



ASSESSMENT OF SHELL'S CLIMATE STRATEGY

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INTRODUCTION

In 2021, Shell ranked as the 7th biggest oil and gas producer and 12th biggest oil and gas upstream developer worldwide. The company is the 7th biggest liquified natural gas (LNG) terminal developer.¹

As one of the six oil and gas majors and one of the largest greenhouse gas (GHG) emitters globally, Shell is among the few companies in the world whose climate transition (or lack thereof) in the coming years will have a determining impact on our collective ability to limit global temperature rise to 1.5°C. In 2020, the company pledged to achieve carbon neutrality across its entire operations on an absolute basis by 2050 or sooner.²

Shell's investors and other financial stakeholders have both a key interest and a crucial responsibility to ensure the company swiftly aligns with a

1.5°C pathway. In addition to targeted restriction policies, shareholder engagement is an important tool to reach this objective.

Key findings:

- Shell does not provide sufficient information on its decarbonization plan to allow investors and other financial stakeholders to correctly assess its capacity to align with a 1.5°C pathway. Insufficient information is given on the company's capital expenditure (CAPEX) plan, its 2030 targeted energy mix and production volumes, as well as on the reference scenario it uses to establish its climate plan.
- Taking into account Shell's oil and gas production from currently producing fields, plus its fields under development and field evaluation, the company's production

in 2030 will be 16% higher than the level required to align with the International Energy Agency's (IEA) Net Zero Emissions by 2050 Scenario (NZE).

- Shell plans to maintain its oil production at 2022 levels until 2030 and is aiming for an energy mix of 45% oil and 55% gas by 2030. If it meets this target, its production will be 35% higher than the NZE.
- Shell has not committed to stop developing new oil and gas projects beyond those already in development. Around a quarter of its current expansion plans are in ultra-deep water and fracking activities.
- For every dollar invested in its 'Renewables and Energy Solutions' division in 2022, Shell invested more than 6 dollars in oil and gas. However, considering the Renewables and Energy Solutions division also includes non-renewable energy sources, for every dollar invested in fossil fuels less than 16 cents were invested in sustainable renewable energies.

- For every dollar invested in its Renewables and Energy Solutions division in 2022, more than 7 dollars were distributed to shareholders through dividends and share buyback.
- Shell's Renewable and Energy Solutions division amounts to 16% of its 2023-25 overall CAPEX plan.
- Shell's targeted carbon intensity by 2030 is 40% higher than the NZE, and 25% higher than the IEA's Announced Pledges Scenario (APS) which covers commitments towards a below-2°C pathway. If Shell meets these targets and reduces its energy supply in line with the IEA scenarios, by 2030 the company will have overshoot its share of the 2023-30 carbon budget by almost 40% under the NZE, and by 25% under the below 2°C.



1. SHELL TODAY IN A NUTSHELL

Shell accounts for 2.6% of global oil and gas production and 1.9% of short-term expansion plans.³

oil and 4,472 mmboe of fossil gas. This represents 6.8 years of production at 2022 levels.

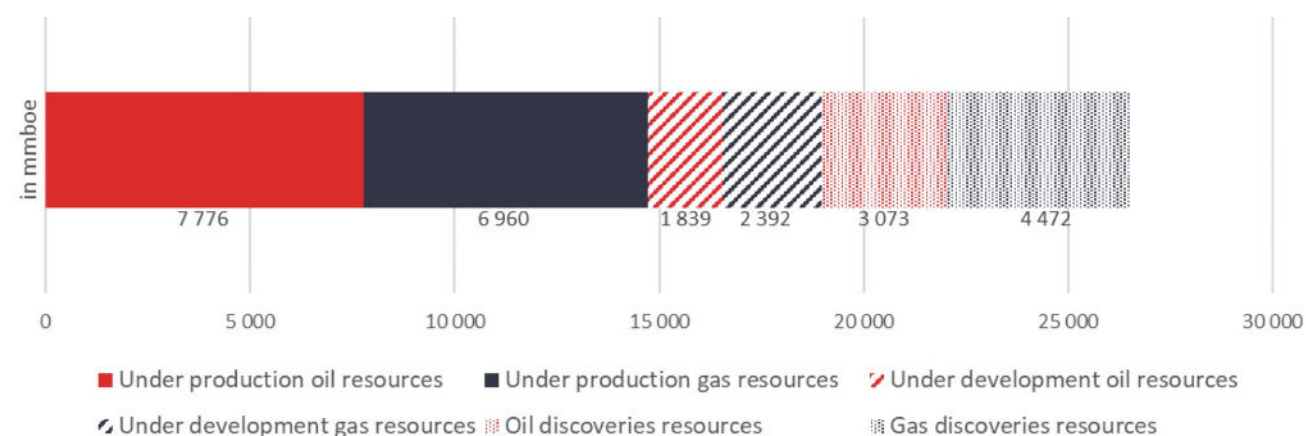
As of March 1st, 2023:⁴

- Shell had 14,736 million barrels of oil equivalent (mmboe) of resources under production, including 7,776 million barrels (mmbbl) of oil and 6,960 mmboe of fossil gas. This represents the equivalent of 13.4 years of production at 2022 levels.
- Shell had 4,230 mmboe of resources under development or field evaluation, including 1,839 mmbbl of oil and 2,392 mmboe of fossil gas. This represents 3.8 years of production at 2022 levels.
- Shell holds 7,544 mmboe of oil and fossil gas discoveries, including 3,073 mmbbl of

In 2022, Shell extracted 487 mmbbl of oil and 571 mmboe of fossil gas. Beyond exploration and production, Shell is also active in other segments such as midstream, oil refining and trading, renewable and gas power generation, hydrogen, and retail. In 2022, Shell produced 30 million tons of LNG and had 11 million tons per year of new LNG capacity under construction, 512 mmbbl of refinery throughput, and petrochemical sales were 12 Mt.

