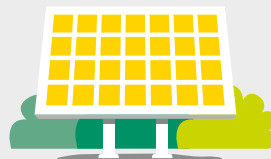
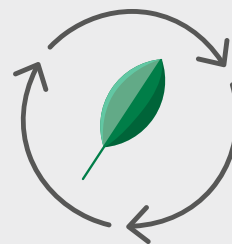




GENERATING
SHAREHOLDER
VALUE



ACHIEVING
**NET-ZERO
EMISSIONS**

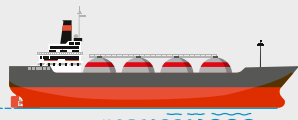
ENERGY **TRANSITION**



POWERING
LIVES



Shell plc
Energy Transition
Progress Report 2021



RESPECTING
NATURE



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INTRODUCTION AND SUMMARY

Welcome to the Shell Energy Transition Progress Report. This report aims to update investors and wider society on how Shell is progressing with the energy transition strategy that investors supported in 2021.

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CHAIR'S MESSAGE



Sir Andrew Mackenzie, Chair, Shell plc

As we publish this report, the war continues in Ukraine. We are working hard to ensure the safety of our staff and contractors, and to support relief efforts. We have also announced our intention to withdraw from Russian oil and gas.

As well as being a human tragedy, the war has led to rising energy prices and uncertainty about supplies.

This extreme disruption in global energy markets has shown that affordable, secure, and reliable energy cannot be taken as a given. It must be protected and managed, through international co-operation: companies, governments and wider society working together. This co-operation includes working with our shareholders and maintaining their support.

Shell will play a leading role as the world's energy systems change. We will continue to supply the oil and gas that people need today. As one of the world's largest suppliers of liquefied natural gas (LNG), we can ship natural gas to where it is needed most. At the same time, we are accelerating the transition to low- and zero-carbon energy, which is at the heart of our strategy.

Essentially, an accelerated transition is the best way to ensure security of energy supplies. It is also the best way to help people in some parts of the world who do not yet have access to energy, which is essential for a better quality of life.

Towards net zero

We firmly believe our climate targets are aligned with the more ambitious goal of the UN Paris Agreement on climate change: to limit the increase in the average global temperature to 1.5°C above pre-industrial levels. The actions Shell takes over the coming years, and our progress against our short- and medium-term targets, will be crucial steps to ensure that we become a net-zero emissions energy business by 2050.

In the first year of our Powering Progress strategy, we have laid the foundations for success. We have taken critical investment decisions in the production of low-carbon fuels, solar and wind power, and hydrogen. We have made significant changes to our Upstream and refinery portfolios, we reshaped the organisation and we simplified the company and its share structure. We have formed partnerships with some of the world's biggest companies in sectors from aviation to road transport and technology.

In 2021, we added an ambitious new target to halve absolute emissions from our operations and the energy we buy to run them by 2030 (Scope 1 and 2), compared with 2016 levels and on a net basis. We are well on our way with an 18% reduction by the end of 2021.

For comparison, we estimate that global energy- and fossil-related CO₂ emissions actually rose by 2.4% in the period between the end of 2016 and the end of 2021, based on International Energy Agency (IEA) and other data.

Change in demand

We believe that for the world to decarbonise, a dramatic change in demand for energy is just as critical as changes to supply. That is why an essential part of Shell's strategy is working with our customers across different sectors to reduce emissions.



We are helping our customers to identify and use low- and zero-carbon alternatives to the energy products they have used for many decades: renewable electricity and hydrogen to power homes, cars, trucks, businesses, and industry; biofuels for cars, trucks and planes; LNG for power, trucks and ships; and carbon capture and storage and nature-based carbon offsets to deal with any remaining emissions.

This is not only the right approach for the world. It also makes good business sense. We see great business opportunities for Shell in the fast-growing low- and zero-carbon markets where we are well positioned to provide the different products and solutions our customers need.

We are leading the way in new technologies that will help to decarbonise our operations, and to reduce emissions for our customers. Our scientists are developing new ways to store hydrogen safely, including underground, for example, which will be critical to ensure secure, large-scale supplies of hydrogen to our industrial customers in the future. And our engineers are designing LNG projects which are powered by renewable electricity.

Remuneration

We included progress in the energy transition in the calculation of the annual bonus for almost all Shell's employees in 2021. Now we are going further. From 2022, we have extended how we measure progress to cover three key themes; reducing emissions from our operations, sales of low- and zero-carbon products and partnering with others to decarbonise road transport.

In 2019, we were the first major energy company to include an energy transition performance metric in our Long-term Incentive Plan for senior executives. This has vested for the first time at 180%, reflecting our progress in transforming Shell's business for a lower-carbon future.

Stronger and more profitable

Last year, 89% of Shell's shareholders voted in favour of our energy transition strategy. We are implementing that strategy, and this year we are asking shareholders to vote on our progress, as we will do every year until 2050. The next energy transition strategy update for an advisory vote is in 2024 and we will give another update on our progress next year.

Securing shareholder support as we implement our Powering Progress strategy is good governance. The vote on our progress towards our targets and plans is purely advisory and will not be binding on our shareholders. The legal responsibility for Shell's strategy lies with the Board and Executive Committee.

When I look at what we have achieved in 2021, and our plans for the years ahead, I believe that Shell will become stronger and more profitable by providing the low- and zero-carbon energy products and services that our customers need. That is good for our shareholders. It is good for our customers. It is also good for the world's climate goals and the planet.

The continued support of our shareholders is critical for us to become a net-zero emissions energy business and a leader in the energy transition. We believe that Shell's energy transition strategy is in the best interests of our shareholders as a whole and wider society.

The Board recommends that you vote in favour of Resolution 20 in support of the progress that Shell has made in its energy transition strategy over the past year as described in this report.



CHIEF EXECUTIVE OFFICER'S INTRODUCTION



Ben van Beurden, CEO, Shell plc

In a time of great uncertainty, it is vital that our long-term energy transition strategy remains on track. This report shows the strong progress we have made towards our target to become a net-zero emissions energy business by 2050.

It will take bold moves for Shell to achieve net zero. In 2021, we took some significant steps. We completed one of the biggest restructurings in our history, making us a more agile company. We decided to simplify our share structure, and moved Shell's headquarters from the Netherlands to the UK.

Targets

In this Energy Transition Progress Report, we show our progress against our climate targets in the year since our shareholders overwhelmingly supported our energy transition strategy.

We are making significant progress in a long-term plan. Crucially, we set a new target to reduce absolute emissions from our operations by 50% by 2030, compared with 2016 on a net basis. By the end of 2021, we had achieved a reduction of 18%. We achieved our short-term target to reduce the net carbon intensity of the energy products we sell by 2-3% by the end of 2021, also compared with 2016.

Now our targets start to get more ambitious. We are working towards a 9-12% reduction in net carbon intensity by 2024, and a 20% reduction by 2030. To put our targets into context, the International Energy Agency Net Zero by 2050 scenario suggests that the transport sector, which accounts for most of Shell's emissions, needs to see a reduction in net carbon intensity of 18% by 2030.

From today, our target to achieve net-zero emissions by 2050 is no longer conditional on society's progress, marking a further step forwards. This reflects the leading role we will play in the energy transition. We must find ways to be ahead of society where we can, while remaining a successful and profitable company.

As we have seen from the recent report by the Intergovernmental Panel on Climate Change, the world needs to take urgent action to meet its climate goals. While countries, companies and individuals are making significant changes, there is still a risk that the world will not achieve net-zero emissions by the middle of the century. This could mean that Shell would find it hard to meet its 2050 target as well. We are rising to that challenge and will demonstrate over time how we will reach our goal.

Working sector by sector

We are investing in low- and zero-carbon products such as renewable electricity, hydrogen, biofuels and chemicals. We are building a leading hydrogen business, and now operate 10% of total electrolyser capacity in the world. We are already one of the world's largest producers of biofuels through our joint venture in Brazil. And last year we started building one of Europe's biggest biofuels facilities.



Crucially, we are working sector by sector to identify the low- and zero-carbon products and services that our customers need. And we are laying the foundations for future expansion by building capacity and expertise. At the beginning of 2022, for example, with our joint-venture partners, we won bids to develop 5 gigawatts of floating wind power in the UK, enough to power 6 million homes. That is more than double the number of homes in Scotland.

Investing in net zero

Our Upstream business continues to provide the oil and gas the world needs today, and generates the returns to fund distributions to shareholders and our investments in the energy transition. Our production and sales of oil and gas will decrease in the coming years as we transform our business.

At the same time, our investments in the energy system of the future will increase significantly. By 2025, we expect around half of our total expenditure (cash capital expenditure and operating expenses) to be on low- and zero-carbon products and services including biofuels, hydrogen, power, charging for electric vehicles, carbon capture and storage, nature-based solutions, chemicals and lubricants. In 2022, we expect that around one third of our total expenditure will be on these low- and zero-carbon products and services.

Our planned investments in countries such as Germany, the Netherlands and the UK put us among the leading investors in the energy transition there. In the UK, for example, we plan to invest £20-25 billion (\$26-33 billion) over the next ten years, mostly in low- and zero-carbon projects including offshore wind, hydrogen and charging for electric vehicles, subject to Board approval.

Shareholder engagement

A central part of our Powering Progress strategy is delivering value for our shareholders. We have made good progress here too. In 2021, we produced a strong financial performance and announced an \$8.5 billion share buyback programme in the first half of 2022.

We will continue our dialogue with shareholders as Shell transforms and evolves. It is important that we are transparent about our progress in the energy transition. From the first quarter of 2022, we intend to publish more information about the profitability of our Renewables and Energy Solutions business, something that investors have asked for.

We believe that our strategy delivers secure and reliable energy that will accelerate the energy transition and deliver strong profits and returns to shareholders. I ask our shareholders to vote for Resolution 20 in support of our progress towards our targets and milestones as we accelerate towards net zero.



