Green words, fossil actions:

a closer look at Shell's climate ambition

This report is an unofficial translation from the original Dutch report “Groene woorden fossiele daden: Shells klimaatambitie onder de loep”.

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Colophon

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Introduction

Royal Dutch Shell, hereafter Shell, is among the top ten most polluting companies worldwide. The company is among the 25 multinationals that have caused more than half of global greenhouse gas emissions over the past 30 years. Although Shell claims to embrace the Paris Agreement and has presented several climate ambitions, Shell's CO_2 emissions are still increasing. To meet the Paris Agreement target of limiting global warming to well below 2°C and preferably 1.5°C, companies like Shell must commit to drastic emission reductions now. Only then can the risks and consequences of climate change be significantly reduced.

This report explains that Shell's operations continue to contribute increasingly to dangerous climate change. Shell's operations are in sharp contrast to the scenario in which global warming can be limited to 1.5 degrees. Data from research firm Rystad shows that the company's oil and gas production will still increase significantly in the coming years. This is in stark contrast to what Shell at first glance promises in its climate ambition. In this publication, using Shell's investments and the nine core positions[1] announced at the October 2020 quarterly earnings call, we take a closer look at the company's climate ambition. Here's the current state of play. On February 11, 2021, Shell will explain the fulfilment of the April 2020 climate ambition. Shell will then have the opportunity to initiate a real change of course. So that the company will actually contribute to the energy transition. However, it remains to be seen whether Shell will take this step. During the presentation of the quarterly results in October, Shell announced nine core positions in which they will invest more in new oil and gas projects and in which existing activities will be further expanded. Shell also stated that they want to become the market leader in LNG (liquefied natural gas). The disappointing climate performance to date combined with the lack of climate ambitions for the future show that Shell's current and future activities are currently on a collision course with the climate.

1 The nine core positions are countries and territories that Shell plans to focus on primarily in the coming years

Shell's climate ambition April 2020

Shell first announced a climate ambition in the fall of 2017. In April 2020, Shell came out with a tightening of this climate ambition that the company says is in line with the 1.5 °C target in the Paris Agreement. The ambition consists of two parts:

Net 0 CO_2e emissions from Shell's production processes (scope 1 and 2) by 2050. Shell's ambition to be a *net-zero* company by 2050 is about the emissions released during the *production* of Shell's products. This comprises only 15% of Shell's emissions. It does not include emissions from the *use of* Shell's products (scope 3), even though they account for around 85% of Shell's emissions.

Reducing the net carbon footprint, or carbon intensity, of Shell's energy products by 30% by 2035 and by 65% by 2050, compared to 2016. Shell sets annual short-term targets to reduce the carbon intensity of the energy products they sell - the Net Carbon Footprint (NCF)[2] .

Shell argues*: "Shell's Net Carbon Footprint ambition is designed to be consistent with the Paris Agreement goal of limiting the increase in global average temperature to well-below 2°C and the stretched goal to limit it to 1.5°C compared to pre-industrial levels."* [3] Research by Oil Change International and others shows that Shell's current and future activities unfortunately do not even come close to "Paris. An intensity target such as the NCF is misleading and offers no guarantee that a reduction in CO_2 emissions will actually be initiated. With such an intensity target, Shell can improve its NCF by simply producing or trading more renewable energy relative to oil and gas. In other words, if Shell maintains or even increases the current level of oil and gas activity through 2050, and in addition expands the group by the same volume of renewable and zero-emission energy, Shell can meet its own ambition. Organizations like CarbonTracker also argue that by setting targets in intensity, companies have room to continue emitting at increasing rates as long as they add enough low-carbon energy sources to their portfolios[4] . Relative CO_2 emissions per unit of energy may decline while absolute emissions remain the same or even increase. Therefore, a goal that allows oil and gas companies to increase emissions is inconsistent with the Paris Agreement.

In 2019, a Net Carbon Footprint target was set by Shell for the year 2021 of 2-3% lower intensity compared to 2016. In early 2020, a new target of 3-4% lower intensity compared to 2016 was set for 2022. Oil Change International has provided insight into what achieving this NCF

2 Shell, Climate Ambition April 2020, https://www.shell.com/energy-and-innovation/the-energy-future/shells-ambition-to-be-a-net-zero-emissions-energy-business.html#iframe=L3dlYmFwcHMvY2xpbWF0ZV9hbWJpdGlvbi8

3 Shell's Net Carbon Footprint ambition: frequently asked questions, (02-07-2020) https://www.shell.com/energy-and-innovation/the-energy-future/what-is-shells-net-carbon-footprint-ambition/faq.html

4 Carbon Tracker, Balancing the budget, https://carbontracker.org/reports/balancing-the-budget/, p.11

ambition would mean for the company's CO_2 emissions based on Shell's planned production of oil and gas.

