risk management measures, including mitigations, are identified for each risk and monitored to the extent considered appropriate. To support leadership oversight of decisions relating to the risk assessment and management measures, risks are notified to, and the business's risk management measures are subject to endorsement at, the appropriate organizational level (EVP, SVP, VP) depending on the assessed potential impact and likelihood.

As part of bp's annual planning process, the leadership team and the board review the group's principal risks and uncertainties. These may be updated during the year in response to changes in internal and external circumstances.

There can be no certainty that our risk management activities will mitigate or prevent these, or other risks, from occurring. Further details of the principal risks and uncertainties we face are set out in Risk factors on page 73.

### Our risk profile

The nature of our business operations is long term, resulting in many of our risks being enduring in nature. Nonetheless, risks can develop and evolve over time and their potential impact or likelihood may vary in response to internal and external events. These may include emerging risks which are considered through existing processes, including an emerging risk paper considered at board meetings, bp's risk management system, the *bp Energy Outlook*, bp's Technology Insights Radar and ongoing emerging technology scanning and group strategic reviews.

We describe above how risks are managed. The following section provides examples of the particular risk management activities for each of bp's principal risks.

#### Strategic and commercial risks

##### Prices and markets

Our financial performance is impacted by fluctuating prices of oil, gas and refined products, technological change, exchange rate fluctuations, and the general macroeconomic outlook.

Our strategy is designed to accommodate a range of scenarios and be resilient to the volatility in the energy markets. This is supported through a diversified portfolio, a strong balance sheet and operating within a resilient and disciplined financial frame. We test out investment and project development costs against a range of pricing and exchange assumptions.

##### Accessing and progressing hydrocarbon resources and low carbon opportunities

Inability to access and progress hydrocarbon resources and low carbon opportunities could adversely affect delivery of our strategy.

For hydrocarbon resources our subsurface team is accountable for the delivery of high-value, carbon-efficient resources to deliver predictable and reliable investments today as well as the long-term renewal of our hydrocarbon resources. Additionally, the subsurface team partners with innovation & engineering to prioritize technology development needs for the future. Our gas & low carbon energy business is accountable for the delivery of our low carbon opportunities through both organic and inorganic growth. This includes the development of our offshore wind, solar, onshore wind, hydrogen and carbon capture, use and storage businesses.

##### Major project delivery

Failure to invest in the best opportunities or deliver major projects successfully could adversely affect our financial performance.

We seek to manage this risk through our projects organization which exists to frame, build and execute projects across bp. The organization contains capability which includes the centre of expertise for appraisal and optimization, expertise to manage the design and build of projects and programmes, and collaboration with our businesses and enablers to ensure project objectives are met. The projects team delivers using its major projects common process which is systematically reviewed and continuously improved.

##### Geopolitical

The diverse locations of our business activities and operations around the world expose us to a wide range of political developments and consequent changes to the economic and operating environment. Geopolitical risk is inherent to many regions in which we operate, and heightened political or social tensions or changes in key relationships could adversely affect the group.

We seek to manage this risk at multiple levels, through:

- Identifying macro-level geopolitical trends in the geopolitical advisory council.
- Providing a clear focal point for political risk management in our regions, corporates & solutions business.
- Monitoring how geopolitical trends create risk at the country level through changes to our baseline threat assessments.

More broadly, we manage the risk on a day-to-day basis through development and maintenance of relationships with governments and stakeholders, and by being trusted partners in each country and region. In addition, we closely monitor events and implement risk mitigation plans where deemed appropriate.

## Financial liquidity

External market conditions can impact our financial performance. Supply and demand and the prices achieved for our products can be affected by a wide range of factors including political developments, interest rates, consumer preferences for low carbon energy, global economic conditions, access to capital markets and the influence of OPEC+.

We seek to manage this risk through bp's diversified portfolio, our financial framework, liquidity stress testing, maintaining a significant cash buffer, regular reviews of market conditions and our planning and investment processes.