Shell's renewables portfolio is composed mainly of solar energy and offshore wind. Shell has 50 GW of renewable generation capacity in operation, under construction, or as potential projects.⁵

Shell's oil and gas resources
(based on current resources in million barrels of oil equivalent)



Source: Rystad Energy, accessed in March 2023

2. TRANSPARENCY OF SHELL'S CLIMATE PLAN

The adoption and publication of sufficiently detailed targets and indicators are a prerequisite for assessing how a company's transition plan aligns with a 1.5°C trajectory.

Shell publishes a climate plan and indicators with detailed climate targets.⁶

However, while Shell provides information about its decarbonization targets, it does not include significant indicators, and the information provided lacks the granularity needed to allow investors and other financial stakeholders to correctly assess its capacity to align with a 1.5°C pathway. The information given does not allow investors to understand the company's trajectory for GHG emissions and its production model through to 2030, or the risks associated with financial exposure to the company.

For example, Shell does not disclose its 2030 forecasted energy mix, or its investments specifically dedicated to renewable energy. This type of information is key to identifying the company's planned energy transition strategy, and therefore the credibility of its emissions reduction goals.

The table below summarizes the level of disclosure by Shell on a few key transition indicators. It does not provide a comprehensive assessment of the transparency and completeness of Shell's climate plan, but rather focuses on the basic indicators that should be the foundation of any oil and gas major's plan.

Assessment of the transparency of Shell's climate plan

Does Shell publish detailed information about the following indicators up to 2030?	Yes - No Partially	Comment
Absolute and relative GHG emissions reduction targets covering scope 1, 2 and 3.	Partially	<ul style="list-style-type: none"> • Shell publishes 2030 carbon intensity targets on scope 1, 2 and 3. • Shell publishes 2030 absolute emissions targets on scope 1 and 2.
Contribution to emissions reduction targets of carbon capture and storage (CCS) along the company's value chain.	Partially	<ul style="list-style-type: none"> • Shell publishes 2035 CCS targets.
Contribution to emissions reduction targets of offsets, and offsetting approaches. ⁷	Yes	
CAPEX breakdown by activity, and by production maintenance and growth.	No	<ul style="list-style-type: none"> • Shell does not disclose its 2030 forecasted CAPEX. • Shell forecasted the share of its 2025 CAPEX dedicated to low carbon, which includes biofuels and hydrogen, power, nature-based solutions (NBS), CCS, and convenience retail. • Shell indicates its 2023 CAPEX range guidance with the breakdown between business lines, but renewable energy CAPEX is aggregated with electricity storage, gas trading and power, retail gas and electric vehicle charging services. • Shell does not disclose the breakdown between maintenance and growth CAPEX.
2030 targeted energy mix and production volumes.	No	<ul style="list-style-type: none"> • Shell does not report its 2030 total energy supply projections and 2030 future energy mix. • Shell discloses its projected oil production average evolution by 2030, but not its fossil gas production. • Shell neither communicates on its 2030 renewable capacity projections nor on its 2030 projected renewable production.
Reference scenario used to define climate targets. ⁸	No	<ul style="list-style-type: none"> • Shell states that it has studied a subset of IPCC scenarios that limit the increase in global average temperature to 1.5°C above pre-industrial levels and sets its targets "within these pathways".

Source: 2022 FY Financial statements and 2021 20-F, 2022 and 2023 Investor presentations

3. QUALITY OF SHELL'S CLIMATE PLAN

a. Oil and gas trajectory

In May 2021, the IEA published its Net Zero Emissions by 2050 Scenario (NZE) which provides a pathway to meet global energy needs while having a 50% chance of keeping global temperature increases below 1.5°C. It was used as the reference scenario in the World Energy Outlook (WEO) 2021 and was updated in the WEO 2022 published in October 2022.¹⁰ It projects a reduction in oil and gas production by 2030 compared to 2021 levels of 21.3% and 18.6%, respectively, and an end to the development of new oil and gas production projects and LNG terminals.