Shell's climate ambition vs. 1.5 °C

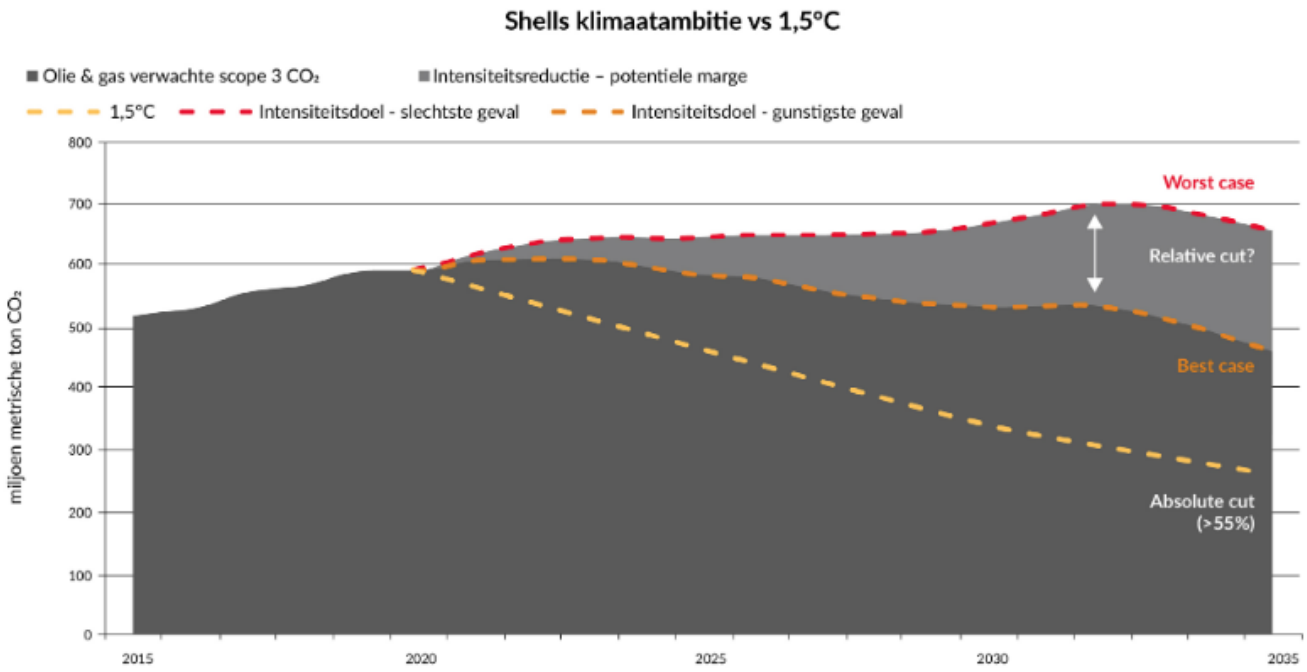


***Figure 1** - Shell's Net Carbon Footprint ambition compared with the IPCC's 1.5 °C scenario* [5]

Figure 1 assumes that Shell achieves its climate ambition to emit 30% less CO_2 per unit of energy it supplies by 2035 compared to the year 2020. Shell could achieve this goal by, on the one hand, (a) reducing the sale or production of fossil products, and, on the other hand, (b) providing more energy products with no or low emissions, such as renewable electricity.

In the most favourable case (*best case*), Shell achieves its ambition by extracting less oil and gas. CO_2 emissions in this case would be equal to the middle orange line. In the worst case (*worst case*), Shell would offset the additional amount of oil and gas it plans to pump out with low-carbon energy products. In that case, emissions would equal the upper red line. Shell would then meet its intensity targets while emitting more CO_2 in absolute terms than it did in 2019.

Both the upper red and orange middle lines are very far above the lower yellow line, which indicates how much Shell would have to reduce its emissions related to oil and gas production

5 Oil Change International (2020), Big Oil Reality Check, http://priceofoil.org/content/uploads/2020/09/OCI-Big-Oil-Reality-Check-vF.pdf, p.17 Of the products Shell sells in its service stations, about half come from its own oil and gas production and the rest are purchased from third parties. Figure 1 looks only at the portion that Shell pumps up itself.

to move in line with the IPCC 1.5 °C scenario. De facto, this would require an absolute reduction in oil and gas production. However, Shell's strategy is to add renewable energy and various ways of offsetting CO_2 to its existing portfolio, rather than reduce oil and gas production. This would improve the company's emissions intensity statistics, but would not result in the absolute emissions reduction needed to prevent dangerous climate change.

Climate performance 2016 - 2019

Ben van Beurden stated at the presentation of the quarterly results last October 2020, *"It was in 2017 that we started pivoting Shell to thrive in the energy transition"*[6] . Although Shell first formulated a climate ambition in 2017, it has so far remained only in words and Shell has not yet made any progress on the climate front. It speaks volumes that the day after announcing its net-zero ambition in April 2020, Shell gave the green light to the development of a USD 6.4 billion fossil gas project in Australia.[7] Shell does not even take its own targets, which are already insufficient, seriously.

Tables 1 and 2 show that while Shell's Net Carbon Footprint (NCF) has decreased, Shell's absolute CO_2 emissions have gone up. This shows once again that the NCF is not a good yardstick for measuring progress in climate performance and total emissions. Shell itself proves that such a climate ambition is absolutely no guarantee of actual emissions reductions.

Net Carbon Footprint (gCO2e/MJ)	2019	2018	2017	2016
	78	79	79	79

Table 1 *- Shells Net Carbon Footprint 2016-2019* [8]

	Absolute emissions (scope 1+2+3) million tons CO_2e
2016	733
2017	749
2018	777

6Shell Quarterly Results 3 2020, https://www.shell.com/investors/financial-reporting/quarterly-results/2020/q3-2020/_jcr_content/par/grid_819367489/p1/toptasks_2133672661.stream/1603961759632/ae3bb582f95f59d3e1cca67cf1ce2a463f5dda27/q3-2020-results-webcast-presentation-slides-with-speech.pdf, p. 16

7 Jamie Smyth, "Shell commits to $6.4bn gas project despite energy slump," Financial Times, April 17, 2020, https://www.ft.com/content/3fc8fe62-bff8-45e6-970c-25904c9abc0d

8 Shell, Sustainability Report 2019, https://reports.shell.com/sustainability-report/2019/servicepages/downloads/files/shell_sustainability_report_2019.pdf, p.41