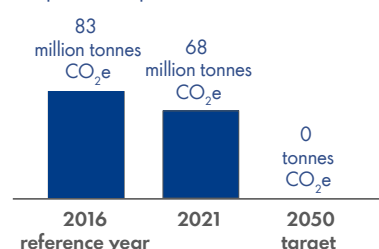
CARBON PERFORMANCE AT A GLANCE

OUR CARBON TARGETS for ALL ENERGY WE SELL, SCOPE 1, 2 & 3

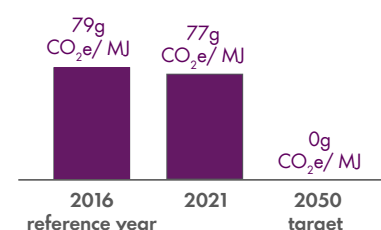
In 2021 we continued our progress on our path to net zero by 2050.

At the end of 2021, we had reduced our Scope 1 and 2 emissions by 18%, our Scope 3 emissions by 16%, and the net carbon intensity of our energy products by 2.5%, all from our 2016 reference year.

NET CARBON EMISSIONS Scope 1 & 2 operational emissions



NET CARBON INTENSITY



	Unit	2016 reference year	2021	2021 % from 2016	Targets
REDUCING ABSOLUTE EMISSIONS					
Scope 1 & 2 operational emissions [A]	million tonnes CO ₂ e	83	68	-18%	-50% in 2030 and net zero by 2050
Net total emissions (Scope 1, 2, 3) [B]	million tonnes CO ₂ e	1,645	1,375	-16%	Net zero by 2050
Eliminating routine flaring [A]	million tonnes CO ₂ e	n/a	0.2	n/a	Zero by 2025
Methane emissions	thousand tonnes methane	67 (2020)	55	-18% (2020)	
	Unit	2016 reference year	2021	2021 % from 2016	Targets
REDUCING CARBON INTENSITY					
Net carbon intensity [C]	CO ₂ e/ MJ	79g	77g	-2.5%	2021 2022 2023 2024 2025 2030 2035 2050
Methane emissions intensity [D]	%	n/a	0.06%	n/a	< 0.2%

[A] Operational control boundary.

[B] Direct and indirect greenhouse gas emissions based on the sales of energy products included in the net carbon intensity using equity boundary.

[C] Our total emissions (Scope 1, 2 and 3 equity boundary) peaked in 2018 at around 1.7 gigatonnes of carbon dioxide equivalent (GtCO₂e) per annum.

[D] Overall methane emissions intensity for facilities with marketing gas.

CO₂e/ MJ = Carbon dioxide equivalent per megajoule

n/a = not applicable



PROGRESS SUMMARY

We are transforming into a net-zero emissions energy business. In 2021 and the beginning of 2022 we:

- Reduced our Scope 1 and 2 emissions from our operations by 18%, and reduced the net carbon intensity of the energy products we sell by 2.5%, both by the end of 2021 compared with 2016.
- Formed more than 50 collaborations with other leading companies aiming to be at the forefront of the energy transition.
- Continued to build a material power business. We had 1.6 million retail customers worldwide by the end of February 2022, compared with 900,000 at the end of 2020. We have 4.7 gigawatts (GW) of renewable generation capacity in operation, under construction and/or committed for sale. We have a further 38 GW of renewable generation capacity in our pipeline of future projects.
- Expanded our hydrogen business. We have started production from 30 megawatts (MW) of electrolyzers that can produce around 4,300 tonnes a year of decarbonised hydrogen. We are looking to take final investment decisions on 10 times this capacity in 2022. We own and operate 10% of global electrolyser capacity today.
- Took a final investment decision on a facility in the Netherlands to produce 820,000 tonnes of biofuels a year. This facility will be one of the largest in Europe to produce sustainable aviation fuel (SAF) and renewable diesel made from waste, and is expected to start production in 2024.
- Continued to build the infrastructure that our customers will need as they move to low- and zero-carbon energy.
- Expanded our electric vehicle charging network to almost 90,000 charge points at the end of 2021, from around 60,000 in 2020.
- Increased the number of liquefied natural gas (LNG) refuelling sites in Europe and increased the number of sites for hydrogen refuelling in Europe, North America and China.
- Announced our ambition for SAF to make up at least 10% of our aviation fuel sales by 2030.
- Expanded our LNG bunkering operations, including the world's first bio-LNG bunkering, to help to reduce emissions from the marine sector. We also worked with others on programmes to develop hydrogen fuel cell propulsion for ships.
- Worked with customers across sectors such as commercial, light industry and technology to decarbonise their energy use by providing renewable electricity.
- Developed partnerships in the heavy industry sector to explore how hydrogen and carbon capture and storage (CCS) can be used to reduce global carbon emissions.
- Invested in CCS. We have two CCS projects in operation and more than 10 under development.
- Retired around 6 million tonnes of nature-based credits, excluding trading activities, in 2021.
- Supported climate-related government policies that advance the goal of the Paris Agreement on climate change.



In June 2021, Shell opened its first hydrogen refuelling station for buses in Groningen, the Netherlands.

OUR PERFORMANCE

Read in more detail about our performance against our climate targets and how we are working to achieve net-zero emissions by 2050.

- 09** ABSOLUTE EMISSIONS
- 11** NET CARBON INTENSITY



ABSOLUTE EMISSIONS

REDUCING OUR ABSOLUTE SCOPE 1 AND 2 EMISSIONS

To achieve net-zero emissions by 2050, we are transforming how we produce energy as we continue to meet growing demand.

In October 2021, we set a new target to halve the emissions from our operations (Scope 1), plus the energy we buy to run them (Scope 2), by 2030 compared with 2016 levels on a net basis.

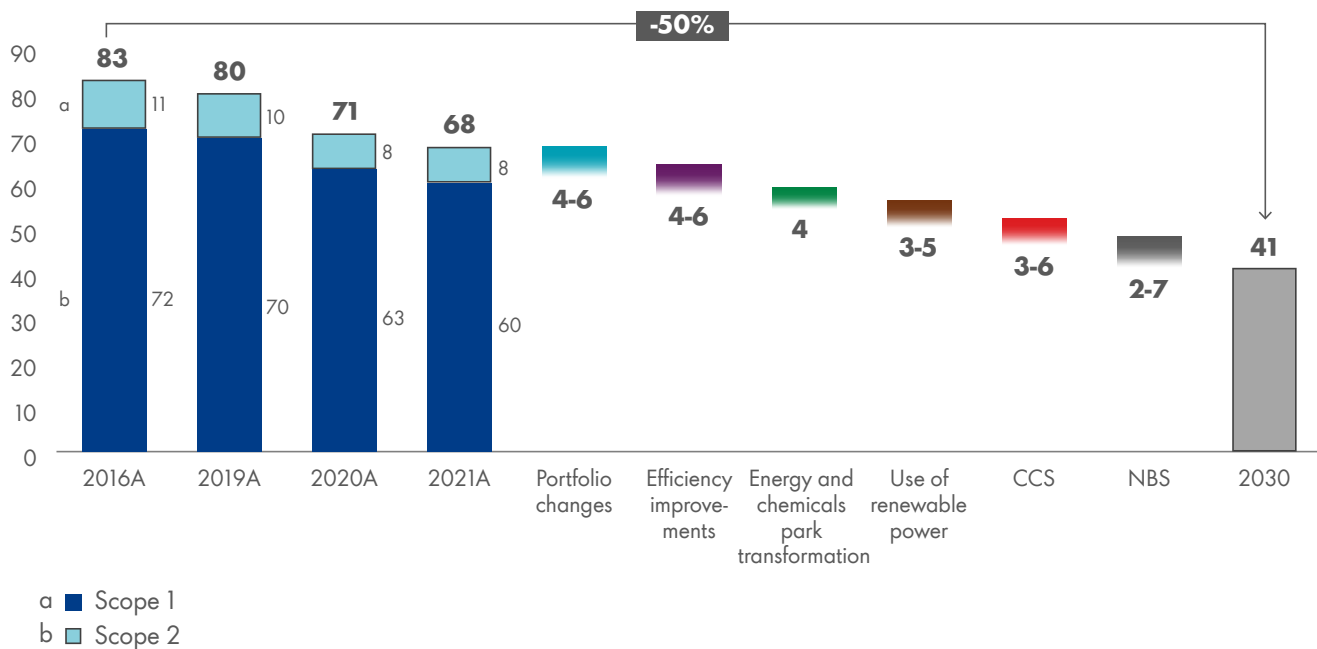
We have identified six main ways to decarbonise our operations:

- making portfolio changes such as acquisitions and investments in new, low-carbon projects. We are also divesting assets and reducing our production through the natural decline of existing oil and gas fields;
- improving the energy efficiency of our operations;
- transforming our remaining five refineries into low-carbon energy and chemicals parks;
- using more renewable electricity to power our operations;
- developing carbon capture and storage (CCS) for our facilities; and, if required,
- using nature-based solutions to offset any remaining emissions from our operations.

The chart below illustrates our current plans to achieve our Scope 1 and 2 target.

WORKING TO REDUCE OUR ABSOLUTE SCOPE 1 AND 2 EMISSIONS

Scope 1 and 2 emissions in million tonnes CO₂e annum [A] [B]



[A] This chart assumes no adjustments to the base year.

[B] Operational control boundary.