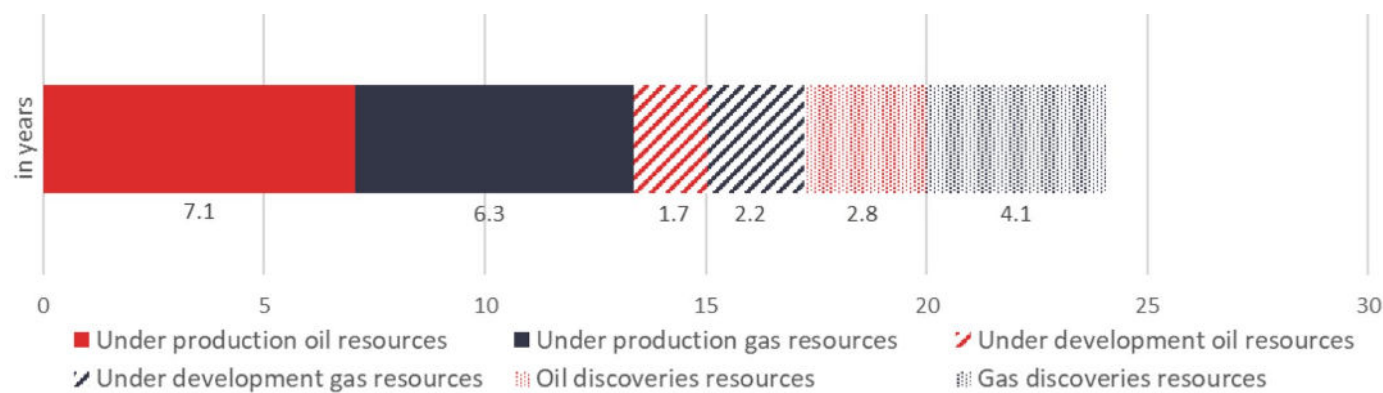
According to the Global Oil and Gas Exit List (GOGEL), Shell is the 12th top global oil and gas upstream developer. 45% of its expansion plans did not obtain their Final Investment Decision (FID) before 2022 and are therefore overshooting the IEA's NZE. Shell is tapping into unconventional oil and gas resources, mostly ultradeep water oil and gas, and fracking. Unconventional resources

all together account for 27.2% of oil and gas resources currently being developed by the major.¹¹ Among the main projects under development today are fields located in the Vaca Muerta basin in Argentina, in the Alberta tar sands area in Canada, and in the Verde Island Passage in the Philippines.¹²

Despite the disrupted energy environment caused by the invasion of Ukraine, the need to halt oil and gas expansion as soon as possible remains a key feature of the NZE. The May 2021 NZE projected a halt to the development of new oil and gas fields for which a FID was not approved by January 1st, 2022. The updated WEO 2022 version of the NZE also highlights the need to end the development of new LNG terminals beyond those approved by January 1st, 2023, which is significant when considering Shell's LNG capacity additions in 2022.

The completion of some projects that can swiftly enter production and operate for a limited time only – mainly shale oil and gas

Shell's oil and gas resources
(based on current ressources and 2022 level of production)



Source: Rystad Energy, accessed in March 2023

“ I am also calling on CEOs of all oil and gas companies to be part of the solution. They should present credible, comprehensive and detailed transition plans in line with the recommendations of my High-Level Expert Group on net-zero pledges.

These plans must clearly detail actual emission cuts for 2025 and 2030, and efforts to change business models to phase out fossil fuels and scale up renewable energy.”

Antonio Guterres,
Secretary-General of the United Nations,
March 2023



projects – is not expressly forbidden in the WEO 2022 version of the NZE. However, the IEA notably stresses that the invasion of Ukraine cannot justify a “new wave of oil and gas infrastructure”, and that any new oil and gas fields will make it “even more challenging” to meet carbon neutrality targets and “creates the clear risk that [the 1.5°C] target moves out of reach”. Concretely, any such project will require even greater reduction efforts in other sectors and activities.

The IPCC also highlights the risks associated with the development of any new fossil fuel projects.¹³ This concurs with a large and growing body of scientific evidence showing the need to immediately end fossil fuel development and a growing consensus on this in net-zero policy discussions.¹⁴

Oil and gas production should decrease by 21.3% and 18.6%, respectively, during this decade according to the NZE. However, without developing any new oil and gas fields and by only extracting resources that are already under production, Shell has

enough resources to produce the equivalent of 13.4 years of oil and gas production at its elevated 2022 level. Shell’s resources under development and field evaluation will provide the equivalent of another 3.8 years of production at its 2022 production level. Additionally, if the company exploits all its oil and gas discoveries, it will have enough resources to produce the equivalent of a further 6.8 years of production at its 2022 level.

In the IEA’s NZE, the rate of oil and gas production declines due to the combination of the natural depletion of existing oil and gas fields and the absence of new fields to fill the gap. This decline happens even though the NZE relies on material levels of negative emissions, including through the deployment of technologies unproven at scale, and would be much faster without such a reliance. Other prominent 1.5°C scenarios with no or low overshoot also show oil and gas production declining by 2030. These include the One Earth Climate Model (OECM),¹⁵ the Network for Greening the Financial System’s (NGFS) net

zero climate scenarios,¹⁶ and the IPCC 1.5°C with no or low overshoot scenarios filtered to limit to reasonable volumes the reliance on negative emissions (CCS, NBS, etc.).¹⁷

The following chart compares Shell’s planned oil and gas production level in 2030¹⁸ with NZE alignment (the company plans to maintain its oil production at 1.4 mmbpd by 2030 and to have a mix composed of 45% oil and 55% gas in that year). The level is an aggregate of both its producing fields and its fields under development with a FID obtained before 2022.¹⁹ The chart also indicates the level achieved from fields under production as well as those under development and under field evaluation. To reach its production target, Shell will have to increase its oil and gas production beyond its current short-term expansion plans. This means that Shell will have to develop part of its discoveries and/or buy new fields.