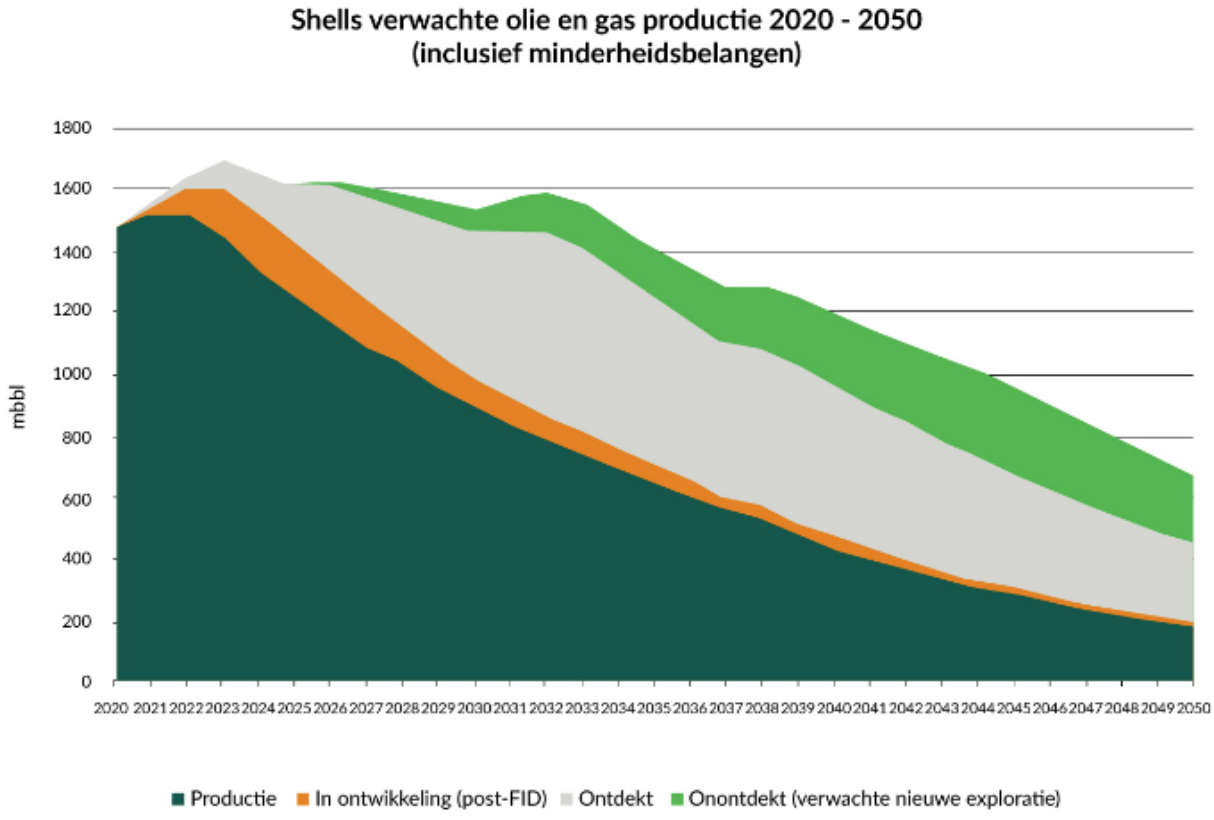
2019	773 -> increase of 5.4% over 2016

Table 2 - *Absolute emissions from Shell in million tons $_{CO2e}$ (scope 1+2+3)* [9]

9 Shell, Sustainability Report 2019 (Scope 1+2), https://reports.shell.com/sustainability-report/2019/our-performance-data/environmental-data.html, For full scope 3 figures, CDP reports from 2017-2020 were used

Billions towards more oil and gas

Recent figures from the IPCC show that CO_2 emissions from fossil fuels will need to decline rapidly, converted by about 6% per year, to stay on a 1.5 °C compatible pathway, and by about 2% per year to stay on a 2 °C compatible pathway.[10] Carbon emissions from oil and gas reserves currently in use would already push the world above 1.5°C warming and make it impossible to comply with the Paris Agreement.[11] The Stockholm Environmental Institute and the United Nations Environment Programme have further explained this in the Production Gap report. They state that, with current production plans, there will be 120% more fossil fuel production worldwide in 2030 than would be consistent with a 1.5°C scenario and about 50% more than is compatible with 2°C. [12]If oil and gas companies were serious about the Paris Agreement, new oil and gas exploration and extraction must end, and production from existing fields already developed must be phased out. Shell's production, however, looks set to grow.



10 IPCC, SR15, Chapter 2, https://www.ipcc.ch/sr15/chapter/chapter-2/

11 The Production Gap: 2019 Report http://productiongap.org/wp-content/uploads/2019/11/Production-Gap-Report-2019.pdf

12 SEI, IISD, ODI, Climate Analytics, CICERO, and UNEP. The Production Gap: The discrepancy between countries' planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C, 2019, pp. 2-5, http://productiongap.org/

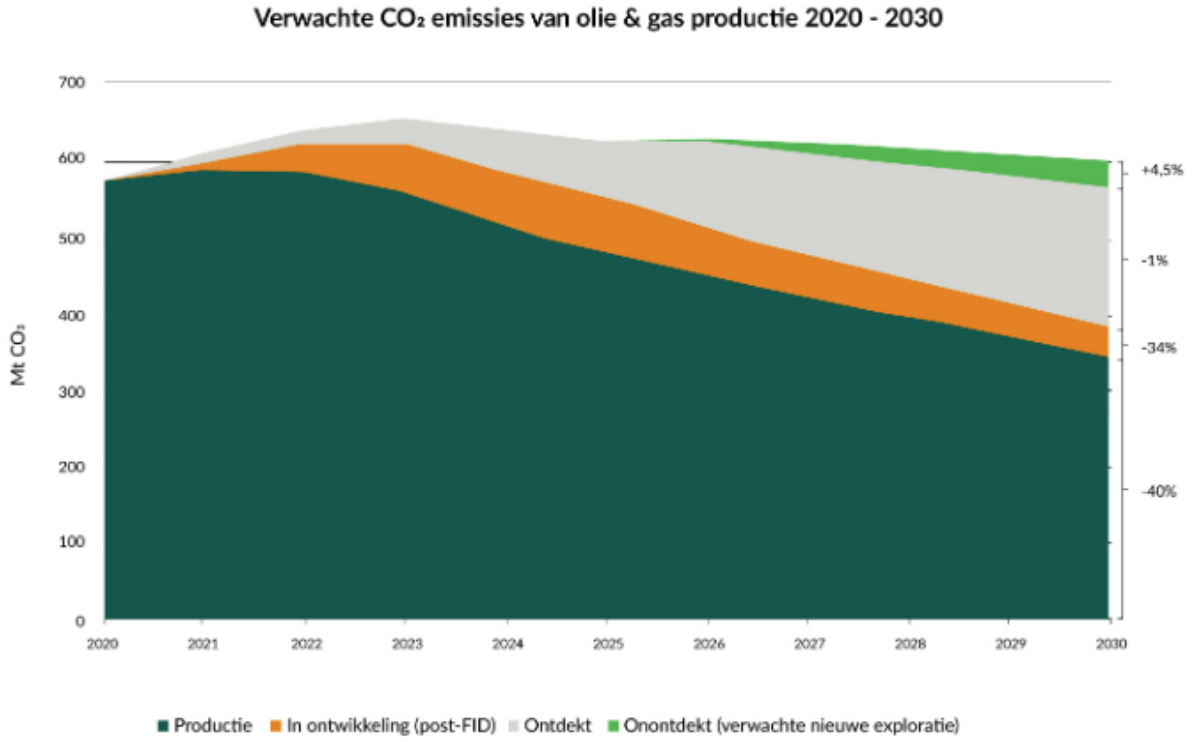


Figure 2 - *Expected production Shell 2020-2050 (including minority interests) expressed in million barrels of oil equivalent per day based on Rystad data, November 2020.*[13]

Figure 3 *- Expected annual CO_2 emissions from Shell's oil and gas production (including minority interests) from 2020 - 2030*

127 new coal plants or 40 million hectares of forest

If Shell only continued to produce oil and gas from its existing fields, there would be a 40% reduction in CO_2 emissions by 2030 compared to 2020. If Shell were to continue with existing fields and those currently under construction (post-FID) this would be a 34% reduction in CO_2 from Shell's production. If Shell were to execute its current plans and thus continue production from discovered and undiscovered fields, this represents a 4.5% increase in CO_2 emissions from 2020.

