PAULUSSEN ADVOCATEN

Court of Appeal of The Hague
Case number: 200.302.332
Session date 4 April 2024

ORAL ARGUMENTS OF MILIEUDEFENSIE ET AL. SHELL'S REDUCTION OBLIGATION – PART 4 SECTORAL REDUCTION PATHWAYS, THE ENERGY TRANSITION AND THE FINDINGS OF THE IEA

in the matter of:

1. **Vereniging Milieudefensie**
   having its registered office in Amsterdam, the Netherlands
2. **Stichting Greenpeace Nederland**
   having its registered office in Amsterdam, the Netherlands
3. **Landelijke Vereniging tot Behoud van de Waddenzee**
   having its registered office in Harlingen, the Netherlands
4. **Stichting ter bevordering van de Fossielvrij-beweging**
   having its registered office in Amsterdam, the Netherlands
5. **Stichting Both ENDS**
   having its registered office in Amsterdam, the Netherlands
6. **Jongeren Milieu Actief***
   having its registered office in Amsterdam, the Netherlands

Respondents, original claimants,

Collectively called: "**Milieudefensie et al./Friends of the Earth Netherlands et al.**" (hereinafter: Milieudefensie et al.)

Legal counsel:
mr. R.H.J. Cox, *mr.* M.J. Reij, *mr.* A.J.M. van Diem

versus:

Shell plc
having its registered office in London, United Kingdom

Appellant, original defendant

Legal counsel:
mr. D.F. Lunsingh Scheurleer, *mr.* T. Drenth

and:

* Vereniging Jongeren Milieu Actief, the youth organisation of Vereniging Milieudefensie, was dissolved as of 1 September 2022. Its activities have continued within Milieudefensie.

Stichting Milieu en Mens
having its registered office in Zwolle, the Netherlands

Joined party on the part of Shell plc

Legal counsel:
mr. Dr D.J.B. Bosscher

Your Honours,

Introduction

1. In the last hour I explained that the way in which IAMs calculate sectoral reduction pathways comes with significant limitations. These limitations de facto all work for the benefit of the oil and gas sector. The limitations connected with IAMs by definition thus lead to excessively low emission reductions in this sector.

2. I have discussed that Shell therefore cannot hide behind the low reduction percentages from the models. These sectoral outcomes do not do justice to a fair and legitimate division of the climate task and are not sufficiently rooted in the real world.

3. However, this case is about what can be demanded of Shell in the real world. We do not, after all, live in the world of modelling, in which the poorest countries in the world take the lead in the climate approach, in which it is not legal standards, but cost considerations that prevail and in which future generations have the capability and wealth to, miraculously, remove gigantic quantities of CO_2 from the atmosphere.

4. In the real world there is global consensus that immediate and far-reaching emission reductions are necessary to achieve the 1.5˚C target agreed upon by the global community, the carbon budget has nearly run out, and an accelerated energy transition is not only safer and fairer, but also the best solution from a financial and economic perspective.

5. In this context it was explained today that in the real world, the international climate protocols show that companies must seek as much alignment as possible with the global average reduction pathway. Based on the highest ambition principle, companies that have the necessary capacity must, according to these protocols, indeed do more than the global average. Dutch liability law leads to the same outcome, as was also explained today.

6. Such an approach, whereby companies seek alignment with the global average or indeed do more, is particularly relevant because there is no global coordination of how much each sector must contribute to the climate approach. Because of the lack of that global coordination, every company and every sector must show the highest possible ambition. This is particularly important as this case is not concerned with assessing the feasibility of a global reduction pathway for oil and gas, but merely the feasibility of Shell's duty of care.

7. Despite the large limitations connected with the direct application of model-based reduction pathways for oil and gas, Shell believes that none of these limitations need be taken into account.

Even more so, Shell believes that the existence of a bandwidth in model-based scenario outcomes entails that it would not even be possible to find a specific reduction percentage to realise its duty of care.[1] This argument does not add up.