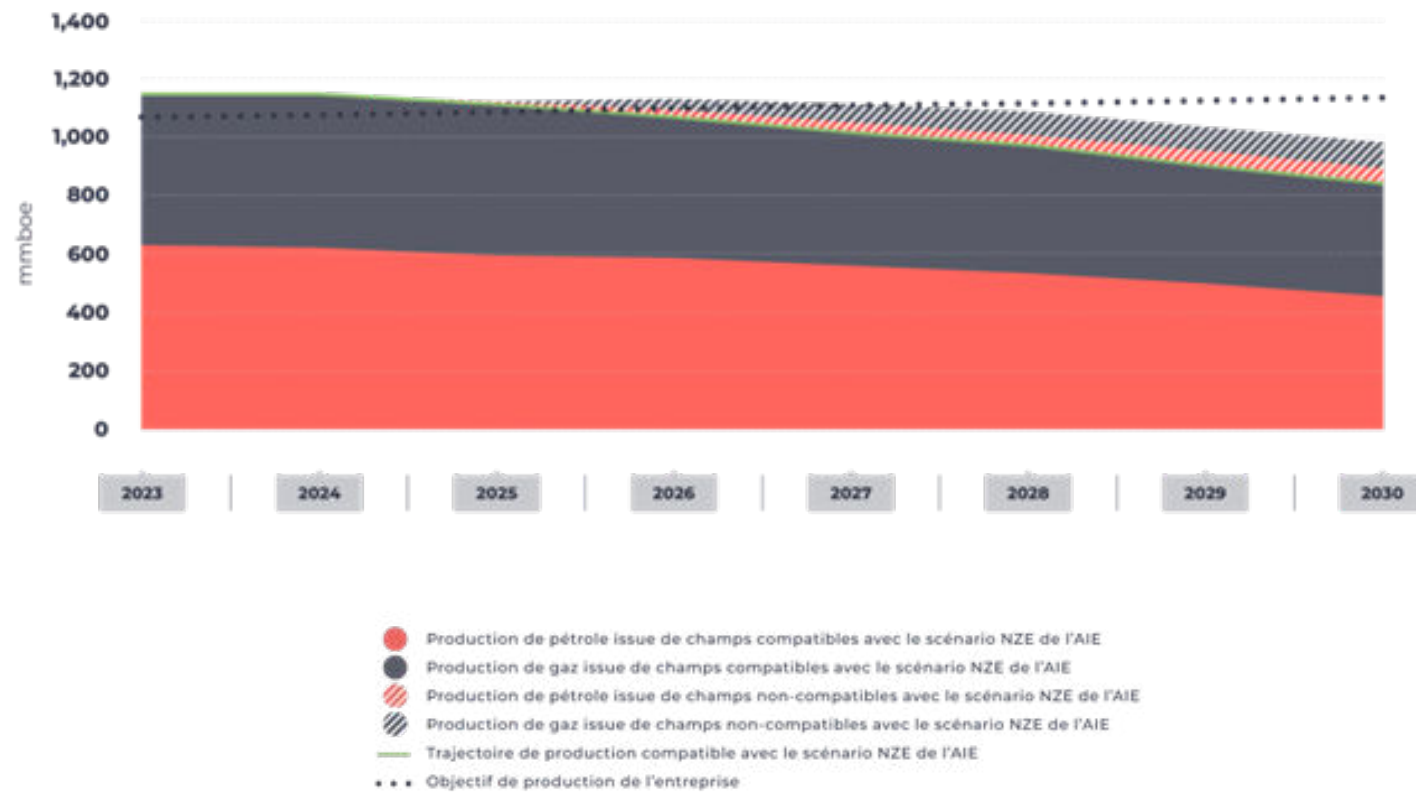
In 2030, with oil and gas from currently producing fields, plus fields under development and under evaluation, Shell’s

production level will be 16% higher than the NZE.

In its June 2023 Capital Market Day, Shell announced that it met its 2030 oil production reduction target due to divestments, and that it aims to maintain its oil production at the 2022 level. The company also reiterated its will to increase gas production by 2030. Shell has not committed to stop developing new oil and gas projects beyond those already in development and could review its production targets either up or down. Consequently, the level of field-based production indicated in the chart could be conservative and lower than Shell’s own forecasts. Shell owns 7,544 mmboe of discovered hydrocarbon resources that have not yet entered the field evaluation or development stage. From 2020 to 2022, **Shell spent on average US\$2.3 billion per year on exploration**, making it the 3rd biggest investor in exploration over that period.²⁰

Regarding oil and gas midstream infrastructure, Shell is also developing 27.7 million tons per annum (Mtpa) of LNG terminal capacity..²¹

Shell's oil and gas trajectories (in million barrels of oil equivalent to 2030)



Source: Rystad Energy for oil and gas production and expansion, accessed in March 2023; Shell's reportings and investor presentations for the company production plans

b. Cash-flow allocation

The future energy mix of a company is determined by its current investment strategy. In the NZE, total energy investment needs to more than double by 2030, with a shift from high-carbon energy to clean alternatives. Investment in clean energy, end-use and efficiency more than triple in the NZE, and nine dollars are spent on clean energy for each dollar spent on fossil fuels by 2030.²² In its 2022 unaudited financial statement released in February 2023,²² Shell provides information that shows how the cash flows generated from its operational activities were spent in 2022:

1. Shell's cash CAPEX in its Renewables and Energy Solutions division amounted to US\$3.5 billion. That includes renewable energy and electricity storage, gas trading

and power, retail gas and electric vehicle charging services.²⁴

2. Shell allocated US\$21.1 billion to oil and gas, including US\$8.1 billion to oil and gas upstream activities, US\$4.3 billion to integrated gas, including its LNG business, and US\$8.7 billion to other oil and gas activities (mostly retail, refining and petrochemical activities).²⁵

In total, for every dollar invested in its Renewables and Energy Solutions division, Shell invested more than 6 dollars in oil and gas.