The total CO_2 emissions from oil and gas production in the period between 2020-2050 is 15,705 million, i.e. almost 16 billion, tons of CO2. The average annual CO_2 emissions between 2020 and 2050 would then be equivalent to 127 new coal-fired power plants.14 To capture and store

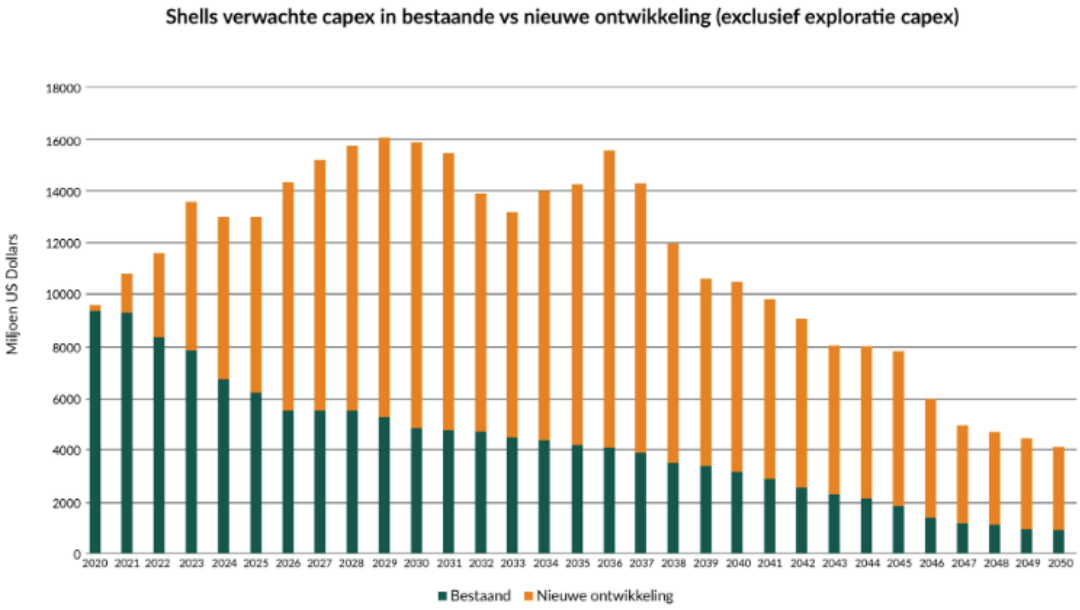
13 Source: Rystad Energy UCube (November 2020), published by OCI on 12-12-2020. http://priceofoil.org/2020/12/12/as-shell-faces-climate-lawsuit-in-dutch-court-production-data-confirms-the-oil-giant-is-on-track-to-shoot-far-past-1-5c/

14 Based on an average coal-fired power plant in the U.S. with a 30-year life. It emits 4 million metric tons of CO2 annually. Source: Oil, Gas and the Climate: An Analysis of Oil and Gas Industry Plans for Expansion and Compatibility with Global Emission Limits

those average annual CO_2 emissions and thus prevent them from entering the atmosphere, 203 Carbon Capture, Utilization and Storage (CCUS) plants are needed as of now. These are installations of the size comparable to Shell's Porthos project in Rotterdam. 15 At the moment, the Porthos project is not yet active, let alone opening 209 plants of the same size today. Shell could also plant 42.2 million hectares of forest each year to offset the average annual CO2 emissions from its production.16 By comparison, the Netherlands is about 4.1 million hectares.

CAPEX grows

If production from existing fields is already pushing us past 1.5 °C, new investment in oil and gas is already completely incompatible with combating climate change. Shell plans to invest billions of dollars in new oil and gas fields between the years 2020 and 2050 with the highest peak in 2029 and an outlier in 2036 (see Figure 4). This makes Shell the second largest investor in the world in new oil and gas production after ExxonMobil, making it one of the biggest contributors to further climate change. [17]



(December 2019) https://milieudefensie.nl/actueel/oilgasandtheclimate.pdf (Calculation: average emissions of 506.7 million metric tons of CO2 per year; 506.7/4=127)

15 CCUS Porthos Project in which Shell is participating. The project, which will start in 2023, captures an average of 2.5 million tons of CO2 per year.

https://www.nsenergybusiness.com/projects/porthos-carbon-capture-and-storage-ccs-project/ (Calculation: average emissions of 506, million tons of CO2 per year; 506.7/2.5=203)

https://www.nsenergybusiness.com/projects/porthos-carbon-capture-and-storage-ccs-project/

16 Calculation 15.705 million tons of CO2 between 2020-2050/31 years= 506.7 MtCO2 emissions average per year/12 tons of CO2 per hectare) 12 tons of CO2 per hectare is the average of 10-14 tons of CO2 as described on the State Forestry Administration website https://www.staatsbosbeheer.nl/shell/veelgestelde-vragen

17 Globalwitness, Overexposed, how the IPCC's 1.5°C report demonstrates the risk of overinvestment in oil and gas, 23 April 2019

Figure 4 - *Expected capital expenditure Shell 2020 - 2050 on oil and gas production excluding exploration expenditure based on Rystad data, November 2020.*[18]

At the same time, Shell's investments in renewable energy are lagging behind. From 2010 to Q3 2018, Shell spent about 1.3% of its total capital expenditure (CAPEX) on *clean energy technologies* (wind, solar, biomass, biofuels, *carbon capture and storage* (CCS), *energy smart technology*).[19] According to its plans for 2018-2020, Shell was to spend up to $6 billion on green investments, but instead the company is on track to meet only a third of this. In the same four years, the company spent more than $120 billion developing fossil fuel projects. So the balance is still way off.