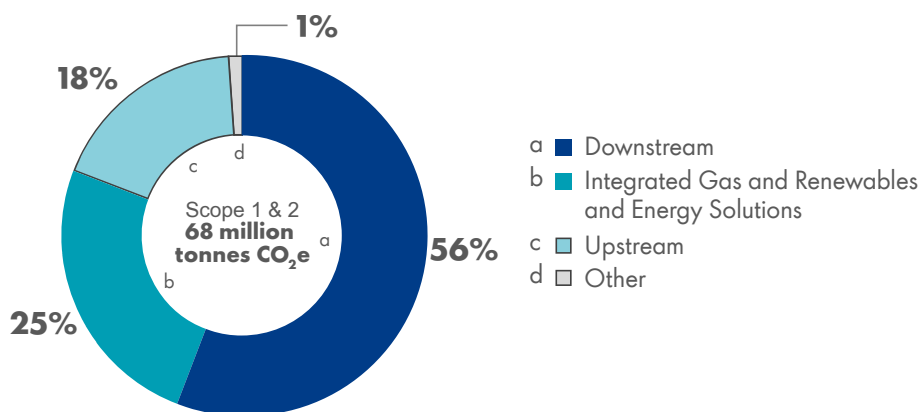


PROGRESS IN 2021

By the end of 2021, we reduced Scope 1 and 2 emissions under our operational control to 68 million tonnes of CO₂ equivalent, an 18% reduction compared with 2016, our base year. This shows significant progress towards achieving our target of a 50% reduction by 2030.

In 2021, we improved energy efficiency across our assets. For example, we implemented a project to reduce power requirements for gas compression at our QGC natural gas project in Australia. Most of our Scope 1 and 2 emissions came from our Downstream business, in particular from our refining activities. Portfolio changes, such as the sale of the Martinez and Puget Sound refineries in the USA, and the transformation of our Bukom refinery in Singapore into a low-carbon energy and chemicals park, also helped to reduce emissions from our operations. Shell's Annual Report and Accounts provides more details of how we reduced our Scope 1 and 2 emissions.

SCOPES 1 & 2 – PERFORMANCE [A]



[A] Total direct (Scope 1) and energy indirect (Scope 2) GHG emissions from assets and activities under operational control boundary. They include emissions from production of energy and non-energy products. For Scope 2, we used the market-based method.

Methane emissions are included in our Scope 1 and 2 emissions reporting. In 2021, we reduced total methane emissions from our operations by 18% to 55,000 tonnes, compared with 67,000 tonnes in 2020. In 2021, our methane emissions intensity averaged 0.06% for assets with gas available for sale, well within our target to maintain less than 0.2% by 2025.

In 2021, we brought forward our target to eliminate routine gas flaring from our Upstream operations to 2025 from 2030. In 2021, routine flaring from our Upstream operations fell to 0.2 million tonnes of hydrocarbons from 0.3 million tonnes of hydrocarbons in the previous year. Despite this, our overall flaring increased from 0.8 million tonnes of hydrocarbons to 1.0 million tonnes because of non-routine flaring, mainly as a result of operational issues in Nigeria. [Shell's Sustainability Report](#) provides more information about flaring.



NET CARBON INTENSITY

We are working with our customers to provide the energy they need today, and to accelerate the energy transition. This means changing our portfolio of products as we provide low- and zero-carbon energy products and services such as biofuels, hydrogen and renewable electricity.

If our customers are not able to use these products, we will help them to store and offset remaining emissions through carbon capture and storage and by providing high-quality, nature-based solutions. By 2050, we will no longer serve customers who have unmitigated carbon emissions.

To achieve net zero, we must reduce emissions from our operations, our Scope 1 and 2 emissions, to zero. We must also cut emissions from the use of energy products sold by Shell (Scope 3), by reducing sales of oil and gas products and growing sales of low- and zero-carbon products and services.

We use net carbon intensity [A] to show our progress, which measures emissions associated with each unit of energy we sell. Crucially, it reflects both a reduction in sales of oil and gas products, and growth in sales of low- and zero-carbon products and services.

Reducing net carbon intensity encourages us to work with our customers in sectors such as aviation and shipping to decarbonise their use of energy, while still providing the oil and gas they need today. And, as an intensity metric, it measures the true transformation that is happening in the company as we implement our energy transition strategy.

Other metrics, such as a simple total carbon emissions metric, would reflect how our sales of oil and gas products are shrinking, but would not provide information on how we are changing our mix of products.

We believe that our total absolute emissions peaked in 2018 at 1.7 gigatonnes, and our total absolute emissions were 1.4 gigatonnes in 2021. We are working to reduce them to net zero by 2050. This is the same as a 100% reduction in net carbon intensity.

ALIGNED WITH PARIS

We believe our targets are aligned with the more ambitious goal of the Paris Agreement: to limit the increase in the global average temperature to 1.5°C above pre-industrial levels. There is no standard methodology to determine how to align companies' plans and targets with the goal of the Paris Agreement.

We studied a subset of IPCC scenarios that achieve that goal and were focused on earlier action and placed less reliance on the use of carbon sinks. From this subset, we calculated the range of carbon intensity pathways over time. We set our targets to fall within these pathways.

Our calculations show that the net carbon intensity of the energy mix will need to fall by around 15-35% by 2030. Shell has set a target to reduce the net carbon intensity of the energy products we sell by 20% by 2030.

[A] We measure net carbon intensity using our [Net Carbon Footprint methodology](#).

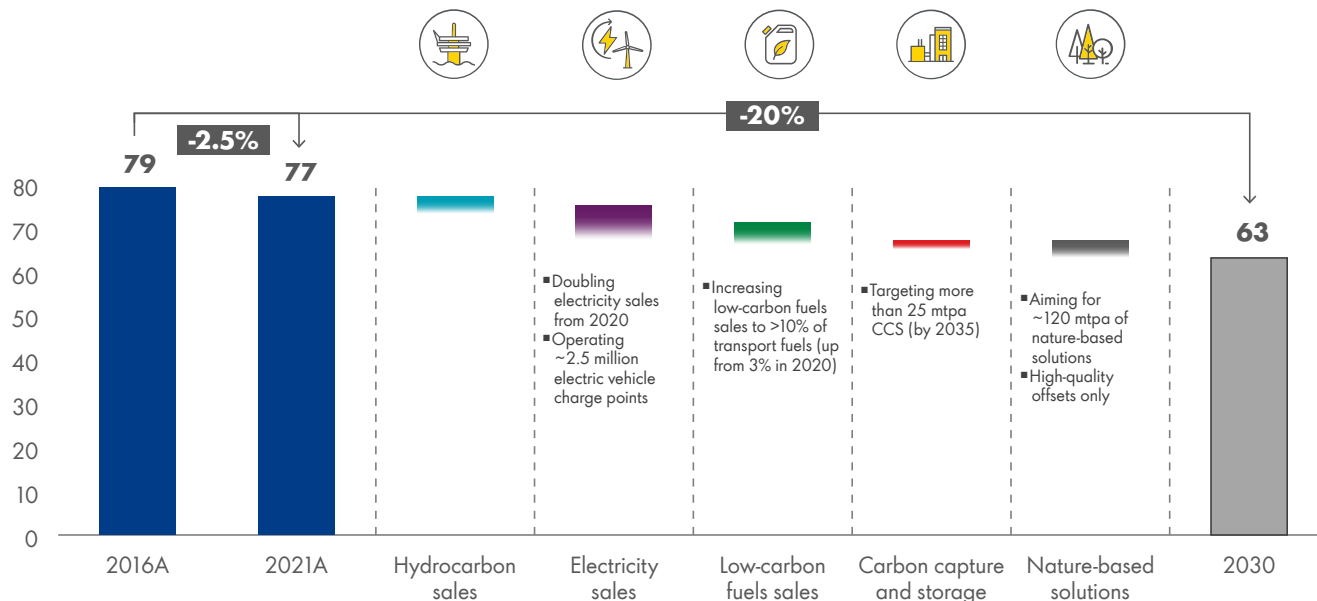


REDUCING CARBON INTENSITY

The biggest driver for reducing our net carbon intensity is increasing our sales of low-carbon products and services. The chart below illustrates how this change in our product mix could help us to achieve our target to reduce our net carbon intensity by 20% by 2030.

WORKING TO REDUCE OUR NET CARBON INTENSITY

Net carbon intensity in gCO₂e/MJ [A]



[A] Grams of carbon dioxide equivalent per megajoule.

Hydrocarbon sales reflect the effect of lower sales of oil products, and higher sales of natural gas. Emissions associated with gas are lower than those of oil products.

Electricity sales show the expected growth of our integrated power business and increasing sales of renewable electricity.

Sales of low-carbon fuels reflect higher sales of biofuels and hydrogen, which are low- and zero-carbon products.

Carbon capture and storage (CCS) reduces carbon emissions by capturing them at source. Nature-based solutions offset carbon emissions, particularly in hard-to-abate sectors such as aviation and industries including cement and steel.