8. In this second part of the oral arguments, I will set out what it would mean for Shell if – contrary to all limitations and legal objections – alignment were to be sought with the sectoral pathways from the models. I will show in this respect that the reductions in the oil and gas sector in 2030 will be a good deal higher than Shell's expert, Professor Hawkes, makes it appear. Indeed, the IEA shows in the updated NZE scenario of 2023 that in a time period of approximately one decade a reduction of 45% in the entire oil and gas sector worldwide is both necessary and possible.

9. In other words: a 45% reduction in approximately a decade is not only achievable for Shell, but is achievable for the entire oil and gas sector. On the basis of everything we will discuss, it will become clear that even an approach based on sectoral pathways for Shell must lead to a reduction obligation of 45% in 2030.

The Tyndall report

10. I will first discuss the Tyndall report, which Milieudefensie et al. has submitted as an exhibit.[2] This is a study about equitable reduction pathways based on the CBDR principle for phasing out oil and gas. It was written by climate scientist and Professor Kevin Anderson and Dr Dan Calverley. They are connected with the renowned Tyndall Centre for Climate Change Research.

11. The Tyndall report shows what would be necessary to stay within the carbon budget.[3] The report shows with what speed oil and gas must be phased out, when the uncertainties and risks discussed in the previous hour are taken into account. The Tyndall report has calculated what should happen when CDR is not used to facilitate a continuing use of oil and gas[4] and to artificially increase the carbon budget.

12. The Tyndall report shows that in that case the CO_2 reduction task for oil and gas comes to a reduction of 45% in 2030, compared to 2021.[5] The Tyndall report thereby shows what actually has to happen not to exceed the carbon budget and to prevent an overshoot.

13. Shell has commented on the Tyndall report through Professor Hawkes. This is the statement of 3 March 2024.[6] Professor Anderson responded to that statement on 28 March 2024.[7]

14. In his response, Professor Anderson shows himself to be very critical about the approach and remarks of Shell's expert. He shows that Shell's expert incorrectly represents the methodology of the Tyndall report and makes a number of bold claims that are simply incorrect.[8]

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[1] See also Statement of Appeal, para. 1.3.6.
[2] Exhibit MD-351.
[3] For the description of the methodology used, see Milieudefensie et al.'s Defence Brief commenting on exhibits of 19 December 2023, section 6 (paras. 25 et seq.).
[4] This is the role that CDR plays in the greater part of the models. See in this respect Exhibit MD-460, p. 10.
[5] Exhibit MD-537. This is bearing in mind a more equitable reduction pathway for the phase-out of coal, setting out that the emissions from coal will fall by 46% by 2030, compared to 2021.
[6] Exhibit S-240.
[7] Exhibit MD-581.
[8] Exhibit MD-581, p. 1.

15. For example, Professor Hawkes claims that the Tyndall report assumes that no CDR will be available in the future. This is demonstrably incorrect. Professor Anderson shows that Shell's expert fully ignored the detailed explanation in the Tyndall report about the role of CDR.[9] The Tyndall report makes it clear that if it becomes possible to scale up CDR, the level of CDR that will be achievable, will be fully necessary to compensate for unavoidable emissions from the land sector.[10] The capabilities that can be achieved with CDR are therefore necessary to make the global food supply climate neutral by 2050. The Tyndall report thus only limits the degree of how much CDR will be used on good grounds and shows that the hypothesis of future CDR cannot be a reason for a delayed phase-out of fossil fuels.[11]

16. Professor Anderson's further criticism concerns Shell's expert's disregard of the CBDR principle,[12] his disregard of the limitations of IAMs,[13] his disregard of the unrealistic reduction pathways for coal in the IAMs,[14] his disregard of the risks of overshoot,[15] his disregard of the uncertainties and risks of CDR,[16] his disregard of the limited remaining carbon budget[17] and his disregard of the consequences of climate change.[18]

17. Professor Anderson therefore concludes that Professor Hawkes disregards the reality and urgency of climate change and opts for an approach that places the burden on future generations. I quote: "*[Professor Hawkes] chooses simply to not engage with the reality of the maths and timeframe of the Paris 1.5°C commitment, preferring instead to pass the mitigation burden on to future generations in many years.*"[19]

18. Professor Anderson's criticism of Shell's expert aligns with and confirms the explanation that I presented in the past hour.