18 Source: Rystad Energy UCube (November 2020), published by OCI on 12-12-2020. http://priceofoil.org/2020/12/12/as-shell-faces-climate-lawsuit-in-dutch-court-production-data-confirms-the-oil-giant-is-on-track-to-shoot-far-past-1-5c/

19 Reuters, Big Oil spent 1 percent on green energy in 2018, https://www.reuters.com/article/us-oil-renewables-idUSKCN1NH004 + https://fingfx.thomsonreuters.com/gfx/ce/7/1800/1799/Pasted%20Image.jpg

Growth Business

Shell, when presenting its quarterly results in October 2020, distinguished between three branches in the company: 1. upstream business; 2. transition business; 3. growth business. Of the expected $19 - 22 billion cash capex to be spent by the company in the near future will be:
1. 35-40% going to upstream business
2. 35-40% to transition business
3. 25% to growth business

Shell announced that the annual investment budget for the growth business will increase 11% on average from the past three years, to 25%. Ben van Beurden, Shell's CEO, presented the growth business as the sustainable arm of the company. However, the growth business covers a lot more than just Shell's renewable activities:

- hydrogen and biofuels: The company plans to make full use of biofuels and hydrogen in the future. The company is also already one of the largest blenders and distributors of biofuels in the world. However, biofuels from food are more harmful to the climate than regular gasoline and diesel. As for hydrogen, gray hydrogen produced from fossil gas also falls within this category.

- Marketing business: These include Shell's gas stations and stores, including the sandwiches and coffee sold at these gas stations.

- Power business: Purchasing, producing and trading electricity from both renewable and fossil sources. Shell's production of renewable energy is still limited.

- Decarbonization of 'key sectors': According to Shell, biofuels will be able to be used for decarbonization. These biofuels will be blended with other fuels such as gasoline and diesel. These could then help decarbonize(decarbonize) aviation, shipping and heavy road transport.

- Offering "nature-based solutions" and carbon sequestration as a service. These are CO2 compensation programs, which therefore do not reduce

Q3 update and key position projects

To better understand the future direction of the company, an analysis was made of the various announcements made during the October quarterly earnings presentation. This paints a picture of Shell's activities in the coming years.

Within Shell's *upstream arm* (exploration, drilling & extraction), the company will focus on nine core positions in the coming years, in order to maximize returns.[20] Shell sees these nine core positions as the most resilient projects: indeed, the projects already generate more than 80% of operating cash flow in the *upstream* branch. More than 80% of *upstream* capital investment (CAPEX, i.e. not total company capital investment) will also be invested in these core positions.[21]It is therefore unlikely that these core positions will be tinkered with at the Strategy Day on February 11, 2021.

Shell's nine core positions are: [22]

1. Nigeria
2. Brazil
3. Gulf of Mexico
4. Permian (United States)
5. United Kingdom
6. Kazakhstan
7. Oman
8. Malaysia
9. Brunei

Reason for concern? Shell focuses on LNG

During its third quarter 2020 presentation, Shell indicated its intention to focus even more on *liquefied natural gas* (LNG), or liquefied natural gas. According to the company, they have already established a position as a market leader and will build on this in the coming years.[1] According to Shell's forecasts, in the longer term demand is expected to double to 700 million tons by 2040. The company therefore sees LNG playing an important role in the transition to a low-carbon energy system.

20 The company invested 50% of its total capital investment in the upstream branch in recent years. During the presentation of the third-quarter results in October 2020, Ben van Beurden announced that this will become 35 to 40%.

21Shell Quarterly Results 3 2020, https://www.shell.com/investors/financial-reporting/quarterly-results/2020/q3-2020/_jcr_content/par/grid_819367489/p1/toptasks_2133672661.stream/1603961759632/ae3bb582f95f59d3e1cca67cf1ce2a463f5dda27/q3-2020-results-webcast-presentation-slides-with-speech.pdf p.20

22 Ranking has no effect on the size or importance of the core position

LNG is gas that is liquefied at -162 °C to reduce its volume and thus make it easier to transport by boat. Upon arrival, the LNG is regasified to be further transported by pipeline to its final destination.[2] Electricity and gas are used to cool the gas to the required -162°C. Where gas is used, it is estimated that 10-20% of the gas supplied is needed to power the plant.[3] Thus, additional energy is required for both transportation and regasification. Thus, producing LNG adds a significant amount to emissions. Moreover, methane is also released in this whole process (between 2.7 and 5.4%).[4] Recent research has shown that using fossil gas like LNG causes about 25% more CO_2 emissions, on top of the emissions from gas for electricity or heat. [5]

LNG is not so rosy on the financial front either. Shell itself notes that it must be selective with its investments and does not expect to develop any new 'greenfield' (as yet undeveloped sites) LNG projects. One reason for this is that LNG projects are long-term projects and must therefore remain profitable well into the future.[6] An example of this is Shell's Prelude project, a giant LNG ship launched off the coast of Australia in 2018.[7] The project is expected to produce LNG for between 20 and 25 years [1]and cost Shell $12 billion.[8] The project was halted by Shell in January 2020 due to safety concerns.[9] Whether the project will be restarted in the future is unclear at this time. The delays, caused in part by COVID-19 and technical problems, have had a major impact on asset values. [10]

According to the International Energy Agency, 2019 was the record year for LNG project approvals.[11] There was already an abundance of LNG supply in the market, but with the new investments, this period is further prolonged, significantly complicating the prospects for other large LNG investments. Therefor it remains to be seen to what extent there is a future for LNG.