Shell's Renewables and Energy Solutions division also integrates non-renewable energy sources such as gas trading. This means that for every dollar invested in fossil fuels, less than sixteen cents were invested in sustainable renewable energies.

3. Shell provided its shareholders with US\$26 billion through dividend payments (US\$7.6 billion) and share buybacks (US\$18.4 billion).²⁶

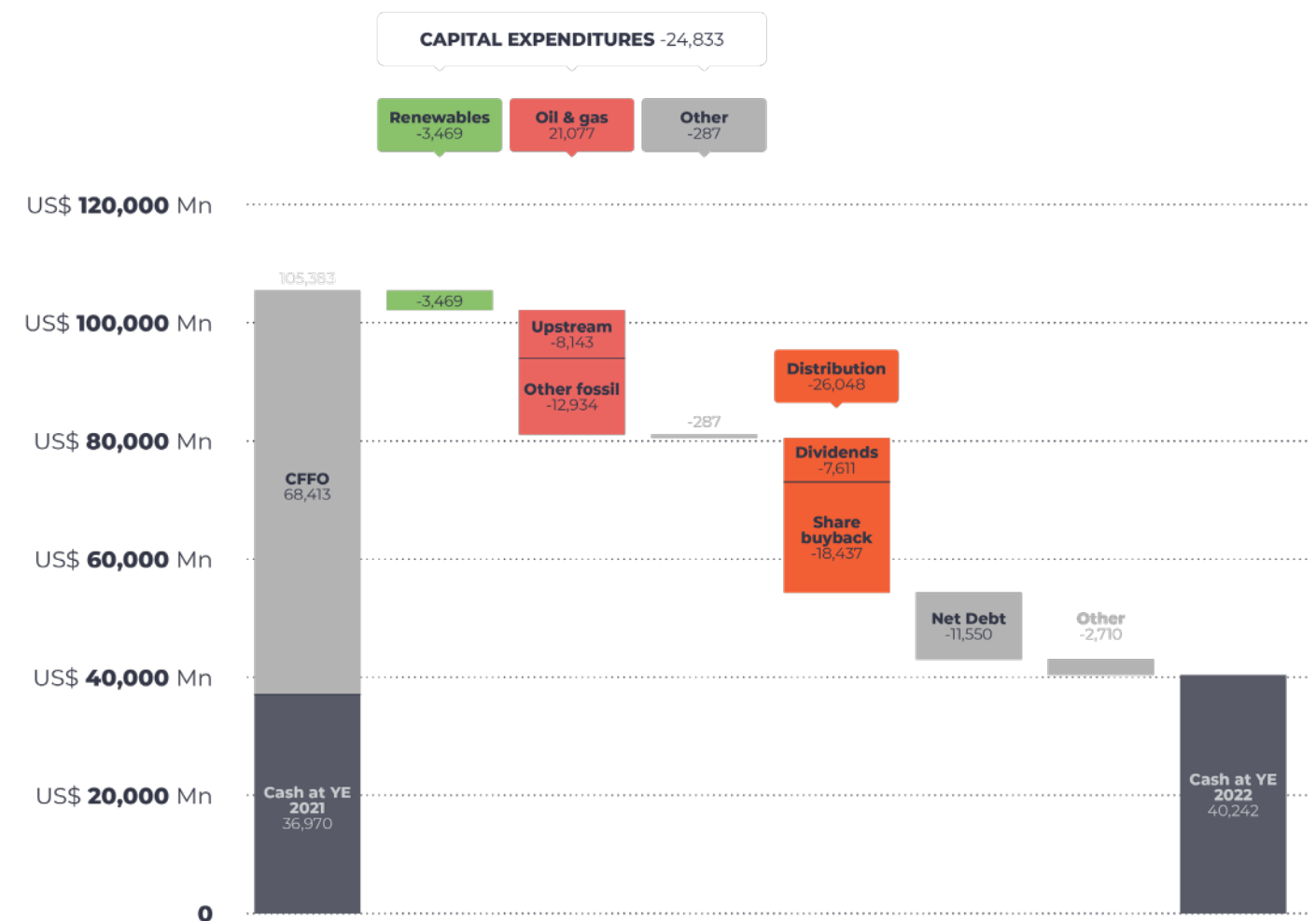
In total, for every dollar invested in its Renewables and Energy Solutions division, more than 7 dollars are distributed to shareholders through dividends and share buybacks.