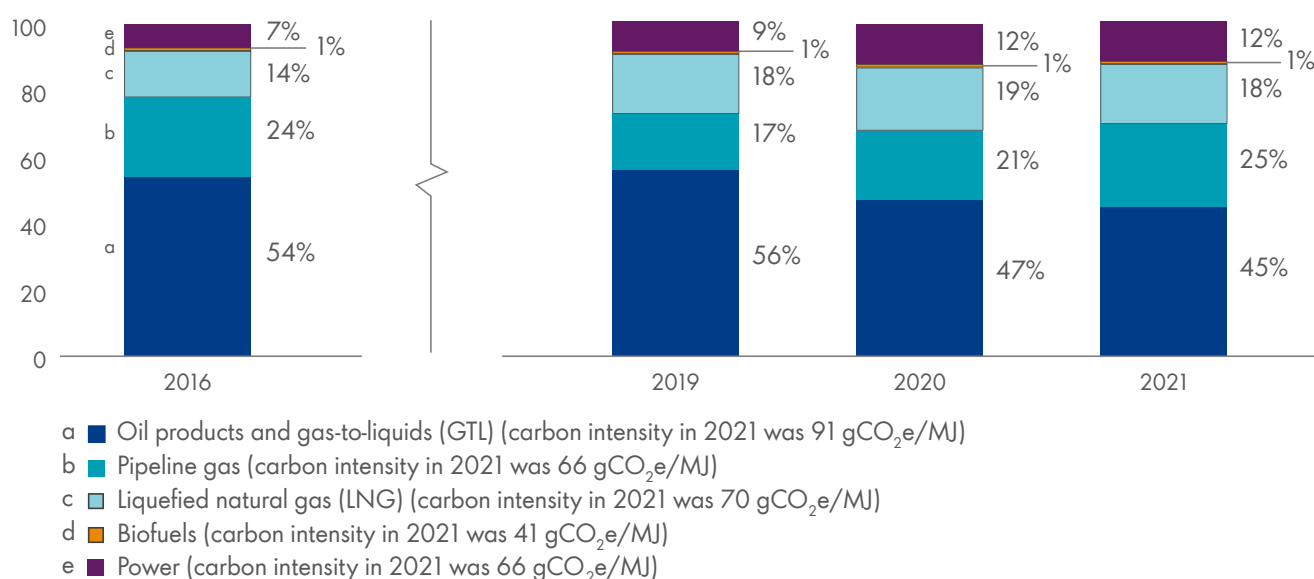


CARBON INTENSITY PROGRESS

We achieved our short-term target to reduce our net carbon intensity by 2-3% compared with 2016, the base year, with a 2.5% reduction in 2021. We achieved this reduction by shifting our portfolio to lower-carbon energy products such as natural gas, power and biofuels, which now make up 55% of our total energy sales, compared with 46% in 2016.

In 2021, Shell's net carbon intensity was 77 gCO₂e/MJ, a 2.7% increase from the previous year. This increase was largely because we made a change in our methodology to better calculate the carbon intensity of our electricity sales. This approach distinguishes between the certified renewable electricity we purchase, electricity from our own generation, or purchased through a power purchase agreement, and electricity purchased from the grid.

SHARE OF ENERGY DELIVERED PER ENERGY PRODUCT TYPE [A]-[F]



[A] Percentage of delivered energy may not add up to 100% because of rounding.

[B] Total volume of energy products sold by Shell, aggregated on an energy basis, with electricity represented as fossil equivalents. This value is derived from energy product sales figures disclosed by Shell in the Annual Report, Form 20-F and the Sustainability Report.

[C] Lower heating values are used for the energy content of the different products and a fossil-equivalence approach is used to account for electrical energy, so that it is assessed on the same basis as our other energy products.

[D] The NCI calculation uses Shell's energy product sales volume data, as disclosed in the Annual Report and Sustainability Report. This excludes certain contracts held for trading purposes and reported net rather than gross. Business-specific methodologies to net volumes have been applied in oil products and pipeline gas and power. Paper trades that do not result in physical product delivery are excluded. Retail sales volumes from markets where Shell has issued trademark licensing agreements are also excluded from the scope of Shell's carbon intensity metric.

[E] In 2021, emissions included in carbon intensity of power have been calculated using the market-based method.

[F] The carbon intensity of biofuels provided in the graph "Share of energy delivered per energy product type" reflects the global average for biofuels sold by Shell for 2021.



In 2021, Shell opened its first electric vehicle charging hub in London, UK.

SECTORAL DECARBONISATION

Read how Shell is working with customers, sector by sector, to help to transform the energy system.

- 15** TRANSFORMING THE ENERGY SYSTEM
- 16** BUILDING NEW SUPPLY CHAINS
- 19** CHANGING DEMAND ACROSS SECTORS



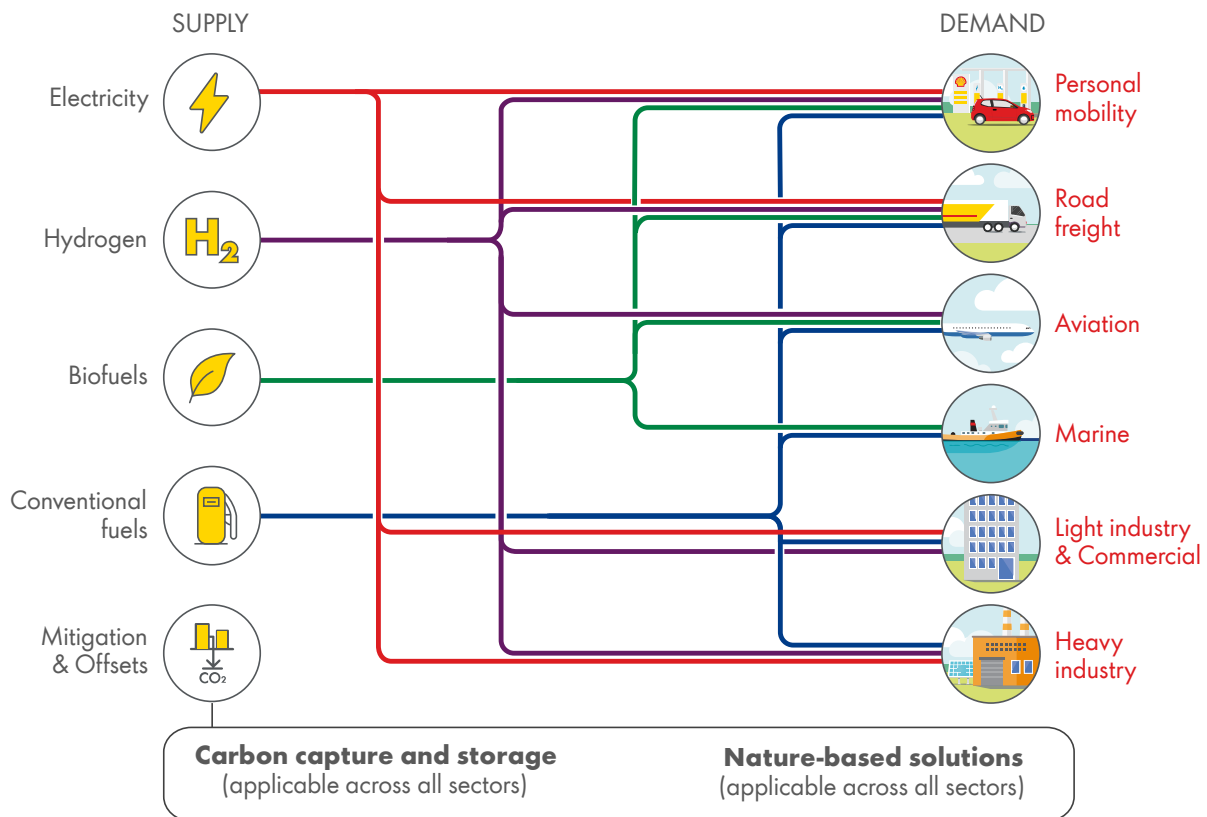
TRANSFORMING THE ENERGY SYSTEM

To help to transform the energy system, Shell is working with customers, sector by sector. We have formed more than 50 collaborations with other leading companies aiming to be at the forefront of the energy transition.

Our strategy is to:

- provide more electricity, while also shifting the power system to renewable energy;
- develop alternative zero- and low-carbon solutions to traditional fuels, including biofuels, hydrogen, and other zero- and low-carbon gases; and
- address any remaining emissions with decarbonisation solutions such as carbon capture and storage and nature-based solutions.

OUR INTEGRATED ENERGY PORTFOLIO [A]



[A] Graphic shows our portfolio of energy products and does not include other products such as chemicals and lubricants.



BUILDING NEW SUPPLY CHAINS

ELECTRICITY

We are building a material power business. By 2030, we aim to sell around 560 terawatt hours of electricity per year. This is more than twice the electricity we sell today.

We provide electricity and smart energy solutions to residential, commercial and industrial customers through direct electricity sales, and services such as electricity storage. We had 1.6 million retail customers worldwide by the end of February 2022, compared with 900,000 at the end of 2020. This increase is largely because we added more than 500,000 retail customers in the UK in 2021, and around 185,000 retail customers in Australia following our acquisition of PowerShop in 2022. Our largest markets for commercial and industrial customers are in Australia and the USA.

In addition to the investments we have made in building our customer base, we are also investing in building our generation capacity. We have 4.7 GW of renewable generation capacity in operation, under construction and/or committed for sale. We have a further 38 GW of renewable generation capacity in our pipeline of future projects.

We have added to our renewable generation capabilities by acquiring Savion, a US-based solar and energy storage specialist; Solar-Konzept Italia, an Italian solar specialist; and WestWind, a wind specialist based in Australia.

Shell is one of the leading developers of floating wind farms in the world with prototypes, pilot farms and commercial-scale projects in development in France, Ireland, Norway, Scotland and South Korea.



Shell and ScottishPower have secured joint offers for seabed rights to develop large-scale floating wind farms off the east and north-east coast of Scotland.

HYDROGEN

We are expanding our hydrogen projects to serve sectors such as road freight, steel and cement. These projects include the production, storage and shipping of hydrogen.

As we grow, we are using Shell's integrated businesses to connect the different parts of the hydrogen system, from offshore wind to power the electrolyzers that produce hydrogen, to using hydrogen in our energy and chemicals parks and eventually, supplying it through our retail network.

We are increasing our capacity, investing in infrastructure and helping to increase the scale and the adoption of hydrogen across different sectors. We have increased our total electrolyser capacity from 2 MW to 30 MW, 10% of the global capacity of installed electrolyzers in 2020, according to the International Energy Agency (IEA).

We have added a 20 MW electrolyser in China, which at the time was the largest in the world, and a 10 MW proton exchange membrane (PEM) electrolyser in Germany, the biggest of its kind in Europe. The electrolyzers can produce 3,000 tonnes and 1,300 tonnes of decarbonised hydrogen a year respectively.