 **Energy markets, page 6, Liquidity and capital resources on page 356 and Liquidity, financial capacity and financial, including credit, exposure, page 73**

## Joint arrangements and contractors

Varying levels of control over the standards, operations and compliance of our partners, contractors and sub-contractors could result in legal liability and reputational damage.

bp's exposure in non-operated joint ventures (NOJV) is primarily managed by the NOJV-facing business team in the business or entity where ownership of bp's interest in the NOJV sits. Support, verification and assurance is provided by the joint venture centre of expertise, safety & operational risk assurance and ethics & compliance functional assurance and group internal audit to drive a focused, deliberate and systematic approach to the set up and management of bp's interests in NOJVs.

Our relationships with contractors are managed through the bp procurement processes with appropriate requirements incorporated into contractual arrangements.

## Cyber security

Both targeted and indiscriminate threats to the security of our digital infrastructure and those of third parties continue to evolve rapidly and are increasingly prevalent across industries worldwide.

We seek to manage this risk through a range of measures, which include cyber security standards, security protection tools, ongoing detection and monitoring of threats and testing of cyber response and recovery procedures. We collaborate with governments, law enforcement agencies and industry peers to understand and respond to new and emerging cyber threats.

We build awareness with our employees, share information on incidents with leadership for continuous learning and conduct regular exercises including with the leadership team to test response and recovery procedures.

## Climate change and the transition to a lower carbon economy

Developments in policy, law, regulation, technology and markets, including societal and investor sentiment, related to the issue of climate change and the transition to a lower carbon economy could increase costs, reduce revenues, constrain our operations and affect our business plans and financial performance.

Risks associated with climate change and the transition to a lower carbon economy impact many elements of our strategy and, as such, these risks are managed through key business processes including setting the bp strategy and annual plan, capital allocation and investment decisions. The outputs of these key business processes are reviewed in line with the cadence of these activities. See page 53 for further detail on how transition risks are managed.

## Competition

Inability to remain efficient, maintain a high-quality portfolio of assets and innovate could negatively impact delivery of our strategy in a highly competitive market.

We seek to manage this risk through our strategy, sustainability and ventures team by providing external insights on the economic, energy, market and competitive environment. Our strategy, sustainability and portfolio management teams use these insights to help define a resilient strategy for bp, including decisions related to portfolio, business development and resource allocation. The ventures team provides commercial innovation capacity that allows us to build new businesses.

## Talent and capability

Inability to attract, develop and retain people with necessary skills and capabilities could negatively impact delivery of our strategy.

Our people and culture team oversees all hiring activity for bp globally, both professional hiring and early careers. They help to ensure that the right talent and people capability is in place, using local market analysis, people analytics and insights to underpin our strategic workforce planning. Talent leadership focuses on translating bp's diversity, equity and inclusion ambitions and global framework for action into a robust and diverse talent pipeline, see page 67 for more information.

## Crisis management and business continuity

Failure to address an incident effectively could potentially disrupt our business or exacerbate the legal, financial or operational impacts of the crisis event.

Incidents that could potentially disrupt our business are addressed using emergency response and business continuity plans which are mandated through company-wide policies. We use internationally recognized incident command structures and for significant events business support teams and executive support teams are established to provide oversight and management. In addition, we provide a trained cadre of crisis professionals and niche expertise for deployment across the company through our mutual response team.

## Insurance

Our insurance strategy could expose the group to material uninsured losses.

Our insurance team is accountable for aligning our insurance approach with bp's strategy and they engage with the businesses, integrators and enablers to determine the appropriate level of insurance. We retain in-house expertise and partner with insurance industry leaders. Our captive insurance companies are regulated within the jurisdictions in which they operate.

## Safety and operational risks

### Process safety, personal safety and environmental risks

The nature of the group's operating activities exposes us to a wide range of significant health, safety and environmental risks such as incidents associated with releases of hydrocarbons when drilling wells, operating facilities and transporting hydrocarbons.