From 2023 to 2025, Shell's average cash CAPEX guidance reaches US\$24.5 billion per year in total. US\$4 billion per year is dedicated to its Renewables and Energy Solutions division, which covers renewable energy as well as gas power. This target could represent a 15%

increase of its cash CAPEX in this business line compared to 2022. **Although this is a significant increase, it amounts to 16% of its overall cash CAPEX, which in turn means that most of the company's investments will continue to be in fossil fuels.**²⁷

Due to its CAPEX strategy, Shell remains focused on oil and gas. The company does not communicate details either on its 2030 energy mix or on its 2030 renewables capacity, only indicating its plan to provide electricity from renewable sources to 50 million households by 2030.²⁸ Even in the case that Shell reaches that goal, given its renewables production is dedicated to developed markets, **the**

Breakdown of Shell's 2022 Cash-flows



Source: Shell 2022 20-F Report

maximum renewables share of the company's energy supply mix in 2030 would remain under 22%.²⁹

c. Decarbonization targets and emissions trajectory

Shell pledged mitigation targets for 2023, 2024 and 2030 compared to its 2016 levels, measured in absolute and intensity terms, and including scope 1, 2 and 3.³⁰

Using the IEA energy supply data from the NZE and APS in the WEO 2022, Reclaim Finance has

calculated Shell's GHG emissions overshoot. We have assumed that Shell will follow the IEA scenario pathways for total global energy supply. In the NZE, total energy supply decreases by 9.1% between 2022 and 2030, while in the APS it increases by 1.6% in the same period. Our analysis is likely to be conservative: while Shell does not give a projection for its 2030 energy supply, we know that Shell's oil and gas production target is significantly higher than the NZE.

In our hypothesis, we assume that Shell reaches its targets with a decrease of its scope 1, 2 and 3 carbon intensity of production, processing,

transport and energy product end-use by 6% to 8% by 2023; by 9% to 12% by 2024; and by 20% by 2030.

Shell relies on CCS and offsets, and will offset 120 Mtpa in 2030. These technologies have a significant place in the company's decarbonization plan: 32% of its absolute emissions reduction by 2030 is planned through using offsets alone. As highlighted by the IPCC, however, CCS in the energy sector still has limitations to overcome before it can be scaled up, which means it comes with limited potential and prohibitive costs. Too high reliance on these types of mitigation

approaches represents a material risk factor for Shell's ability to reach its decarbonization targets.³¹

By 2030, Shell's targeted carbon intensity would remain 40.1% and 25.3% higher than in the NZE and APS, respectively. If it meets targets and reduces its energy supply in line with the IEA scenarios, Shell will have overshoot its share of the 2023-2030 carbon budget by 39.9% under the NZE, and by 25.3% under the APS.