19. As stated, the Tyndall report shows what the reductions for oil and gas should be when an approach based on the precautionary principle is chosen and we do not make the mistake of assuming that everything will work our, with an excessive reliance on future use of CDR. The calculations based on the carbon budget show that in such case the oil and gas sector must fall by 45% by 2030 compared to 2021.

20. This also means that the application of a lower reduction percentage automatically entails that the world is to a greater degree becoming dependent on uncertain future CDR techniques, in addition to the quantity of CDR that the Tyndall report already assumes. Applying a lower reduction percentage for oil and gas also means that other sectors, like the coal sector, would

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[9] Exhibit MD-581, p. 4. See also: Milieudefensie et al.'s Defence Brief commenting on exhibits of 19 December 2023, section 6 (paras. 25 et seq.).
[10] It concerns emissions that are "*impossible to eliminate*", "*in contrast to just 'difficult' to decarbonise*", according to the report. See Exhibit MD-351, p. 24.
[11] Milieudefensie et al.'s Defence Brief commenting on exhibits of 19 December 2023, section 6 (paras. 25 et seq.).
[12] Exhibit MD-581, pp. 1-2, 4 and 5.
[13] Exhibit MD-581, pp. 1 to 6.
[14] Exhibit MD-581, pp. 2 and 5.
[15] Exhibit MD-581, pp. 2 and 5.
[16] Exhibit MD-581, pp. 2 and 4.
[17] Exhibit MD-581, pp. 2-3.
[18] Exhibit MD-581, p. 2.
[19] Exhibit MD-581, p. 4.

have to reduce more quickly. This is because it would need to compensate for the lack of climate action in the oil and gas sector. There are thus very good reasons for aligning with the reductions for oil and gas following from the Tyndall report. It again shows that what Milieudefensie et al. is demanding of Shell, can be demanded of Shell on good grounds.

21. Now I will speak about the reduction percentages for oil and gas mentioned by Shell's expert, Professor Hawkes.

The sectoral pathways calculated by Shell/Hawkes

22. Two years ago, in his statement of 17 March 2022, Professor Hawkes calculated for the first time reduction percentages for coal, oil and gas, based on his own selection of IAM scenarios. In 2022, he arrived at a reduction for oil and gas of 32% and 18% in 2030.[20]

23. In the meantime, Professor Hawkes has made a new selection of scenarios. In his new calculations he comes to considerably lower reduction percentages for oil and gas than in 2022. For 2030 he now comes to a reduction in oil of only 5% and a reduction in gas of 15%.[21] For oil in particular, that 5% is only a fraction of the 32% calculated in 2022.

24. Where globally there has to be a CO_2 reduction of at least 45%, Professor Hawkes thus believes that one of the biggest contributors to the climate problem, the oil and gas sector, barely has to be make a contribution to that global reduction up to 2030. This is despite the fact that oil and gas forms two-thirds of the fossil fuels used in the world.[22] This raises questions. How could a global reduction of 45% be achieved, while two-thirds of the fossil fuels used stay virtually unaffected?

25. Professor Hawkes should have asked himself this question, in view of the low reduction percentages he had calculated for oil and gas. A subsequent verification of the methodology used by Professor Hawkes shows that the reduction percentages for oil and gas must indeed be far higher than has been presented by Hawkes. The scenario calculations of Professor Hawkes contain significant calculation errors. I will explain this.

26. Milieudefensie et al. tracked down the erroneous calculations because it asked Professor Rogelj to verify the calculations, in conformity with the methodology described by Hawkes in his report of 15 December 2023.