Our operating management system helps us manage these risks and drive performance improvements. It sets out the standards and requirements which govern key risk management activities such as inspection, maintenance, testing, business continuity and crisis response planning and competency development. In addition, we conduct our drilling activity through a wells organization in order to promote a consistent approach for designing, constructing and managing wells.

## How we manage risk and risk factors continued

### Drilling and production

Challenging operational environments and other uncertainties could impact drilling and production activities.

Our production and operations business group brings together all our hydrocarbon operations and our distinctive capabilities in one place to safely deliver competitive returns. The enablers, in particular wells and production, are accountable for safety, risk, quality and operational delivery. They execute capital and operational activity and manage associated expenditure.

### Security

Hostile acts such as terrorism, activism, insider acts or piracy could harm our people and disrupt our operations. We monitor for emerging threats and vulnerabilities to manage our physical and information security.

Our intelligence, security and crisis management teams provide strategic and operational risk management to our businesses through a network of regional security managers who provide front line risk management as well as conduct assurance activities through a team independent of the business.

We continue to monitor threats globally and maintain disaster recovery, crisis and business continuity management plans.

### Product quality

Supplying customers with off-specification products could damage our reputation, lead to regulatory action and legal liability, and impact our financial performance.

bp's product quality policy is aligned with our operating management system and sets requirements for our business to meet specifications and applicable legal and regulatory requirements.

### Compliance and control risks

#### Ethical misconduct and legal or regulatory non-compliance

Ethical misconduct or breaches of applicable laws or regulations could damage our reputation, result in litigation, regulatory action and penalties, adversely affect results and shareholder value, and potentially affect our licence to operate.

Our code of conduct, the foundation of who we are, is applicable to all employees and central to managing this risk. Additionally, we have various group requirements and training covering areas such as anti-bribery and corruption, anti-money laundering, competition/anti-trust law and international trade regulations. We offer an independent confidential helpline, OpenTalk, for employees, contractors and other third parties with the option to raise concerns anonymously.

#### Regulation

Changes in the law and regulation could increase costs, constrain our operations and affect our strategy, business plans and financial performance.

Our businesses, integrators and enablers all seek to identify, assess and manage legal and regulatory risks relevant to bp's operations, strategy, business plans and financial performance. To support this work, we seek to develop co-operative relationships with governmental authorities in line with our code of conduct, to allow appropriate focus on areas of potential risk or uncertainty while also protecting bp's interests within the law. The bp group ethics and compliance committee provides risk oversight and governance for legal compliance and ethics risks.

### Trading non-compliance

In the normal course of business, we are subject to risks around our trading activities which could arise from shortcomings or failures in our systems, risk management methodology, internal control processes or employee conduct.

We have specific operating standards and control processes to manage these risks, including guidelines specific to trading, and seek to monitor compliance through our dedicated compliance teams. We also seek to maintain a positive and collaborative relationship with regulators and the industry at large.

### Reporting

Failure to accurately report our data could lead to regulatory action, legal liability and reputational damage.

Our accounting reporting and control team provide assurance of the control environment and are accountable for building control and compliance into finance processes and digital systems.

# Risk factors

The risks discussed below, separately or in combination, could have a material adverse effect on the implementation of our strategy, our business, financial performance, results of operations, cash flows, liquidity, prospects, shareholder value and returns and reputation.

## Strategic and commercial risks

**Prices and markets:** our financial performance is impacted by fluctuating prices of oil, gas and refined products, technological change, exchange rate fluctuations, and the general macroeconomic outlook.

Oil, gas and product prices are subject to international supply and demand and margins can be volatile.

Political developments, increased supply from new oil and gas or alternative low carbon energy sources, technological change, global economic conditions, public health situations (including the continued impact of the COVID-19 pandemic or any future epidemic or pandemic), the introduction of new carbon costs and the influence of OPEC+ can impact supply and demand and prices for our products.