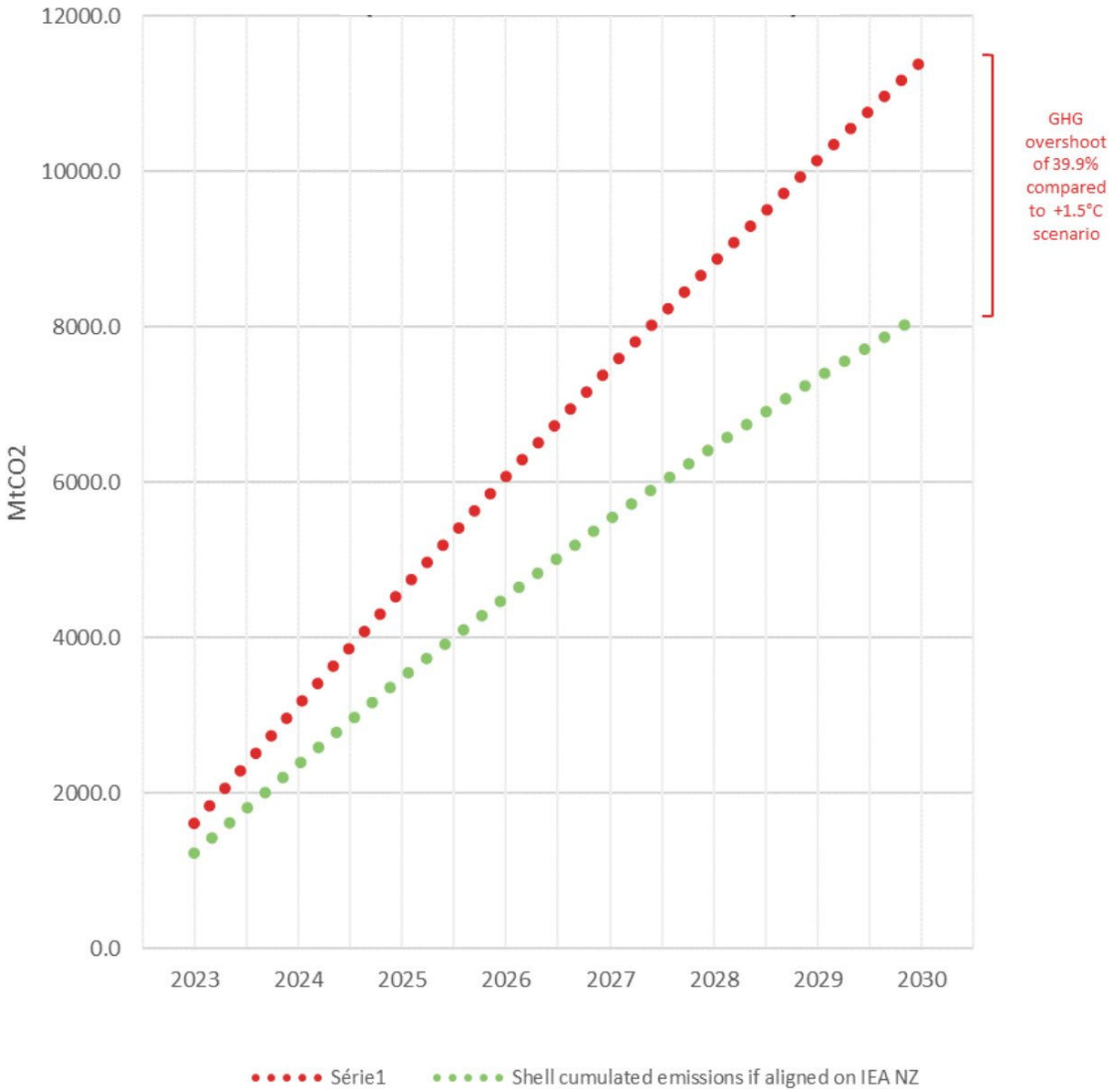
Shell's pledged mitigation targets

Base year	Target year	Reduction target	Net target	Geographical scope	Emission scope	Emission Type
2016	2023	-6%/-8%	Yes	World	1 & 2 & 3, carbon intensity of sold energy products	Intensity
2016	2024	-9%/-12%	Yes	World	1 & 2 & 3, carbon intensity of sold energy products	Intensity
2016	2030	-50%	Yes	World	1 & 2, operationnal control	Absolute
2016	2030	-20%	Yes	World	1 & 2 & 3, carbon intensity of sold energy products	Intensity

Source: Shell's website and reports, as of end of 2022

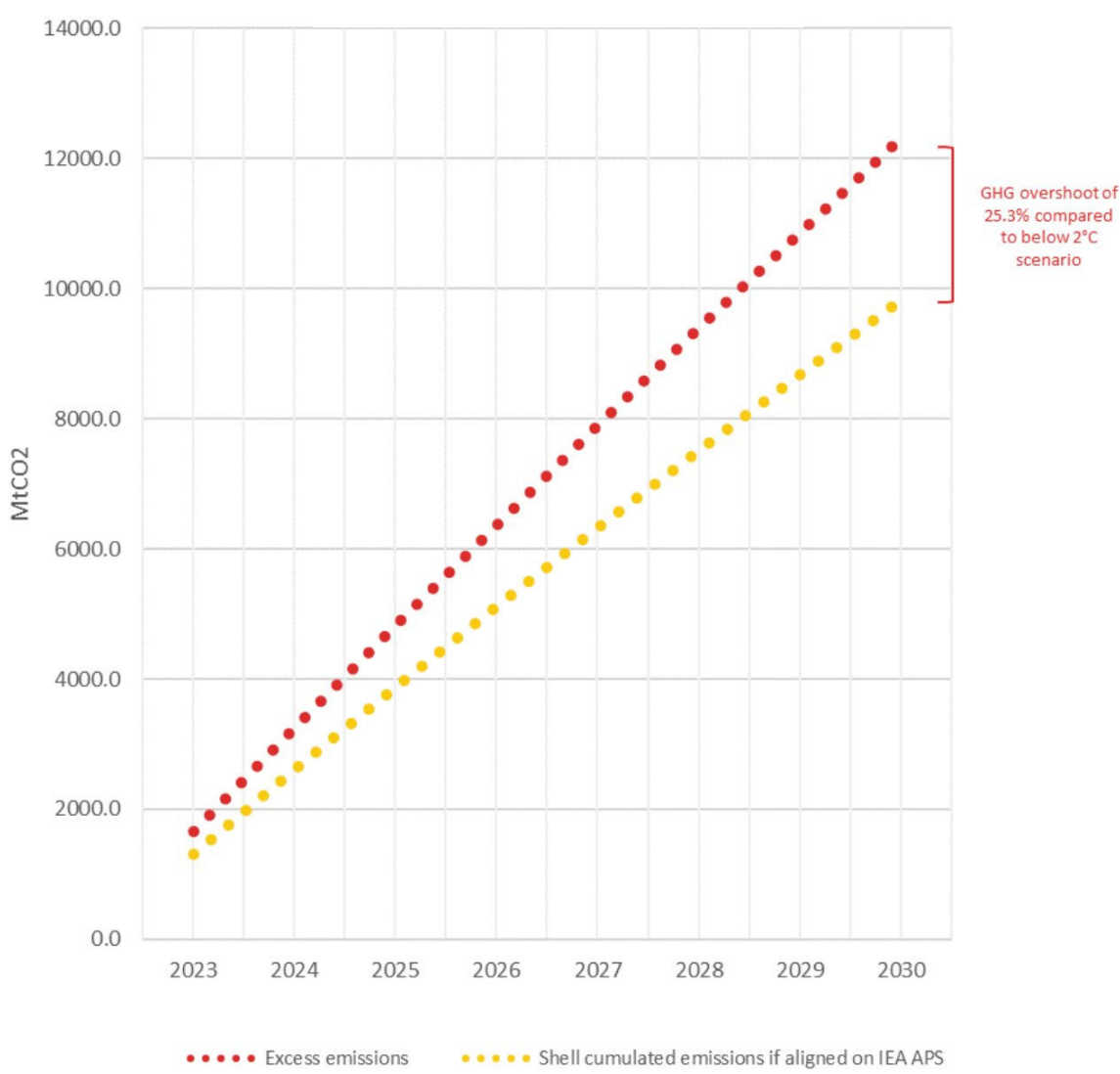


2023-2030 Shell's GHG emissions compared to the NZE pathway
(in million tons of CO₂e to 2030)



Calculations based on data from company's disclosed data and scenario data taken from IEA's NZE and APS scenarios. See the methodology section below for more details on these calculations.