27. Professor Rogelj did this, whereby his calculations were also recalculated by two fellow climate scientists.[23] These recalculations of the set C1 scenarios shows that the outcomes mentioned by Hawkes are not correct. The recalculations of Professor Rogelj show that the differences in outcome are significant.[24] Instead of the 5% reduction in oil mentioned by Hawkes, in reality this is a reduction of 26%. Instead of the 15% reduction in gas mentioned by Hawkes, in reality this is a reduction of 31%.[25] As stated, the differences are very significant. The correct outcomes based

[20] Exhibit S-22, p. 30. For coal he came to a reduction of 69%.
[21] Exhibit S-123, pp. 18-19 and pp. 31-36. For coal he now comes to a reduction of 75%.
[22] Statement of Defence on Appeal, para. 528.
[23] Jarmo Kikstra and Dr Elina Brutschin; both were contributing authors for IPCC AR6 WG3.
[24] Exhibit MD-566, p. 21.
[25] Exhibit MD-566, p. 21. These are the outcomes on the basis of the most conservative filter chosen by Hawkes for biomass of 100 EJ. This filter corresponds with a threshold value of 100 EJ for energy from biomass mentioned by the IPCC

on the methodology described by Hawkes in December 2023 are a reduction of 26% for oil and a reduction of 31% for gas. These are reduction percentages compared to 2020.

28. Professor Rogelj also calculated what contribution of the developed countries is requested to globally achieve the aforementioned 26% reduction in oil and 31% reduction in gas. For the developed countries this means a 31% reduction in oil and a 42% reduction in gas, based on the method described by Hawkes. According to Hawkes' method, the developed countries where Shell obtains 70% of its revenue,[26] will have to achieve significant reductions in oil and gas by 2030.

29. Milieudefensie et al. submitted the correct calculations of Professor Rogelj into the proceedings on 5 March 2024.[27] Shell's expert, Professor Hawkes, responded to this on 17 March 2024. Professor Rogelj, in turn, responded on 27 March 2024.

30. It can be determined from the exchange of expert statements that has taken place that the calculations for the set C1 scenarios made by Professor Rogelj, based on the methodology previously described by Hawkes, are correct.[28] The reduction percentages for oil and gas are thus a good deal higher than Professor Hawkes has made it appear. This establishes that the low reduction percentages for oil and gas reported by Shell's expert do not follow from the methodology described by him in his report of 15 December 2023.

31. In his response of 17 March 2024, however, Professor Hawkes modified his methodology, to explain after all why he had previously arrived at the low reduction percentages for oil and gas. But Professor Rogelj says that this modified methodology is "*plagued by scientific and logical weakness.*"[29] The modified methodology is also not supported by the sources to which Professor Hawkes refers and on which he bases his approach.[30]

32. But there is more. Professor Rogelj establishes that Shell's expert, based on the modified methodology ,excludes a specific family of IAM scenarios[31], i.e. the family of IAM scenarios that leads to the biggest reductions in oil and gas.[32]

33. This exclusion entails that the scenarios that remain in the selection of Shell's expert are for the greater part based on a family of IAM scenarios[33] that postpones the reduction task and shows the lowest reductions in oil and gas. The choices of exclusion and selection made by Hawkes therefore lead by definition to very low reductions in oil and gas in 2030.[34]

34. Professor Hawkes is not transparent about the fact that with his modified method he in fact almost completely excludes the family of IAM scenarios with the biggest reductions in oil and gas from his selection. What is more, he indicated that he chose a conservative approach with