Decreases in oil, gas or product prices could have an adverse effect on revenue, margins, profitability and cash flows. If these reductions are significant or for a prolonged period, we may have to write down assets and reassess the viability of certain projects, which may impact future cash flows, profit, capital expenditure, the ability to work within our financial frame and maintain our long-term investment programme. Conversely, an increase in oil, gas and product prices may not improve margin performance as there could be increased fiscal take, cost inflation and more onerous terms for access to resources. The profitability of our refining activities can be volatile, with periodic over-supply or supply tightness in regional markets and fluctuations in demand.

Exchange rate fluctuations can create currency exposures and impact underlying costs and revenues. Crude oil prices are generally set in US dollars, while products vary in currency. Many of our major project development costs are denominated in local currencies, which may be subject to fluctuations against the US dollar.

## Accessing and progressing hydrocarbon resources and low carbon opportunities:

inability to access and progress hydrocarbon resources and low carbon opportunities could adversely affect delivery of our strategy.

Delivery of our strategy depends partly on our ability to progress hydrocarbon resources from our existing portfolio and access new resources in our existing core regions. Our ability to progress upstream resources and develop technologies at a level in line with our strategic outlook for hydrocarbon production could impact our future production and financial performance. Furthermore, our ability to access low carbon opportunities and the commercial terms associated with those opportunities could impact our financial performance and the pace of our transition to an integrated energy company in line with our strategy.

**Major project delivery:** failure to invest in the best opportunities or deliver major projects successfully could adversely affect our financial performance.

We face challenges in developing major projects, particularly in geographically and technically challenging areas. Poor investment choice, efficiency or delivery, or operational challenges at any major project that underpins production or production growth, could adversely affect our financial performance.

**Geopolitical:** exposure to a range of political developments and consequent changes to the operating and regulatory environment could cause business disruption.

We operate and may seek new opportunities in countries, regions and cities where political, economic and social transition may take place.

Political instability, changes to the regulatory environment or taxation, international trade disputes and barriers to free trade, international sanctions, expropriation or nationalization of property, civil strife, strikes, insurrections, acts of terrorism, acts of war and public health situations (including the continued impact of the COVID-19 pandemic or any future epidemic or pandemic) may disrupt or curtail our operations, business activities or investments.

These may in turn cause production to decline, limit our ability to pursue new opportunities, affect the recoverability of our assets and our related earnings and cash flow or cause us to

incur additional costs, particularly due to the long-term nature of many of our projects and significant capital expenditure required.

Events in, or relating to, Russia and the conflict in Ukraine, including trade restrictions, international sanctions or any other actions taken by governmental authorities or other relevant persons have had and could continue to have an impact on global energy supply and demand, market volatility and the prices of oil, gas and products. In February 2022, we announced that we would exit our shareholding in Rosneft and our other businesses with Rosneft in Russia. Trade restrictions, international sanctions, Russian counter restrictions and sanctions and other actions taken by governmental authorities or other relevant persons are expected to continue to impact our ability to exit those interests.

**Liquidity, financial capacity and financial, including credit, exposure:** failure to work within our financial framework could impact our ability to operate and result in financial loss.

Failure to accurately forecast or work within our financial framework could impact our ability to operate and result in financial loss. Trade and other receivables, including overdue receivables, may not be recovered, divestments may not be successfully completed and a substantial and unexpected cash call or funding request could disrupt our financial framework or overwhelm our ability to meet our obligations.

An event such as a significant operational incident, legal proceedings or a geopolitical event in an area where we have significant activities, could reduce our financial liquidity and our credit ratings. Credit rating downgrades could potentially increase financing costs and limit access to financing or engagement in our trading activities on acceptable terms, which could put pressure on the group's liquidity.

They could also potentially require the company to review the funding arrangements with the bp pension trustees. In the event of extended constraints on our ability to obtain financing, we could be required to reduce capital expenditure or increase asset disposals in order to provide additional liquidity.

 Liquidity and capital resources, page [356](#) and Financial statements – [Note 29](#)

## How we manage risk and risk factors continued

### **Joint arrangements and contractors:**

varying levels of control over the standards, operations and compliance of our partners, contractors and sub-contractors could result in legal liability and reputational damage.

We conduct many of our activities through joint arrangements, associates or with contractors and sub-contractors where we may have limited influence and control over the performance of such operations.