1 Shell Quarterly Results 3 2020, https://www.shell.com/investors/financial-reporting/quarterly-results/2020/q3-2020/_jcr_content/par/grid_819367489/p1/toptasks_copy.stream/1603961759863/9a53beca1a6094dd01e61ace1614dababdde0ca7/q3-2020-results-webcast-presentation-slides.pdf , slide 18

2 Burning the Gas 'Bridge Myth': Why gas is not clean, cheap, or necessary. Oil Change International http://priceofoil.org/content/uploads/2019/05/gasBridgeMyth_web-FINAL.pdf

3 Lowell, D. "Assessment of the fuel cycle impact of liquefied natural gas as used in international shipping." International Council on Clean Transportation. 2013. https://bit.ly/2UMAmSF, p.18

4 Lowell, D. "Assessment of the fuel cycle impact of liquefied natural gas as used in international shipping." International Council on Clean Transportation. 2013. https://bit.ly/2UMAmSF, p.2

5 Pavlenko, N., et al. "The climate implications of using LNG as a marine fuel." International Council on Clean Transportation. Working Paper 2020-02. https://bit.ly/2AHqAuf

6 Investors Q&A Shell https://www.shell.com/investors/financial-reporting/quarterly-results/2020/q3-2020.html#webcast

7 Prelude FLNG https://www.shell.com/about-us/major-projects/prelude-flng.html

8 Prelude FLNG in Numbers https://www.shell.com/about-us/major-projects/prelude-flng/prelude-flng-in-numbers.html

9 Shell's $12 Billion LNG Experiment Becomes A Big Headache (Juni 23, 2020) Tim Treadgold https://www.forbes.com/sites/timtreadgold/2020/06/23/shells-12-billion-lng-experiment-becomes-a-big-headache/#7d53bc291107

10 Shell's $12 Billion LNG Experiment Becomes A Big Headache (Juni 23, 2020) Tim Treadgold https://www.forbes.com/sites/timtreadgold/2020/06/23/shells-12-billion-lng-experiment-becomes-a-big-headache/#7d53bc291107

Shell's future: the nine core positions

As described earlier, Shell still wants to further expand its oil and gas production despite its announced climate ambition. Figure 2 shows the expected oil and gas production through 2050. To further colour this picture, we calculated the CO_2 emissions associated with oil and gas production in all nine core positions between now (2020) and 2050.

In the figures below, we show the **potential and expected** CO_2 emissions from all projects taking place from 2020 to 2050 in Shell's nine core positions. Figure 5 shows the total potential CO_2 emissions for all core positions (pre-FID investments included). This figure shows that Shell does not plan to reduce CO_2 emissions from production in the coming years. Instead, this figure clearly shows that CO_2 emissions from the various projects will increase significantly in the coming years, peaking between 2025 and 2028.

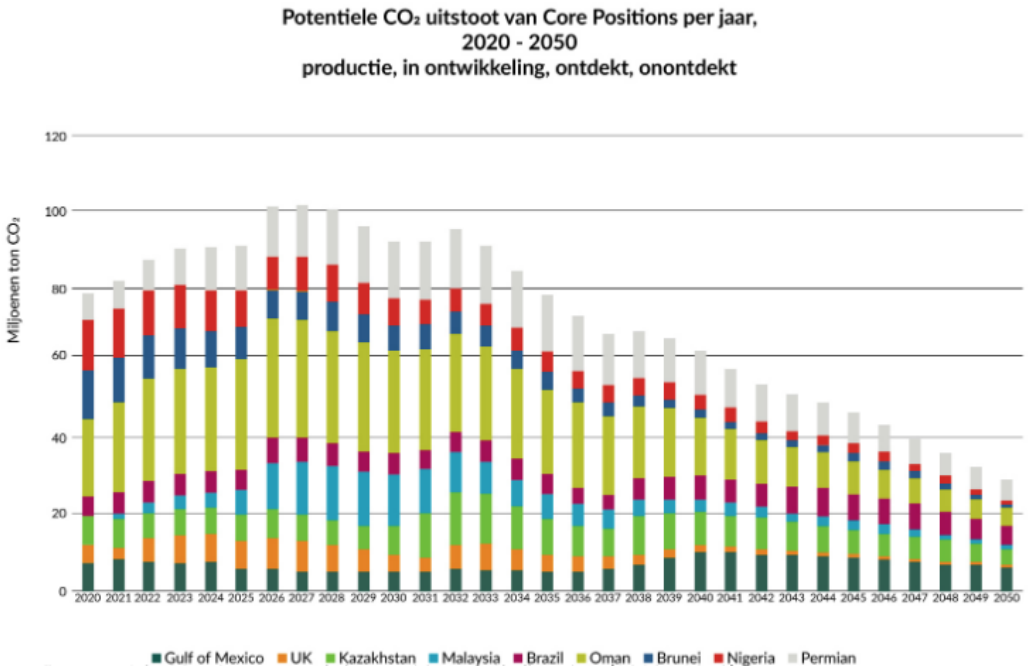


***Figure 5** - Potential CO_2 emissions from Shell's core positions per year (2020 - 2050) from Rystad data, December 2020.* [23]

Figure 6 shows the expected CO_2 emissions from all core positions between 2020 and 2050 based on the projects already producing and those under development. Thus, the investments have already been made. Unlike Figure 5, this figure therefore does not include the CO_2 emissions that would be released if Shell were also to exploit the reserves that are still undeveloped. It becomes clear that even if Shell does not start any new projects and only continues current production, CO_2 emissions will continue to increase for the time being.

23 Source: Rystad Energy UCube (November 2020), published by OCI on 12-12-2020. http://priceofoil.org/2020/12/12/as-shell-faces-climate-lawsuit-in-dutch-court-production-data-confirms-the-oil-giant-is-on-track-to-shoot-far-past-1-5c/

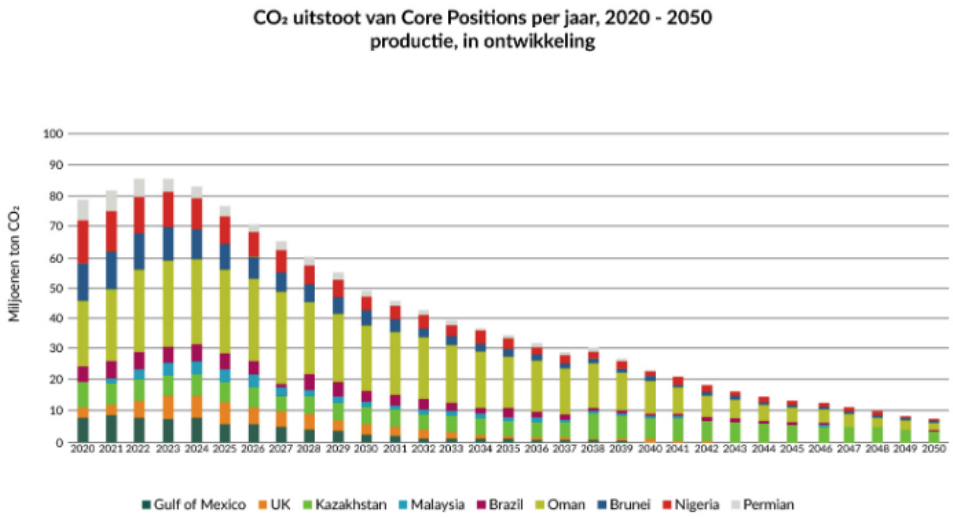


Figure 6 - *CO_2 emissions from Shell's core positions per year (2020-2050) from Rystad data, December 2020.*[24]