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and the IEA. See Exhibit S-140, IPCC, AR6, WG3, Annex III, Table 8, p. 1877 and Exhibit MD-525, p. 142.
[26] Exhibit MD-535B and Exhibit MD-568H.
[27] Exhibit MD-566.
[28] Exhibit MD-580, p. 5 (para. 13).
[29] Exhibit MD-580, p. 5 (para. 12b).
[30] Exhibit MD-580, pp. 3 and 4 (para. 11).
[31] This concerns the scenarios that were made with the MESSAGEix-GLOBIOM model.
[32] Exhibit MD-580, pp. 7 and 8 (paras. 14 and 15). See in particular the figure on page 7.
[33] This concerns scenarios that were made with the REMIND-MAgPIE model.
[34] Exhibit MD-580, pp. 7 and 8 (paras. 14 and 15). See in particular the figure on page 7.

stringent selection criteria for CDR.[35] But, as Professor Rogelj indicates, the logical consequence of applying more stringent selection criteria for CDR should be that there are faster reductions in fossil fuels. If this logical outcome does not follow from the alleged conservative scenario selection, one must take a critical look at one's own approach and ask oneself why this is the case, according to Professor Rogelj.[36]

35. In this specific case, as stated, that outcome can be explained by the exclusion of virtually an entire scenario family by Professor Hawkes. Bear in mind that this was done without a sound scientific basis and in a manner in which the exclusion is virtually untraceable.[37]

36. In other words: Professor Hawkes was selective in his choice of scenarios, without transparency and in an extremely selective manner, in a way that is scientifically incorrect and possibly even misleading.[38]

37. What is happening here is precisely what Milieudefensie et al. warned of in its Statement of Defence on Appeal.[39] Milieudefensie et al. warned that making model-based sectoral reduction pathways the guideline when establishing the duty of care would entail a significant risk. That is the risk that sectoral interest groups will be selective in their use of model-based calculations to find the lowest possible reduction task for 2030 for their own sector.[40]

38. In this respect it cannot be left unsaid that Professor Hawkes is the director of the Sustainable Gas Institute, an institute that was founded together with the gas industry. Shell itself is the co-founder of this institute. In addition to being a co-founder, it is also the most important financier of this institute.[41]

39. With regard to this section, I would like to make one last point about Professor Hawkes' report. Earlier today I already mentioned the category C1 scenarios mentioned by the IPCC. These are the scenarios that give a 50% chance of 1.5˚C. To make it one level more complex: those C1 scenarios can be further divided into two categories: the C1a scenarios and C1b scenarios. This difference between C1a and C1b scenarios is important for assessing Professor Hawkes' report.

40. Professor Hawkes made three calculations in his report of 15 December 2023.[42] The whole category of C1 scenarios has been taken as the starting point for one of the three calculations. This is the calculation that I have just discussed, whereby Professor Hawkes' choice of scenarios came about in a manner that was not transparent and was extremely selective.

41. For the other two calculations, a smaller collection of IAM scenarios was chosen as the starting point, i.e. the more limited C1a (sub-)category. However, Professor Hawkes was also selective when it came to these calculations. In these cases the selectiveness concerns the prior exclusion

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[35] Exhibit S-286, para. 3.3 (p. 3).
[36] Exhibit MD-580, p. 8 (para. 17).
[37] Exhibit MD-580, p. 4 (para. 11c).
[38] See also Exhibit MD-580, p. 5 (para. 12).
[39] Statement of Defence on Appeal, para. 521.
[40] Statement of Defence on Appeal, para. 521.
[41] Exhibit MD-572C, p. 2.
[42] See in this respect the table in Exhibit MD-566, p. 21, and the table in Exhibit S-123, p. 18, para. 4.3. Two of the three rows relate to C1a scenarios.

of the category C1b scenarios.[43] This choice of Professor Hawkes to exclude C1b scenarios is a prejudiced choice and predictably leads to smaller reductions in oil and gas.

42. Professor Rogelj explains that C1b scenarios generally model more ambitious emission reductions in the short term, and therefore show greater reductions in 2030.[44,45] C1a scenarios, on the other hand, relegate more of the reduction task to the future, thereby showing smaller reductions in 2030. In order to ensure that the scenario selection is not biased and does not present a distorted picture pointing to weak short term reductions, according to Professor Rogelj it is consequently necessary to take the entire category in C1 scenarios as the starting point.[46] This is also necessary because of the previously discussed international legal principles, like the precautionary principle and the principle of intergenerational fairness.