Our partners and contractors are responsible for the adequacy of their resources and capabilities. If these are found to be lacking, there may be financial, operational or safety exposures for bp. Should an incident occur in an operation that bp participates in, our partners and contractors may be unable or unwilling to fully compensate us against costs we may incur on their behalf or on behalf of the arrangement. Where we do not have operational control of a venture or direct oversight of contractor activity, we may still be pursued by regulators or claimants in the event of an incident.

### **Digital infrastructure, cyber security and data protection:**

breach or failure of our or third parties' digital infrastructure or cyber security, including loss or misuse of sensitive information could damage our operations, increase costs and damage our reputation.

The energy industry is subject to fast-evolving risks, including ransomware, from cyber threat actors, including nation states, criminals, terrorists, hacktivists and insiders. Current geopolitical factors have increased these risks. There is also growing regulation around data protection and data privacy. A breach or failure of our or third parties' digital infrastructure – including control systems – due to breaches of our cyber defences, or those of third parties, negligence, intentional misconduct or other reasons, could seriously disrupt our operations. This could result in the loss or misuse of data or sensitive information, including employees' and customers' personal data, injury to people, disruption to our business, harm to the environment or our assets, legal or regulatory breaches, legal liability and significant costs including fines, cost of remediation or reputational consequences. Furthermore, the rapid detection of attempts to gain unauthorized access to our digital infrastructure, often through the use of sophisticated and co-ordinated means, is a challenge and any delay or failure to detect could compound these potential harms.

### **Climate change and the transition to a**

**lower carbon economy:** developments in policy, law, regulation, technology and markets, including societal and investor sentiment, related to the issue of climate change and the transition to a lower carbon economy could increase costs, reduce revenues, constrain our operations and affect our business plans and financial performance.

Laws, regulations, policies, obligations, government actions, social attitudes and customer preferences relating to climate change and the transition to a lower carbon economy, including the pace of change to any of these factors, and also the pace of the transition itself, could have adverse impacts on our business including on our access to and realization of competitive opportunities in any of our strategic focus areas, a decline in demand for, or constraints on our ability to sell certain products, constraints on production and supply, adverse litigation and regulatory or litigation outcomes, increased costs from compliance and increased provisions for environmental and legal liabilities.

Investor preferences and sentiment are influenced by environmental, social and corporate governance (ESG) considerations including climate change and the transition to a lower carbon economy. Changes in those preferences and sentiment could affect our access to capital markets and our attractiveness to potential investors, potentially resulting in reduced access to financing, increased financing costs and impacts upon our business plans and financial performance.

Technological improvements or innovations that support the transition to a lower carbon economy, and customer preferences or regulatory incentives that alter fuel or power choices, could impact demand for oil and gas.

Depending on the nature and speed of any such changes and our response, these changes could increase costs, reduce our profitability, reduce demand for certain products, limit our access to new opportunities, require us to write down certain assets or curtail or cease certain operations, and affect investor sentiment, our access to capital markets, our competitiveness and financial performance.

Policy, legal regulatory, technological and market developments related to climate change could also affect future price assumptions used in the assessment of recoverability of asset carrying values including goodwill, the judgement as to whether there is continued intent to develop exploration and appraisal intangible assets, the timing of decommissioning of assets and the useful economic lives of assets used for the calculation of depreciation and amortization.

**Competition:** inability to remain efficient, maintain a high-quality portfolio of assets and innovate could negatively impact delivery of our strategy in a highly competitive market.

Our strategic progress and performance could be impeded if we are unable to control our development and operating costs and margins, if we fail to scale our businesses at pace, or to sustain, develop and operate a high-quality portfolio of assets efficiently. Furthermore, as we transition from an international oil company to an integrated energy company, we face an expanded and rapidly evolving range of competitors in the sectors in which we operate. We could be adversely affected if competitors offer superior terms for access rights or licences, or if our innovation in areas such as new low carbon technologies, digital, customer offer, exploration, production, refining, manufacturing or renewable energy lags behind those of our competitors. Our performance could also be negatively impacted if we fail to protect our intellectual property.