In 2022, with our partners, we plan to take final investment decisions on electrolyzers with a total capacity of 300 MW. In the Netherlands, we plan to build a 200 MW electrolyser, which is expected to start operations by 2024 and to produce around 20,000 tonnes of hydrogen per year. In Germany, we plan to take a final investment decision on a 100 MW electrolyser in 2022.



Our 10 MW proton exchange membrane (PEM) electrolyser in Germany.

BIOFUELS

The transport sector accounts for 37% of global emissions, according to the IEA. Biofuels such as sustainable aviation fuel (SAF), biodiesel, bioethanol and renewable natural gas are low-carbon fuels which can be used by customers to reduce their emissions without having to change their airplanes, cars, trucks, or ships.

In 2021, around 9.1 billion litres of biofuels were blended into Shell's fuels worldwide, around 5.8% of global biofuels consumption, according to figures from the IEA.

Shell and our Brazilian joint venture Raízen, in which Shell has a 44% share, are together among the world's largest blenders and distributors of biofuels for the mobility sector. Raízen produced 2.5 billion litres of first-generation ethanol in 2021, which is around 2.5% of global ethanol production, according to the IEA. It also acquired Biosev, adding a further 50% to its production capacity. And it took a final investment decision on its second-generation cellulosic ethanol facility, which will have a capacity of 80 million litres and is expected to start operations in 2023.

In the Netherlands, Shell took a final investment decision on a facility to produce 820,000 tonnes of biofuels a year. This facility will be one of the largest in Europe to produce SAF and renewable diesel made from waste, and is expected to start production in 2024. We are considering further investments to produce SAF at our energy and chemicals parks in Germany and Singapore.

As well as liquid biofuels, we are developing the supply of renewable natural gas (RNG). Our newly operational Junction City RNG plant in Oregon is the largest plant in the USA to produce natural gas from agricultural residues, with an annual capacity of 736,000 million British thermal units.



Raizen is one of the world's largest blenders and distributors of biofuels for the mobility sector.

CONVENTIONAL FUELS

The world will need less oil and gas as it moves to a low- and zero-carbon energy system. This transition is reflected in Shell's changing portfolio. In 2021, our oil production was 3.9% lower than in the previous year, as a result of divestments and natural decline. It was 7.6% lower than in 2019, when our oil production peaked. We expect our oil production to decline by an average of 1-2% a year to 2030.

We plan to reduce annual spending on exploration to around \$1.5 billion between 2021 and 2025. We do not anticipate any new frontier exploration entries after 2025.

We are transforming our refineries into five energy and chemicals parks which will produce low-carbon and synthetic fuels, as well as bitumen, lubricants and chemicals. The transformation of our refineries will help us to reduce production of traditional fuels by 55% by 2030, from around 91 million tonnes per annum (mtpa) in 2020 to 45 mtpa by 2030. In 2021, we reduced our production of traditional fuels to 71 mtpa.

Liquefied natural gas (LNG) plays an important role in enabling countries to replace coal-fired power generation with a lower-carbon alternative. We are adding around 7 mtpa of new LNG capacity, which is under construction and expected to be on stream around the middle of the decade. This includes our LNG Canada joint venture and our interest in a new LNG processing unit in Nigeria.



CHANGING DEMAND ACROSS SECTORS

A critical part of our success in the energy transition will be our ability to work sector by sector with customers and stakeholders. By listening to our customers, learning from them and working with them, we can understand what they value and need as the world moves towards a lower-carbon future. We aim to use such insights to profitably provide the low-carbon products and services they will want to buy.

We are also working with those operating in each sector, and with policymakers, to increase ambition around reducing emissions, better enable changes to infrastructure, and provide favourable conditions for investing in lower-carbon options. We are joining coalitions focused on decarbonising sectors and working with others to produce reports that identify and show pathways to reduce emissions in some of the sectors that are hardest to abate.

PERSONAL MOBILITY

Shell is the world's largest mobility retailer, with more than 46,000 service stations operating in more than 80 markets. We believe the biggest opportunity to decarbonise our portfolio is by offering more low-carbon alternatives such as biofuels, hydrogen and charging for electric vehicles.

In 2021, Shell operated almost 90,000 electric vehicle charge points, up from around 60,000 in the previous year. We aim to increase this to more than 500,000 by 2025, and to 2.5 million by 2030. That is around 7% of the expected number of charge points in the world by 2030, according to the IEA. In January 2021, we acquired ubitricity, a European provider of on-street charging for electric vehicles through lamp posts.

We are also expanding our network of hydrogen refuelling stations. By the end of 2021, there were around 50 hydrogen refuelling stations at Shell-branded outlets in Europe and North America where drivers can fill up their vehicles with hydrogen fuel.

In Germany, we are a member of the H2 Mobility joint venture to develop a nationwide network of hydrogen refuelling stations for passenger cars. The venture operates more than 90 stations across Germany.

We offer carbon credits to passenger car drivers who want to offset the life-cycle emissions of the fuel they buy from Shell. We have made this offer available to passenger car drivers at more than 3,100 retail sites in Austria, Canada, Denmark, Germany, Hungary, the Netherlands, Switzerland and the UK. In 2021, around 49 million litres of fuel sales were offset, accounting for 1% of our total volumes sold in markets where we have an offset programme.

Shell supports the European Commission's proposal to reduce greenhouse gas emissions from road transport by 13% by 2030.



Shell's ubitricity provides on-street charging for electric vehicles through lamp posts across the UK and the European Union.



ROAD FREIGHT

The road freight sector will be able to use battery electric power and hydrogen to get to net zero, as well as biogas, biofuels and liquefied natural gas (LNG). LNG can help to reduce greenhouse gas emissions in trucks and buses. In 2021, we added 18 LNG refuelling stations to our network, which now consists of 44 sites across Europe.

In 2022, we started construction of our bio-LNG liquefaction plant in Rheinland, Germany, which will provide bio-LNG to 4,000-5,000 LNG trucks by 2023. We also started offering bio-LNG blended with regular LNG to all our customers in the Netherlands.

We are working with partners to increase the adoption of hydrogen and electric trucks. We signed an agreement with Daimler Truck AG, for example, to encourage the adoption of hydrogen trucks in Europe. Shell aims to build 150 hydrogen refuelling stations and supply around 5,000 Mercedes-Benz heavy-duty trucks with hydrogen by 2030.

In the USA, through our subsidiary Shell Recharge Solutions, we started providing electric charging infrastructure for trucks as part of a project led by Volvo Group and South Coast Air Quality Management District.

We offer nature-based carbon credits to fleet customers in 17 countries. This enables them to offset the emissions generated by the extraction, refining, distribution and use of the Shell fuel they buy.

We support policies and incentives in the European Union (EU) that would enable all new medium- and heavy-duty vehicle sales to be zero-emissions vehicles by 2040, to help the EU to meet its 2050 carbon neutrality goal.



Hydrogen-fuelled Mercedes-Benz heavy-duty truck.

AVIATION

Sustainable aviation fuel (SAF) is the aviation sector's most viable option for reducing its emissions in the short to medium term.

SAF currently accounts for less than 0.1% of the world's consumption of aviation fuel. Currently, Shell supplies SAF made by others. From 2024, we will start supplying customers with SAF produced at our Shell Energy and Chemicals Park Rotterdam, the Netherlands. In September 2021, we announced our ambition to produce around 2 million tonnes of SAF a year by 2025 and to have at least 10% of our global aviation fuel sales as SAF by 2030.

We are working with Rolls-Royce to test 100% SAF in airplane engines for the first time. In 2022, Shell was the first company to supply SAF to customers in Singapore where we have established the supply chain, from blending to distribution, for the Asian market.

We support tax incentives to help to drive down the cost of SAF around the world. We are advocating that the EU's 2030 target for the use of SAF doubles from 5% to 10%, and for governments and policymakers to encourage the International Civil Aviation Organization to adopt a net-zero emissions target for 2050.



The aviation sector needs verifiable, high-quality nature-based solutions (NBS) to offset emissions, and we are offering these to airline customers such as Etihad Airways. Shell also sees a potential opportunity for hydrogen in aviation and we have taken a stake in ZeroAvia, a developer of hydrogen-electric aircraft.

MARINE

The marine sector, like aviation, is hard to decarbonise because of the long life cycle of vessels and high upfront investment costs. Low-carbon solutions include hydrogen and ammonia in the long term, and LNG, biofuels and methanol in the short term. We are developing an initial portfolio of biofuels for shipping, and in 2021, we performed the first bio-LNG bunkering trial in Rotterdam, the Netherlands.

We have completed more than 400 ship-to-ship LNG bunkering operations in seven countries and eight ports. In 2021, we carried out the first LNG bunkering operations in Gibraltar and Singapore. We are aiming to double the size of our LNG bunkering network by the mid-2020s, to around 15 major ports on key international trading routes. Shell is a member of a coalition that is calling for at least 5% zero-emissions fuel in international shipping by 2030, and for commercially viable zero-emissions vessels on deep-sea trade routes.



We aim to double the volume of our LNG bunkering by the mid-2020s.

LIGHT INDUSTRY AND COMMERCIAL

We serve customers across the industrial and commercial sectors where there is growing demand for decarbonisation products and services. More than 2,000 companies and organisations have made commitments to get to net-zero emissions by 2050. We are now forming strategic alliances with big multinational companies such as Microsoft and Amazon, helping them and us to achieve our net-zero aims.

For example, we are supplying Microsoft with renewable energy as part of our strategic alliance launched in 2020. In 2021, we advanced this partnership by signing several agreements to supply more than 500 MW of renewable energy, helping Microsoft to meet its goal of using 100% renewable energy by 2025.

HEAVY INDUSTRY

The heavy industrial sector includes utilities, process industries, such as chemicals, refining and industrial gases, and heavy manufacturing industries such as steel, cement, glass, and paper and pulp.