2023-2030 Shell's GHG emissions compared to the below 2°C pathway
(in million tons of CO₂e to 2030)



Calculations based on data from company's disclosed data and scenario data taken from IEA's NZE and APS scenarios. See the methodology section below for more details on these calculations.

References

1. Using the Urgewald 2022 [Global Oil & Gas Exit List](#). This list was constructed based on September 2022 Rystad data.
2. Shell, [Achieving net-zero emissions](#).
3. Using the Urgewald 2022 [Global Oil & Gas Exit List](#). The list was constructed based on September 2022 Rystad data.
4. Calculations made using Rystad Energy Ucube with data from March 2023.
5. Shell, [Renewables and energy solutions](#).
6. Shell, [Our climate target](#).
7. The IPCC estimates between 500 and 3,600 million metric tons of CO₂ could be removed annually through planting new forests by 2050. Greenpeace, [Net Expectations: Assessing the role of carbon dioxide removal in companies' climate plans](#), 2021.
8. To meet this criterion, the company must disclose the publicly available 1.5°C pathway with no or low overshoot that it uses to set its targets. While all oil and gas companies somewhat rely on 1.5°C pathways to conduct analysis and inform their decision-making, this does not mean that the targets they set are coherent with these pathways.
9. IEA, [Net Zero Emissions by 2050 Scenario \(NZE\)](#), 2021.
10. IEA, [World Energy Outlook 2022](#), 2022.
11. Ultradeep water and fracking represent 17.4% and 8.7%, respectively, of Shell's oil and gas resources currently being developed or under field evaluation. Issues related to some unconventional oil and gas are covered in Reclaim Finance's [Five of the riskiest oil and gas sectors](#), 2021.
12. More details can be found at Urgewald on the [Vaca Muerta](#), [Alberta tar sands](#) and [Verde Island Passage](#) webpages.
13. IPCC, [Climate Change 2022: Mitigation of Climate Change](#), 2022.
14. For example, the UN High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities, [Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions](#), November 2022; Race to Zero Expert Peer Review Group, [Interpretation Guide. Version 2.0](#), June 2022, para 5b; Net-Zero Asset Owner Alliance (NZAOA), [Position on the Oil and Gas Sector](#), March 2023.
15. OECM, [Limit global warming to 1.5°C](#), 2022
16. NGFS, [Climate scenarios](#)
17. The International Institute for Sustainable Development (IISD) filtered the various 1.5°C scenarios provided by the IPCC to ensure they do not rely on volumes of negative emission that are not coherent with the IPCC's own realistic potentials. These "limited negative emissions" pathways are analyzed in the report [Lighting the Path](#).
18. Shell, [Capital Market Day](#), 2023.
19. To model the IEA's NZE production trajectory and replicate it by company, we did not integrate merger and acquisition operations as these could increase the production rate because of field acquisitions with a FID obtained before 2022.
20. Urgewald, [Global Oil and Gas Exit List](#), November 2022.
21. Urgewald, [Global Oil and Gas Exit List](#), November 2022.
22. The IEA 9 for 1 ratio includes renewable energy, efficiency and end-use but also biomass and other activities (like CCS) that could lead to some environmental harm and/or raise sustainability questions.

Relying on a different scope of clean energy investment, BloombergNEF estimates that \$4 must be spent on clean energy for every dollar spent on fossil fuels by 2030, based on energy supply only.

23. Shell, [4th quarter 2022 and full year unaudited results](#), 2023.
24. Shell cash CAPEX in its Renewables and Energy Solutions business division amounted to US\$3.469 billion.
25. Shell allocated US\$21.077 billion to oil and gas, including US\$8.143 billion to oil and gas upstream activities, US\$4.265 billion to integrated gas, which includes its LNG business, and US\$8.669 billion to other oil and gas activities, i.e. mostly retail, refining and petrochemical activities.
26. Shell provided its shareholders with US\$26.048 billion through dividend payments (US\$7.611 billion) and share buybacks (US\$18.437 billion).
27. Shell, [Fourth quarter and full year 2022 results - Strong results, disciplined capital allocation](#), 2023.
28. Shell, [Atteindre le zéro émission nette](#).
29. To calculate the energy supplied, we used the Australian average household with a consumption reaching 5000 kWh per year. Therefore, the renewable share of the 2030 energy mix will probably rely much less on renewable energy.
30. Shell,
31. IPCC, [Climate Change 2022: Mitigation of Climate Change - Summary for Policymakers](#), p 40, 2022.

Useful links

[Methodology](#) - [Glossary](#)

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ASSESSMENT OF SHELL'S CLIMATE STRATEGY

Reclaim Finance is an NGO affiliated with Friends of the Earth France. It was founded in 2020 and is 100% dedicated to issues linking finance with social and climate justice. In the context of the climate emergency and biodiversity losses, one of Reclaim Finance's priorities is to accelerate the decarbonization of financial flows. Reclaim Finance exposes the climate impacts of financial players, denounces the most harmful practices and puts its expertise at the service of public authorities and financial stakeholders who desire to bend existing practices to ecological imperatives.

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