**Talent and capability:** inability to attract, develop and retain people with necessary skills and capabilities could negatively impact delivery of our strategy.

The sectors in which we operate face increasing challenges to attract and retain diverse, skilled and capable talent. An inability to successfully recruit, develop and retain core skills and capabilities and to reskill existing talent could negatively impact delivery of our strategy.

**Crisis management and business continuity:** failure to address an incident effectively could potentially disrupt our business.

Our reputation and business activities could be negatively impacted if we do not respond, or are perceived not to respond, in an appropriate manner to any major crisis.

**Insurance:** our insurance strategy could expose the group to material uninsured losses.

bp generally purchases insurance only in situations where this is legally and contractually required. Some risks are insured with third parties and reinsured by group insurance companies. Uninsured losses could have a material adverse effect on our financial position, particularly if they arise at a time when we are facing material costs as a result of a significant operational event which could put pressure on our liquidity and cash flows.



Climate-related financial disclosures, page 50 and Financial statements – **Note 1**

## Safety and operational risks

**Process safety, personal safety, and environmental risks:** exposure to a wide range of health, safety, security and environmental risks could cause harm to people, the environment and our assets and result in regulatory action, legal liability, business interruption, increased costs, damage to our reputation and potentially denial of our licence to operate.

Technical integrity failure, natural disasters, extreme weather or a change in its frequency or severity, human error and other adverse events or conditions, including breach of digital security, could lead to loss of containment of hydrocarbons or other hazardous materials. This could also lead to constrained availability of resources used in our operating activities, as well as fires, explosions or other personal and process safety incidents, including when drilling wells, operating facilities and those associated with transportation by road, sea or pipeline. There can be no certainty that our operating management system or other policies and procedures will adequately identify all process safety, personal safety and environmental risks or that all our operating activities, including acquired businesses, will be conducted in conformance with these systems.

 See Safety page [65](#)

Such events or conditions, including a marine incident, or inability to provide safe environments for our workforce and the public while at our facilities, premises or during transportation, could lead to injuries, loss of life or environmental damage. As a result we could face regulatory action and legal liability, including penalties and remediation obligations, increased costs and potentially denial of our licence to operate. Our activities are sometimes conducted in hazardous, remote or environmentally sensitive locations, where the consequences of such events or conditions could be greater than in other locations.

**Drilling and production:** challenging operational environments and other uncertainties could impact drilling and production activities.

Our activities require high levels of investment and are sometimes conducted in challenging environments such as those prone to natural disasters and extreme weather, which heightens the risks of technical integrity failure. The physical characteristics of an oil or natural gas field, and cost of drilling, completing or operating wells is often uncertain. We may be required to curtail, delay or cancel drilling operations or stop production because of a variety of factors, including unexpected drilling conditions,

pressure or irregularities in geological formations, equipment failures or accidents, adverse weather conditions and compliance with governmental requirements.

**Security:** hostile acts against our employees and activities could cause harm to people and disrupt our operations.

Acts of terrorism, piracy, sabotage, activism and similar activities directed against our operations and facilities, pipelines, transportation or digital infrastructure could cause harm to people and severely disrupt operations. Our activities could also be severely affected by conflict, civil strife or political unrest.

**Product quality:** supplying customers with off-specification products could damage our reputation, lead to regulatory action and legal liability, and impact our financial performance.

Failure to meet product quality specifications could cause harm to people and the environment, damage our reputation, result in regulatory action and legal liability, and impact financial performance.

## Compliance and control risks

**Ethical misconduct and non-compliance:** ethical misconduct or breaches of applicable laws by our businesses or our employees could be damaging to our reputation, and could result in litigation, regulatory action and penalties.

Incidents of ethical misconduct or non-compliance with applicable laws and regulations, including anti-bribery and corruption, competition and antitrust, and anti-fraud laws, trade restrictions or other sanctions, could damage our reputation, and result in litigation, regulatory action, penalties and potentially affect our licence to operate. In relation to trade restrictions or other sanctions, current geopolitical factors have increased these risks.