It is challenging to decarbonise these sectors rapidly because they involve complex processes and the required technologies are not available at scale. They also tend to involve processes that require high temperatures, dense energy storage and, in many cases, chemical reactions that produce CO₂ as part of the production process.

In 2021, we entered into several agreements with leading businesses to reduce emissions from heavy industry. We are exploring how hydrogen can help to reduce emissions from the steel sector, for example, in partnership with steel producers Baosteel in



China and Bluescope in Australia. Together with companies such as Pan-United Corporation in Singapore, we are developing opportunities to produce low-carbon concrete products.

In industrial hubs where we have low-carbon energy and chemicals parks, including in the Netherlands and Singapore, we are working with other companies to build the infrastructure required to support the decarbonisation of several facilities at one time.

CARBON CAPTURE AND STORAGE

Shell's ambition is to work with governments, customers and partners to unlock the potential for carbon capture and storage (CCS) to reduce emissions where there are no currently scalable low-carbon alternatives. We seek to have access to an additional 25 million tonnes a year of CCS capacity by 2035 – equal to 25 CCS facilities the size of our Quest site in Canada.

In 2021, Shell's operating costs for and investment in CCS opportunities amounted to around \$146 million. Shell's share of captured and stored CO₂ was 0.4 million tonnes in 2021. By the end of 2021, our Quest CCS operations in Canada (Shell interest 10%) had captured and safely stored more than 6.5 million tonnes of CO₂ since it began operating in 2015. In Australia, the Gorgon CCS project (Shell interest 25%, operated by Chevron), which started operating in August 2019, had stored more than 5 million tonnes of CO₂ by the end of 2021. Gorgon is the largest CCS operation in the world.

We have taken a final investment decision on the Northern Lights project in Norway which includes the transport and permanent storage of CO₂ in a reservoir beneath the sea. The first phase of this project will provide more than 0.25 million tonnes per annum (mtpa) of CCS capacity by 2025. In total, we have two CCS projects in operation and more than 10 under development.

Shell's CANSOLV CO₂ system is one of the leading large-scale, post-combustion, carbon capture technologies in commercial operation. After capture, the CO₂ is released as a pure stream that can be stored or used in other processes. In 2021 and the first quarter of 2022, Shell's CANSOLV technology was selected for six projects with the potential to capture a combined 12 million tonnes of CO₂ a year [A]. These projects are in the UK and the USA and span the refining, chemicals and power sectors.

Read more about our CCS projects at www.shell.com/ccs.

NATURE-BASED SOLUTIONS

Carbon credits generated by high-quality nature-based projects may be used by Shell and our customers to offset emissions in line with the mitigation hierarchy of avoid, reduce and offset.

Shell is investing in the development of high-quality nature-based projects, which are independently audited for the quality and quantity of credits. In 2021, we invested \$26 million in nature-based solutions, such as reforestation and the prevention of landscape degradation and destruction. We also invested \$11 million in cookstove projects, which reduce the emissions from households traditionally using open fires for cooking.

In 2021, we expanded our offer of carbon credits to drivers and business customers who wish to compensate for the life-cycle CO₂-equivalent emissions generated by their use of the Shell fuel they buy. We have made this offer available to our fleet customers in 17 countries and to retail customers at more than 3,100 service stations in Austria, Canada, Germany, Hungary, the Netherlands, Switzerland and the UK.

We retired around 6 million credits in 2021, which we estimate is the equivalent to 2.9 million cars being taken off the road for one year. Of these, 5.1 million credits were retired in association with the use of our energy products by our customers, with the remainder associated with the production of synthetic lubricants and emissions from Shell's business travel.

It is important that nature-based carbon credits are of high quality. In November 2021, Shell published a report 'Ensuring high-quality nature-based carbon credits' that sets out our expectations and approach to quality across our portfolio of nature-based solutions.

We expect the market for high-quality credits to grow sharply during the next decade. We expect to retire around 120 million credits in 2030.

[A] This is shared as an example of how Shell is developing and using technology to capture CO₂.



The Nyhamna gas processing plant in Norway delivers gas to Europe from the Shell-operated Ormen Lange field.

FINANCIAL FRAMEWORK

Read about our planned total expenditure and expected returns across our businesses.

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INVESTMENTS AND RETURNS

Shell's financial strength and access to capital give us the ability to provide significant shareholder returns and to profitably transform our portfolio to meet our target of achieving net-zero emissions. They also allow us to withstand volatility in oil and gas markets and to continue to provide the energy the world needs.

We are stepping up our investments in low- and zero-carbon energy where we see good opportunities for growth and strong returns. From the first quarter of 2022, we will report separately on the performance of our Renewables and Energy Solutions business, which includes our integrated power, hydrogen, carbon capture and storage, and nature-based solutions businesses. We will also report separately on the performance of our Marketing business, which includes charging for electric vehicles and biofuels. We expect to provide more details on the performance of these activities as they grow.

We set out our planned total expenditure (cash capital expenditure and operating expenses) [A], and expected returns, across our businesses. Our strategy is to:

- **Increase our investments in Marketing and Renewables and Energy Solutions, with expected returns of 15-25% and more than 10% respectively.**

These businesses include our service stations, sales of gasoline and diesel, fuels for business customers, power, hydrogen, biofuels, charging for electric vehicles, nature-based solutions, and carbon capture and storage. They focus on working with our customers to accelerate the transition to net zero and are the foundations for the future businesses in Shell.

- **Maintain our investments in our Integrated Gas and Chemicals and Products businesses, with expected returns of 10-15% and 14-18% respectively.**

These businesses make and sell the products needed to enable the energy transition. They produce sustainable cash flows and give us the asset infrastructure to support our investments in our low-carbon businesses.

- **Limit our investments in our Upstream oil and gas business, with expected returns of 20-25%.**

Our Upstream business helps to provide the vital supply of oil and natural gas that the world needs today, and generates the cash and returns needed to fund our shareholder distributions and the transformation of our portfolio.

Our targeted returns consider risks and uncertainties associated with our investments, and the scale of spending that is required to develop opportunities. For example, our expected returns in our Upstream business reflect the costs of exploration, feasibility studies and construction, as well as risks linked to commodity prices.

In 2021, our cash capital expenditure was \$20 billion and our operating expenses were \$36 billion. The table below shows how we expect several key metrics, including total expenditure, to evolve over time.

2021 delivery and outlook

	Cash capital expenditure		Operating expenses		Total expenditure		Cash flow from operations (CFFO)		Target internal rate of return (IRR)
	2021	2025-2030	2021 [A]	2025-2030	2021	2025-2030	2021 [B]	2025-2030 [C]	
Net debt end 2021 \$53 billion									
Marketing									15-25%
Renewables and Energy Solutions	24%	45-50%	28%	40-45%	27%	40-45%	12%	25-30%	>10%
Integrated Gas									10-15%
Chemicals and Products	44%	30-35%	40%	35-40%	42%	35-40%	38%	40-45%	14-18%
Upstream	32%	20%	32%	20-25%	31%	20-25%	48%	30-35%	20-25%

[A] Including exploration expenses.

[B] Excluding 2% CFFO from the Corporate segment.

[C] Assumes Brent price of \$60 per barrel.

[A] Please refer to the [Annual Report and Accounts 2021](#) for the definitions of cash capital expenditure and operating expenses.



INVESTING IN NET ZERO

We are significantly increasing our expenditure on low- and zero-carbon energy, helping both Shell and its customers to meet their climate targets.

In 2025, we expect around 50% of our total expenditure (cash capital expenditure and operating expenditure) to be on low- and zero-carbon products and services across all our businesses. Most of that 50% is on low- and zero-carbon energy products and services such as biofuels and hydrogen, power, nature-based solutions, carbon capture and storage and convenience retail, including charging for electric vehicles. The remainder is on our chemicals and lubricants businesses, which do not produce energy products and do not create carbon emissions when used by our customers.

When measuring total expenditure, we focus on both cash capital expenditure and operating expenditure so that we can capture the total costs associated with accelerating the transition by working with our customers and in coalitions, key parts of our strategy.

Capital expenditure also relates to spending on acquiring and maintaining assets and equipment. It does not reflect the fact that some of our Marketing and Renewables and Energy Solutions businesses are less capital intensive compared with our Upstream activities, and have higher operating costs.

We believe that the only true way to measure our progress in the energy transition is not just to look at changing spending patterns, but also to look at our progress against our net carbon intensity targets. In the short term, by the end of 2024, we are aiming for a reduction in our net carbon intensity of 9-12% compared with 2016, which is a significant step up on our 2-3% target for 2021. We have achieved this target with a 2.5% reduction compared with our 2016 base year.



Shell's headquarters in London, UK.

POLICIES AND GOVERNANCE

Read about our climate-related governance and policy engagement, and our disclosures linked to climate standards and benchmarks.

- 27** CLIMATE POLICY ENGAGEMENT
- 27** CLIMATE GOVERNANCE
- 28** A JUST TRANSITION
- 29** CLIMATE STANDARDS AND BENCHMARKS



CLIMATE POLICY ENGAGEMENT

We aim to be at the forefront of the drive for greater transparency around climate-related policy engagement. We set out our approach, policy positions, examples of our advocacy, and reviews of our memberships of industry associations on our website (see www.shell.com/advocacy).

In October 2021, we published our updated [global climate and energy transition policy positions](#) to reflect our Powering Progress strategy and our target to become a net-zero emissions energy business. We believe that by advocating these positions as we transform our business, we support the energy transition and the Paris Agreement on climate change.

Our detailed policy positions serve as a global framework for Shell's advocacy with governments, international organisations, industry associations, coalitions, and other stakeholders globally, regionally and within countries.

INDUSTRY ASSOCIATIONS

We have continued to work to ensure our memberships of industry associations support our climate-related policy positions. We have seen positive signs such as wider support for the Paris Agreement, carbon pricing and the regulation of methane emissions. We are clear that our memberships should strengthen and not undermine our support of the goal of the Paris Agreement and the global drive to achieve net-zero emissions.