	Gulf of Mexico	VK	Kazakhstan	Malaysia	Brazil	Oman	Brunei	Nigeria	Permian (US)	**Total**
Total million tons of CO_2 emissions (with pre-fid)	1327	439	872	655	1837	1348	387	596	1732	**9193**
Total million tons of CO_2 emissions (without pre-fid)	749	291	607	465	1031	1129	254	412	260	**5198**

Table 3 *- Total CO_2 emissions by core position between 2020 and 2050 expressed in million tons of CO_2*

For comparison, Shell's total emissions of CO2 for its nine core positions (2020-2050) (with pre-FID) is 9193 million tons of CO2. This is equivalent to the annual emissions of 74 coal-fired power plants.

To undo the total emissions from its nine core positions (2020-2050) (with pre-FID), Shell would have to have 119 CCUS plants similar to the Porthos project actively capture CO2 from now on.[25]

24 Source: Rystad Energy UCube (November 2020), published by OCI on 12-12-2020. http://priceofoil.org/2020/12/12/as-shell-faces-climate-lawsuit-in-dutch-court-production-data-confirms-the-oil-giant-is-on-track-to-shoot-far-past-1-5c/

25 See footnote 14 for calculation

Or Shell would have to plant 25 million acres of forest annually to offset the CO2 emissions from its core positions. [26]

Core position: Gulf of Mexico

Shell is investing primarily in deep water projects in the Gulf of Mexico. This is in line with the ambition to strengthen and grow their position in this area. This growth should offset some of the company's global decline due to the corona crisis, among other things.[27] This is striking because it contradicts the developments observed by the International Energy Agency (IEA). Namely, that due to COVID-19 international oil and gas companies have mostly had to write off unconventional oil and gas wells, deep water projects, LNG infrastructure and refining assets.[28] According to the IEA, future investments in new capital-intensive projects with relatively long lead times, for example in deep water areas, will be limited.[29] It is therefore unclear for the time being why achieving growth in deep water projects is still a strong preference for Shell.

Core position: United Kingdom

Shell has a significant number of interests on the British continental shelf under a 50:50 joint venture agreement with ExxonMobil. In addition to its oil and gas production from the North Sea fields, the company also has several interests in the Atlantic, primarily in the area west of Shetland and Schiehallion. [30]

Core position: Kazakhstan

Shell is one of the operators of the Karachaganak onshore oil and condensate field where they have a license until the end of 2037. They also have an interest in the North Kaspian Sea Production Sharing Agreement that includes the Kashagan field in the Kazakh sector of the Caspian Sea. This shallow water field has an area of approximately 3,400 square kilometres. The development of Phase 1 of the field is expected to lead to a plateau oil production capacity of approximately 63 thousand barrels of oil equivalent per day by 2020, with the possibility of expansion. In addition, Shell's interests include Caspian Pipeline Consortium, an oil pipeline that runs from the Caspian Sea to the Black Sea through parts of Kazakhstan and Russia. [31]

26 See footnote 15 for calculation

27 Investors Q&A Shell https://www.shell.com/investors/financial-reporting/quarterly-results/2020/q3-2020.html#webcast minuut 52:00

28 International Energy Agency, World Energy Outlook 2020, p.259

29 International Energy Agency, World Energy Outlook 2020, p.264

30 Shell Annual Report 2019, p.55

31 Shell Annual Report 2019, p.55

Core position: Malaysia

Shell is very active in Malaysia. The company has numerous projects, including for example in Sabah and Sarawa where it now has 16 Production Sharing Contracts (PSCs).

A major upcoming project in Malaysia is the Pegaga gas project located off the coast of the eastern Malaysian state of Sarawak. Mubadala Petroleum (50% share and operator), Petronas (25%) and Shell subsidiary Sarawak Shell Berhad (20%) have spent more than $1 billion since 2018 to develop the Pegaga gas field in Malaysia, with a goal of producing gas by 2022. [32,33]

Core position: Brazil

After the U.S., Brazil is the country where Shell produces the largest percentage of oil, accounting for 19% of the total Shell produces worldwide.[34] The company has 23 exploration blocks, one field under development and 14 fields in production in Brazil. [35]The company purchased another new block in early December this year (2020) for $2.3 million: the C-M-757 in the Campos Basin.[36] "*This new block will consolidate our extensive portfolio in Brazil, where we have acted as operators since the start of the 2000s*" said the CEO of Shell Brasil. [37]

A major project that is also under development is the project in the Mero field. The field is a deepwater oil field located about 180 km off the coast of Rio de Janeiro in the Libra block in Brazil. The Mero field and projects are owned by the Libra consortium, which is led by Petrobras (40%) along with Shell (20%), Total (20%), CNPC (10%) and CNOOC Limited (10%).[38] The first oil from the Mero fields is expected to be extracted in 2021.

32Rystad dates November 2020

33 Mubadala advances $1 billion Malaysia Pegaga gas field project. (March 21, 2018) Reuters staff https://www.reuters.com/article/us-malaysia-gas-mubadala-idUSKBN1GX0G1

34 Shell Annual Report 2019, p.66

35 Brazil reforms likely as ANP sells only one offshore block at open acreage auction. (December 4, 2020) SP Global https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/120420-brazil-reforms-likely-as-anp-sells-only-one-offshore-block-at-open-acreage-auction

36 Brazil reforms likely as ANP sells only one offshore block at open acreage auction. (December 4, 2020) SP Global https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/120420-brazil-reforms-likely-as-anp-sells-only-one-offshore-block-at-open-acreage-auction, https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/120420-brazil-reforms-likely-as-anp-sells-only-one-offshore-block-at-open-acreage-auction

37 Brazil reforms likely as ANP sells only one offshore block at open acreage auction. (December 4, 2020) SP Global https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/120420-brazil-reforms-likely-as-anp-sells-only-one-offshore-block-at-open-acreage-auctionhttps://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/120420-brazil-reforms-likely-as-anp-sells-only-one-offshore-block-at-open-acreage-auction