**Regulation:** changes in the law and regulation could increase costs, constrain our operations and affect our strategy, business plans and financial performance.

Our businesses and operations are subject to the laws and regulations applicable in each country, state or other regional or local area in which they occur. These laws and regulations result in an often complex, uncertain and changing legal and regulatory environment for our global businesses and operations. Changes in laws or regulations, including how they are interpreted and enforced, can and do impact all aspects of our business.

Royalties and taxes, particularly those applied to our hydrocarbon activities, tend to be high compared with those imposed on similar commercial activities. In certain jurisdictions there is also a degree of uncertainty relating to tax law interpretation and changes.

Governments may change their fiscal and regulatory frameworks in response to public pressure on finances, resulting in increased amounts payable to them or their agencies.

Changes in law or regulation could increase the compliance and litigation risk and costs, reduce our profitability, reduce demand for or constrain our ability to sell certain products, limit our access to new opportunities, require us to divest or write down certain assets or curtail or cease certain operations, or affect the adequacy of our provisions for pensions, tax, decommissioning, environmental and legal liabilities. Changes in laws or regulations could result in the nationalization, expropriation, cancellation, non-renewal or renegotiation of our interests, assets and related rights. Potential changes to pension or financial market regulation could also impact funding requirements of the group. Following the Gulf of Mexico oil spill, we may be subjected to a higher level of fines or penalties imposed in relation to any alleged breaches of laws or regulations, which could result in increased costs.

 Regulation of the group's business, page [369](#)

**Trading and treasury trading activities:** ineffective oversight of trading and treasury trading activities could lead to business disruption, financial loss, regulatory intervention or damage to our reputation and affect our permissions to trade.

We are subject to operational risk around our trading and treasury trading activities in financial and commodity markets, some of which are regulated. Failure to process, manage and monitor a large number of complex transactions across many markets and currencies while complying with all regulatory requirements could hinder profitable trading opportunities. There is a risk that a single trader or a group of traders could act outside of our delegations and controls, leading to regulatory intervention and resulting in financial loss, fines and potentially damaging our reputation, and could affect our permissions to trade.

 Financial statements – [Note 29](#)

**Reporting:** failure to accurately report our data could lead to regulatory action, legal liability and reputational damage.

External reporting of financial and non-financial data, including reserves estimates, relies on the integrity of the control environment, our systems and people operating them. Failure to report data accurately and in compliance with applicable standards could result in regulatory action, legal liability and damage to our reputation.

# Compliance information

## bp non-financial information statement

Produced in compliance with Sections 414CA and 414CB of the Companies Act. Information incorporated by cross reference.

Requirement	Relevant policies and standards	Information related to policies, any due diligence processes
a Environmental matters	<ul style="list-style-type: none"> <li>Net zero aims</li> <li>TCFD (governance and risk management)</li> <li>Sustainability frame</li> <li>Biodiversity position (online)</li> </ul>	<ul style="list-style-type: none"> <li>Climate-related financial disclosures – pages 50-62.</li> <li>Caring for our planet aims – page 63.</li> <li>Our operating management system (OMS) – page 65.</li> <li>Decision making by the board – page 89.</li> </ul>
b Employees	<ul style="list-style-type: none"> <li>Reinvent bp guidelines</li> <li>bp values and code of conduct (online)</li> </ul>	<ul style="list-style-type: none"> <li>Our people – page 67.</li> <li>Safety – page 65.</li> <li>Our values and code of conduct – page 66.</li> <li>Employee engagement (Pulse survey) – page 68.</li> <li>How the board engaged with stakeholders (workforce) – pages 94-95.</li> </ul>
c Social matters	<ul style="list-style-type: none"> <li>Sustainability frame</li> </ul>	<ul style="list-style-type: none"> <li>Caring for our planet – page 64.</li> <li>Our operating management system – page 65.</li> <li>Improving people's lives – page 63.</li> <li>Decision making by the board – page 89.</li> </ul>
d Respect for human rights	<ul style="list-style-type: none"> <li>Business and human rights policy (online)</li> <li>Modern slavery statement (online)</li> <li>Labour rights and modern slavery principles (online)</li> <li>Code of conduct (online)</li> </ul>	<ul style="list-style-type: none"> <li>Human rights – page 63.</li> <li>Our values and code of conduct – page 66.</li> </ul>
e Anti-corruption and anti-bribery	<ul style="list-style-type: none"> <li>Anti-bribery and corruption policy</li> <li>Code of conduct (online)</li> </ul>	<ul style="list-style-type: none"> <li>Ethics and compliance – page 68.</li> <li>Our partners in joint arrangements – page 66.</li> </ul>
Description of principal risks relating to matters (a-e above)		<ul style="list-style-type: none"> <li>How we manage risk – pages 69-72.</li> <li>Risk factors – pages 73-75.</li> <li>TCFD (climate-related risk management) – page 50.</li> </ul>
<b>Relevant information</b>		
Business model description	<ul style="list-style-type: none"> <li>Business model – pages 12-13.</li> </ul>	
Description of non-financial KPIs	<ul style="list-style-type: none"> <li>Measuring our progress – pages 11, 20-23.</li> </ul>	