We published our latest Industry Associations Climate Review in 2021, and a progress update in April 2022. This provides an update on industry associations where we found some misalignment and material misalignment, details of our climate lobbying in the European Union and the USA, and information on our payments to 36 associations. We will publish our next Industry Associations Climate Review in 2023 and plan to use our updated climate and energy transition policy positions as the basis of our assessments.

CLIMATE GOVERNANCE

Our climate governance begins with the Board's approval of our energy transition strategy and oversight of its implementation and delivery. In 2021, the Board considered climate-related matters throughout the year when reviewing and guiding our energy transition strategy, assessing the risk management policies in place, and challenging and endorsing the business plans and budgets, including overseeing major capital expenditures, acquisitions and divestments. In 2021, the Board convened on 12 occasions and continued to regularly oversee the Powering Progress strategy and net-zero initiatives, including at the Board Strategy Day in June 2021.

An important part of Shell's governance is to help manage our transition to a net-zero emissions energy business by 2050. We have further aligned remuneration with progress in the energy transition, by making changes to the annual bonus scorecard, which helps determine bonus outcomes for most Shell employees including Executive Committee members.

The progress in the energy transition measure, which makes up 15% of the annual bonus scorecard, had previously focused entirely on managing and reducing Shell's operational emissions. We decided to widen this to take account of our success at selling lower-carbon products and working with our customers to advance decarbonisation.

As a result, from 2022, the energy transition measure will be split into three components, each accounting for 5% of the scorecard:

- selling low- and zero-carbon products;
- reducing Shell's operational emissions (our Scope 1 and 2 emissions); and
- partnering to decarbonise (to be measured in terms of our progress in rolling out our electric vehicle charging network).

We also decided to introduce a customer excellence component in the operational excellence measure on the annual bonus scorecard. This is because our Powering Progress strategy places great emphasis on building strong customer relationships to help transform Shell in the energy transition.



In 2019, we were the first major energy company to include an energy transition performance metric in our Long-term Incentive Plan for senior executives. This has vested for the first time at 180%, based on performance between 2019 and the end of 2021, reflecting our progress in transforming Shell's business for a lower-carbon future.

For further details of Shell's governance structure, see the [Shell Annual Report and Accounts 2021](#).

A JUST TRANSITION

Shell's Powering Progress strategy has four main goals in support of our purpose. These goals include Powering Lives, which Shell does through its products and activities, and by supporting an inclusive society.

Shell supports the Paris Agreement on climate change, which recognises the importance of a just transition. A just transition means a fairer distribution of the costs and benefits of the world's transition to a net-zero emissions energy system.

We aim to publish our just transition guiding principles in the next year. We have joined two collaborations to help to inform our approach. In 2021, we became a member of IPIECA's Just Transition Task Force, which aims to help companies to develop their approaches to a just transition and share good practice. In January 2022, we joined Energy for a Just Transition, a coalition created by the non-governmental organisations Business for Social Responsibility (BSR) and The B Team.

Supporting staff

In 2021, around 1,700 Shell employees completed about 2,300 courses related to new skills needed for the energy transition. These included courses on hydrogen production, carbon capture and storage, and greenhouse gas and energy management.

Fair pay

In 2022, Shell published its [Fair Pay principles](#) to increase transparency of our pay policies for staff. We also expect our suppliers to provide their employees with wages and benefits that meet or exceed the national legal standards.



CLIMATE STANDARDS AND BENCHMARKS

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

Shell welcomes the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). The TCFD is a global initiative to get companies across all sectors to assess climate-related risks and opportunities. It recommends that companies disclose information in four areas: governance, strategy, risk management, metrics and targets. This table shows where to find Shell disclosures that are related to recommendations by the TCFD in Shell's Annual Report.

TCFD Recommendation

Shell disclosure

Governance:

Disclose the organisation's governance around climate-related risks and opportunities.

a) Describe the Board's oversight of climate-related risks and opportunities.

Annual Report:
(pages 76-78) "Governance of climate-related risks and opportunities",
(pages 135/136) Governance framework – Board Committees,
(pages 151/152) "Governance – Safety, Environment and Sustainability Committee",
and (pages 202-204) "Risk management – Control framework"

b) Describe management's role in assessing and managing climate-related risks and opportunities.

Annual Report:
(page 76-78) "Our governance of climate change"

Strategy:

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

a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.

Annual Report:
(page 9) "How we create value",
(page 12-15) "Our strategy", "Business pillars", "Outlook for 2022 and beyond"
Annual Report:
(pages 79-82) "Climate-related risks and opportunities identified by Shell over the short, medium and long term"

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

Annual Report:
(pages 82/83) "Impact of climate related risks and opportunities on Shell's businesses, strategy, and financial planning"

c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

Annual Report:
(pages 83-85) "Resilience of Shell's strategy, taking into consideration different climate-related scenarios, including a two degrees Celsius or lower scenario"
Annual Report:
(page 89) "Climate-related targets summary"

Risk management:

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

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

Annual Report:
(page 86/87) "Shell's process for identifying and assessing climate-related risks; assessing climate-related risks; classification of risks"

b) Describe the organisation's processes for managing climate-related risks.

Annual Report:
(page 87/88) "Shell's process for managing climate-related risks; integration of the climate-related risk management process into Shell's overall risk management"

c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.

Annual Report:
(pages 86-88) "Shell's process for managing climate-related risks; integration of the climate-related risk management process into Shell's overall risk management"



TCFD Recommendation

Shell disclosure

Metrics and targets:

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 organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	Annual Report: (page 89-91) "Metrics used by Shell to assess climate-related risks and opportunities in line with its strategy and risk management process", (page 166, 172, 174-176) "Directors' Remuneration Report – Annual Report on Remuneration"
b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	Annual Report: (page 91-93) "Scope 1, Scope 2, and Scope 3 greenhouse gas emissions, and the related risks"
c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	Annual Report: (pages 89, 93-96) "Targets used by Shell to manage climate-related risks and opportunities and performance against targets"

CLIMATE ACTION 100+ NET ZERO COMPANY BENCHMARK

Since the publication of Shell's Energy Transition Strategy in 2021, Shell has continued to engage with the Climate Action 100+ investor group. The table below shows how Shell was assessed in the March 2022 Climate Action 100+ Net Zero Company Benchmark.

Criteria	Assessment of Shell's plans
Net zero by 2050	Meets all criteria
Long-term greenhouse gas reduction target	Partial, meets some criteria
Medium-term greenhouse gas reduction target	Partial, meets some criteria
Short-term greenhouse gas reduction target	Partial, meets some criteria
Decarbonisation strategy	Partial, meets some criteria
Capital allocation alignment	Does not meet any criteria
Climate policy engagement	Meets all criteria
Climate governance	Meets all criteria
Just transition	n/a
TCFD disclosure	Partial, meets some criteria

Source: <https://www.climateaction100.org/whos-involved/companies/>

n/a = not applicable

The Climate Action 100+ benchmark uses assessments by the Transition Pathway Initiative (TPI). In its assessment, TPI highlights that it has recalculated Shell's net carbon intensity according to its own methodology. It also highlights that Shell has set further targets to reduce its net carbon intensity, but they were not included in this assessment as it was not possible to make them consistent with TPI's methodology.

We were disappointed with this outcome as we had engaged with CA100+ and TPI to understand the differences in the methodologies used. We had clarified our 2035 and 2050 targets on that basis. However, we will continue our engagement with CA100+ and TPI with the aim of ensuring that our current targets are reflected in the next Climate Action 100+ Net Zero Company Benchmark. We believe that this could result in a change to the Shell assessment to 'meets all criteria' for at least five indicators, 'partial, meets some criteria' for three indicators and one 'does not meet any criteria' rating for capital allocation.

As described in this report, we continue to believe that total expenditure, as measured by cash capital expenditure and operating expenses, rather than capital expenditure alone, is the best way to measure the scale of our financial investment in the energy transition.



In 2021, Shell completed construction of the Sas van Gent-Zuid solar park in the Netherlands.

LITIGATION AND ACTIVISM

Read about our position on climate litigation and activism.

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CLIMATE LITIGATION AND ACTIVISM

Shell's energy transition strategy to accelerate our transformation into a low- and zero-carbon energy business is strongly supported by our shareholders. We have set climate targets that we believe are aligned with the more ambitious goal of the UN Paris Agreement on climate change: to limit the increase in the global average temperature to 1.5°C above pre-industrial levels. Still, a ruling by the District Court of The Hague, in the Netherlands, and some activists, say that Shell's strategy should shift away from oil and gas even faster.

We agree there is an urgent need to change the world's energy system, and that coordinated changes in energy supply are necessary. But achieving a net-zero emissions energy system requires changes in both energy supply and demand. If, for example, Shell decided to stop selling petrol to accelerate the energy transition, it would not mean that people would buy less petrol. Customers would buy it from other companies and total demand for fossil fuels would not change – it would only shrink Shell's customer base.

This would prevent us from delivering the energy the world needs today. It would also harm our work with customers to decarbonise different sectors, limit our effectiveness in playing a leading role in the energy transition in the years to come, and affect our financial strength and ability to generate value for shareholders today and in the future.

Shell is also being asked to reduce emissions further and faster than even the most aggressive energy scenarios and policy pathways for the sectors in which we operate. Shell alone cannot directly influence the energy choices made by our customers. It is for governments to determine the right trade-offs for society and put in place the policies that bring about fundamental changes in the way society consumes energy, for example by mandating the sale of cars that run on low-carbon energy.

Shell is determined to play its part in helping to change the world's energy system. We are making progress in implementing our energy transition strategy. And we believe this strategy is the best for society, our customers and our shareholders.