38 Mero Oil Field, Rio de Janeiro https://www.offshore-technology.com/projects/mero-oil-field-rio-de-janeiro/

Core position: Oman

Shell, together with the Omani government, Total SE and Partex Oil & Gas, holds shares in the Petroleum Development Oman (PDO) company. PDO operates 192 oil fields, 52 gas fields, 29 production stations and around 9,000 active oil wells and gas wells. [39]

Of Shell's total oil production, 11% comes from Oman (third largest oil producer after the US and Brazil).40 Oman was the largest recipient of Shell money last year with $2.9 billion, followed by Norway with more than $1 billion and Nigeria with $851 million. [41]

Core position: Brunei

Shell is a shareholder (50:50) with the Government of Brunei in Brunei Shell Petroleum Company Sendirian Berhad (BSP). BSP itself holds rights to offshore and onshore oil and gas fields in Brunei. Most of BSP's gas production is resold to Brunei LNG Sendirian Berhah while the remainder, 12% in 2019 according to Shell, is resold on the domestic market. Shell's interests also include, in addition to BSP, the Block B concession where gas and condensate are produced from the Maharaja Lela field. [42]

Core position: Nigeria

Shell has been operating in Nigeria since 1936. Shell established a Nigerian company with the predecessor of BP Plc. The first delivery of oil from Nigeria was in 1958 from the Oloibiri field in the Niger Delta. [43],[44] The first deepwater production was started in 2005 with the Bonga FPSO vessel (floating production, storage and offloading vessel) by Shell's subsidiary Shell Nigeria Exploration and Production Company Limited (SNEPCo). [45]Shell thus has multiple types of projects in Nigeria, producing oil and gas under various subsidiaries from fields in the country, as well as in swamps, shallow water and from deepwater reserves.[46] According to Shell, the portfolio continues to evolve continuously. Indeed, changes in the portfolio are taking place to ensure that the company can remain a competitive player for years to come.[47]

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39 Oman creates new oil and gas company. (December 6, 2020) SP Global https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/120620-oman-creates-new-oil-and-gas-company

40 Shell Annual Report 2019, p.66

41 Shell reveals latest year without paying UK corporation tax. (November 17, 2020) Anjili Raval Financial Times https://www.ft.com/content/d70ea52c-5dc6-4bf5-8305-fffc82fdb67e

42 Shell Annual Report 2019, p.55

43 Timeline Shell's Operations in Nigeria (September 23, 2018) Reuters Staff. https://www.reuters.com/article/us-nigeria-shell-timeline-idUSKCN1M306D

44 Shell's Interests in Nigeria https://www.shell.nl/media/nigeria/briefing-notes-2014/_jcr_content/par/textimage.stream/1519768788554/1633c72b819a4a5c23666d40ec1a94ff395a6f72/shell-belangen.pdf

45 Shell's Interests in Nigeria https://www.shell.nl/media/nigeria/briefing-notes-2014/_jcr_content/par/textimage.stream/1519768788554/1633c72b819a4a5c23666d40ec1a94ff395a6f72/shell-belangen.pdf

46 Shell's Interests in Nigeria https://www.shell.nl/media/nigeria/briefing-notes-2014/_jcr_content/par/textimage.stream/1519768788554/1633c72b819a4a5c23666d40ec1a94ff395a6f72/shell-belangen.pdf

47 Shell's Interests in Nigeria https://www.shell.nl/media/nigeria/briefing-notes-2014/_jcr_content/par/textimage.stream/1519768788554/1633c72b819a4a5c23666d40ec1a94ff395a6f72/shell-belangen.pdf page 1

Core position: Permian (US)

Shell has been active in the Permian Basin since 2012 which stretches between Midland, Texas to the southeastern border of New Mexico.48 The company has a total of 260,000 acres in the Delaware Basin (which is in the Permian Basin) where Shell focuses on the formations named Wolfcamp, Bone Springs and Avalon.49 According to the company, the Permian Basin is the crucial foundation for the company's future growth in shale operations.[50]

Conclusion

Although Shell's green PR-machine is working overtime to showcase a so-called new climate course, the reality is worrying. Since the presentation of Shell's first climate ambition in 2017, there have been no significant improvements in Shell's climate performance. On the contrary; analysis of Shell's investments shows that the company's absolute CO_2 emissions have gone up. This shows that Shell is not taking even its own targets, which are insufficient, seriously. Growth can also be seen in projected oil and gas production until at least 2032. The expected CO_2 emissions from Shell's total projected production in the coming years is comparable to opening 127 new coal-fired power plants. To offset the CO_2 emissions from Shell's production from 2020-2050, a forest more than 10 times the size of the Netherlands would have to be planted. Shell's CAPEX-outlook and billions in investments for oil and gas, also have a bleak effect on the climate. New investments in fossil fuels are not compatible with fighting climate change.

During the October quarterly earnings presentation, Shell stated its intention to focus on nine core positions that will receive 80% of the *upstream* CAPEX. This report shows the associated CO_2 emissions. Although there are numerous other projects outside of these core positions that will further increase Shell's CO_2 emissions, the core positions described well reflect the direction the major climate polluter wants to take in the future. On February 11, Shell will present the details of its climate ambition announced in April. Without a commitment to absolute emission reductions in scope 1, 2 and 3, and to phasing out all fossil activities (including LNG), Shell's plans should be taken with a grain of salt. With climate ambitions for the stage and no indication of an actual change of course, Shell continues to cause dangerous climate change.

48 Shale Oil in the Permian Basin, Shell https://www.shell.com/energy-and-innovation/shale-oil-and-gas/shale-oil-and-gas-locations/permian.html; https://www.shell.com/energy-and-innovation/shale-oil-and-gas/shale-oil-and-gas-locations/permian.html; In Focus: Permian, Shell https://reports.shell.com/investors-handbook/2018/upstream/in-focus-permian.htmlhttps://reports.shell.com/investors-handbook/2018/upstream/in-focus-permian.html

49 Shale Oil in the Permian Basin, Shell https://www.shell.com/energy-and-innovation/shale-oil-and-gas/shale-oil-and-gas-locations/permian.html

50 In Focus: Permian, Shell https://reports.shell.com/investors-handbook/2018/upstream/in-focus-permian.html