## TCFD index table

Our expanded TCFD disclosures can be found on the following pages.

TCFD Recommendation	TCFD Recommended Disclosure	Where reported
<b>Governance</b> Disclose the organization's governance around climate-related issues and opportunities.	a Describe the board's oversight of climate-related risks and opportunities.	Pages 50-52.
	b Describe the management's role in assessing and managing climate-related risks and opportunities.	Pages 52-53.
<b>Strategy</b> Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy and financial planning where such information is material.	a Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	<ul style="list-style-type: none"> <li>Pursuing a strategy that is consistent with the Paris goals, page 26.</li> <li>Strategy – page 10.</li> <li>Risk factors, page 73.</li> </ul>
	b Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	<ul style="list-style-type: none"> <li>Risk factors, page 73 – description of principal risks.</li> <li>Strategy – page 10.</li> </ul>
	c Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	<ul style="list-style-type: none"> <li>Strategy, page 10.</li> <li>Pursuing a strategy that is consistent with the Paris goals, page 26.</li> </ul>
<b>Risk management</b> Disclose how the organization identifies, assesses and manages climate-related risks.	a Describe the organization's processes for identifying and assessing climate-related risks.	<ul style="list-style-type: none"> <li>Risk management – page 52.</li> <li>How we manage risk, page 69.</li> <li>Risk factors – page 73.</li> </ul>
	b Describe the organization's processes for managing climate-related risks.	<ul style="list-style-type: none"> <li>Risk management, page 52.</li> <li>How we manage risk, page 69.</li> </ul>
	c Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	<ul style="list-style-type: none"> <li>Risk management, page 52.</li> <li>How we manage risk, page 69.</li> <li>Risk factors – page 73.</li> </ul>
<b>Metrics and targets</b> Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	a Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	<ul style="list-style-type: none"> <li>Our strategic focus areas and metrics, page 11.</li> <li>Our group-wide principal metrics and relevant targets – page 62.</li> </ul>
	b Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks.	<ul style="list-style-type: none"> <li>GHG emissions data – pages 45-48.</li> </ul>
	c Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	<ul style="list-style-type: none"> <li>Our net zero targets and aims at a glance – page 45.</li> </ul>

## Section 172 statement

In accordance with the requirements of Section 172 of the Companies Act 2006 (the Act), the directors consider that, during the financial year ended 31 December 2022, they have acted in a way that they consider, in good faith, would most likely promote the success of the company for the benefit of its members as a whole, having regard to the likely consequences of any decision in the long term and the broader interests of other stakeholders, as required by the Act.

 See page 89 for more information in support of this statement, including a description of the board's activities during 2022.

The strategic report was approved by the board and signed on its behalf by Ben J.S. Mathews, company secretary, on 10 March 2023.