Read more about why Shell has appealed the District Court ruling (in Dutch and English): [Waarom Shell in hoger beroep gaat | Shell Nederland](#)



MILESTONES

	Goal	Milestone	2020 reference year	2021 update	Status
Overall	Overall Total investment in Renewables and Energy Solutions business	Invest \$2-3 billion in Renewables and Energy Solutions in 2021	\$0.9 billion [A]	\$2.4 billion [A]	Achieved
	Electricity Electricity sales	560 Terrawatt-hour sales to customers by 2030	251 Terrawatt-hour	251 Terrawatt-hour	In progress
Supply		Double electricity sales by 2030	n/a	n/a	In progress
	Biofuels Low-carbon fuels production growth	8 times more low-carbon fuels production by 2030	2.5 billion litres	2.5 billion litres [B]	In progress
	Conventional fuels Traditional fuels production	Reduce traditional fuels (fuel oil, gasoline, diesel, jet fuel) production to ~45 million tonnes per annum by 2030	91 million tonnes per annum	71 million tonnes per annum	In progress
	Oil production reduction	An average of 1-2% per annum to 2030 [D]	~4%	~4%	Achieved
	Frontier exploration entries	No new entries post 2025	n/a	n/a	In progress
	Passenger mobility and road freight Number of electric vehicle charge points	>500,000 electric vehicle charge points by 2025, of which >30,000 charge points at Shell Recharge	~60,000	~90,000	In progress
Sectors		~2.5 million electric vehicle charge points by 2030	~60,000	~90,000	In progress
	Number of liquefied natural gas refuelling sites	50 sites by end of 2021 for bio-LNG distribution in Europe	26	44	Not achieved
Offsets	Carbon capture and storage Volumes	25 million tonnes per annum carbon capture and storage by 2035	n/a	0.41 million tonnes per annum	In progress
	Nature-based solutions Volumes retired	Nature-based solutions sales of 120 million tonnes per annum by 2030	3.9 million tonnes per annum	5.1 million tonnes per annum [C]	In progress

[A] Cash capital expenditure.

[B] Shell interest 44%, non-Shell-operated Raizen joint venture.

[C] Excluding trading activities.

[D] Excluding the impact of the Permian divestment.

n/a = not applicable



STEPS ON THE PATH TO NET-ZERO EMISSIONS

In 2021, our shareholders supported Shell's energy transition strategy. In 2022, we are offering them an advisory vote on our progress. This vote is part of our continuing dialogue with investors as we work to become a net-zero emissions energy business by 2050.

2022

- Completed the simplified share structure.
- Disclosed that we expected one third of our total expenditure (cash capital expenditure and operating expenses) in 2022 to be on low- and zero-carbon products and services. We expect this to grow to around 50% in 2025.
- The first energy transition performance metric in our Long-term Incentive Plan vested at 180%, based on performance between 2019 and the end of 2021, reflecting our progress in transforming Shell's business for a lower-carbon future.
- Offered an advisory vote on our progress in our energy transition strategy.

2021

- Launched our Powering Progress strategy setting out how we will transform into a net-zero emissions energy business.
- Offered an advisory vote on our energy transition strategy to shareholders. They overwhelmingly supported the strategy that we are now implementing.
- Took critical investment decisions in the production and sales of low-carbon fuels, solar and wind power, and hydrogen. At the same time, we made significant changes to our Upstream and refinery portfolios.
- Reshaped the organisation and formed new energy transition partnerships with some of the world's biggest companies.
- Set a new target to reduce absolute emissions from our operations (Scope 1 and 2) by 50% by 2030, compared with 2016 on a net basis. By the end of 2021, we had achieved a reduction of 18%.
- Increased the weighting of the energy transition performance metric in the Long-term Incentive Plan from 10% to 20%.
- Moved Shell's headquarters to the UK.

2020

- Announced target to become a net-zero emissions energy business by 2050.
- Extended the energy transition performance metric to around 16,500 employees through the Performance Share Plan (PSP).

2019

- Published our first Industry Associations Climate Review, which reviewed the alignment between our climate-related policy positions and those of 19 key industry associations of which we are a member.

2018

- Signed a joint statement with institutional investors on behalf of Climate Action 100+ announcing steps that Shell has taken to demonstrate alignment with the goals of the Paris Agreement on climate change.

2017

- Announced ambition to reduce the carbon intensity of the energy products we sell by around half by 2050, including the full life-cycle emissions from the use of our energy products by customers.



CAUTIONARY NOTE

The companies in which Shell plc directly and indirectly owns investments are separate legal entities. In this report "Shell", "Shell Group" and "Group" are sometimes used for convenience where references are made to Shell plc and its subsidiaries in general. Likewise, the words "we", "us" and "our" are also used to refer to Shell plc and its subsidiaries in general or to those who work for them. These terms are also used where no useful purpose is served by identifying the particular entity or entities. "Subsidiaries", "Shell subsidiaries" and "Shell companies" as used in this report refer to entities over which Shell plc either directly or indirectly has control. Entities and unincorporated arrangements over which Shell has joint control are generally referred to as "joint ventures" and "joint operations", respectively. "Joint ventures" and "joint operations" are collectively referred to as "joint arrangements". Entities over which Shell has significant influence but neither control nor joint control are referred to as "associates". The term "Shell interest" is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in an entity or unincorporated joint arrangement, after exclusion of all third-party interest.

FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements (within the meaning of the U.S. Private Securities Litigation Reform Act of 1995) concerning the financial condition, results of operations and businesses of Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management's current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Shell to market risks and statements expressing management's expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as "aim", "ambition", "anticipate", "believe", "could", "estimate", "expect", "goals", "intend", "may", "milestones", "objectives", "outlook", "plan", "probably", "project", "risks", "schedule", "seek", "should", "target", "will" and similar terms and phrases. There are a number of factors that could affect the future operations of Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this report, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell's products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, judicial, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; (m) risks associated with the impact of pandemics, such as the COVID-19 (coronavirus) outbreak; and (n) changes in trading conditions. No assurance is provided that future dividend payments will match or exceed previous dividend payments. The contents of websites referred to in this report do not form part of this report. All forward-looking statements contained in this report are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Shell plc's Form 20-F for the year ended December 31, 2021 (available at www.shell.com/investor and www.sec.gov). These risk factors also expressly qualify all forward-looking statements contained in this report and should be considered by the reader. Each forward-looking statement speaks only as of the date of this report, April 20, 2022. Neither Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this report.

SHELL'S NET CARBON FOOTPRINT

Also, in this report we may refer to Shell's "Net Carbon Footprint" or "Net Carbon Intensity", which include Shell's carbon emissions from the production of our energy products, our suppliers' carbon emissions in supplying energy for that production and our customers' carbon emissions associated with their use of the energy products we sell. Shell only controls its own emissions. The use of the term Shell's "Net Carbon Footprint" or "Net Carbon Intensity" are for convenience only and not intended to suggest these emissions are those of Shell plc or its subsidiaries.



SHELL'S NET-ZERO EMISSIONS TARGET

Shell's operating plan, outlook and budgets are forecasted for a ten-year period and are updated every year. They reflect the current economic environment and what we can reasonably expect to see over the next ten years. Accordingly, they reflect our Scope 1, Scope 2 and Net Carbon Footprint (NCF) targets over the next ten years. However, Shell's operating plans cannot reflect our 2050 net-zero emissions target and 2035 NCF target, as these targets are currently outside our planning period. In the future, as society moves towards net-zero emissions, we expect Shell's operating plans to reflect this movement. However, if society is not net zero in 2050, as of today, there would be significant risk that Shell may not meet this target.

FORWARD LOOKING NON-GAAP MEASURES

This report may contain certain forward-looking non-GAAP measures such as cash capital expenditure and divestments. We are unable to provide a reconciliation of these forward-looking Non-GAAP measures to the most comparable GAAP financial measures because certain information needed to reconcile those Non-GAAP measures to the most comparable GAAP financial measures is dependent on future events some of which are outside the control of Shell, such as oil and gas prices, interest rates and exchange rates. Moreover, estimating such GAAP measures with the required precision necessary to provide a meaningful reconciliation is extremely difficult and could not be accomplished without unreasonable effort. Non-GAAP measures in respect of future periods which cannot be reconciled to the most comparable GAAP financial measure are calculated in a manner which is consistent with the accounting policies applied in Shell plc's consolidated financial statements. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website www.sec.gov.

ADDITIONAL INFORMATION

As used in this Report, "Accountable" is intended to mean: required or expected to justify actions or decisions. The Accountable person does not necessarily implement the action or decision (implementation is usually carried out by the person who is Responsible) but must organise the implementation and verify that the action has been carried out as required. This includes obtaining requisite assurance from Shell companies that the framework is operating effectively. "Responsible" is intended to mean: required or expected to implement actions or decisions. Each Shell company and Shell-operated venture is responsible for its operational performance and compliance with the Shell General Business Principles, Code of Conduct, Statement on Risk Management and Risk Manual, and Standards and Manuals. This includes responsibility for the operationalisation and implementation of Shell Group strategies and policies. CO₂ compensation does not imply that there is no environmental impact from the production and use of the product as associated emissions remain in the atmosphere. CO₂ compensation is not a substitute for switching to lower emission energy solutions or reducing the use of fossil fuels. Shell businesses focus first on emissions that can be avoided or reduced and only then, compensate the remaining emissions. "Carbon neutral" or "CO₂ compensated" indicates that Shell will engage in a transaction where an amount of CO₂ equivalent to the value of the remaining CO₂e emissions associated with the raw material extraction, transport, production, distribution and usage /end-of-life (if Lubricants or other non-energy product) of the product are compensated through the purchase and retirement of carbon credits generated from CO₂ compensation projects. Although these carbon credits have been generated in accordance with international carbon standards, the compensation may not be exact. CO₂e (CO₂ equivalent) refers to CO₂, CH₄, N₂O.

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- Report on our progress in contributing to sustainable development