43. Professor Hawkes does not do this, and only takes the C1a scenarios as the starting point in the majority of his calculations; i.e. only the scenarios that show smaller reductions in the short term. On this point too Professor Hawkes thus again uses a selective and non-representative scenario set for his calculations. In addition, he is not very transparent about those choices.

44. In view of all of this, the low reduction percentages for oil and gas presented by Professor Hawkes must, or in any event can be ignored. Professor Hawkes used biased reasoning.

Other sectoral reduction pathways for oil and gas

45. I would like to remind everyone why we are discussing these sectoral reduction pathways for oil and gas. Up to now I have shown that the Tyndall report comes to a reduction percentage of 45% for the oil and gas sector in 2030. I have also shown that the personal selection of scenarios made by Professor Hawkes cannot be taken as the starting point.

46. I will now pay attention to a number of sectoral pathways, as shown by, inter alia, the IPCC, the IEA and the IISD.

47. First, I refer to the IPCC. The IPCC incorporated the so-called Low Demand scenario in the AR6 report. This scenario, which the IPCC specifically highlights as an Illustrative Mitigation Pathway, shows that in an IAM scenario too, large reductions in oil and gas can be realised in 2030.[47] This IPCC scenario comes to a comparable reduction as the previously discussed Tyndall report. The Low Demand scenario arrives at a reduction of 47% for both oil and gas in 2030.

48. This brings me to the IISD. IISD is the abbreviation for the International Institute for Sustainable Development. The IISD has studied what reductions in oil and gas follow from the C1 scenarios,[48] when these scenarios are filtered for the threshold values reported by the IPCC for the use of

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[43] Ibid.
[44] Exhibit MD-566, pp. 14-16 (para. 54).
[45] This also appears from the AR6 report of the IPCC. See Exhibit S-140, IPCC, AR6, WG3, Table SPM.2, p. 18. C1b scenarios assume as median a reduction of 48% in all greenhouse gases in 2030, while C1a scenarios assume a reduction of 41% in all greenhouse gases in 2030, a good 7% lower.
[46] Exhibit MD-566, pp. 16 and 17.
[47] The Low Demand scenario is referred to with the abbreviation IMP-LD. With regard to IMP-LD, see: Exhibit MD-236, p. 515 and pp. 520 to 522, Exhibit S-140, p. 25 (under C.3.5.6), Exhibit MD-495A, p. 22. See also https://iiasa.ac.at/models-tools-data/led.
[48] The IISD has taken the entire set of C1 scenarios as the starting point, i.e. both the C1a scenarios and the C1b scenarios.

CDR.[49] After this filtering, 26 C1 scenarios remain. These 26 scenarios show (as median) a 30% reduction in oil and gas in 2030.[50] This too shows that C1 scenarios can show substantially higher reductions in oil and gas than those reported by Professor Hawkes.

49. This brings me to the IEA. In its updated NZE scenario of 2023 the IEA comes to a reduction of 28% for oil and 23% for gas in 2030.[51]

50. I have set out the various reduction pathways of the Tyndall report, the IPCC, the IEA and the IISD that were just discussed in a table. To ensure completeness, I have also included Professor Hawkes' C1 scenarios that were recalculated by Professor Rogelj.

51. This brings us to the following overview of sector reduction pathways for oil and gas.

Oil and gas reductions in 2030[52]			
Source	**Fuel**	**Reduction percentage**	**Reference year**
Tyndall report	Oil and gas	-45%	2021
IPCC IMP Low Demand scenario[53]	Oil	-47%	2020
	Gas	-47%	
Recalculated C1 scenarios Prof. Hawkes[54]	Oil	-26%	2020
	Gas	-31%	
C1 scenarios Prof. Hawkes ***Developed countries***[55]	Oil	-31%	2020
	Gas	-42%	
C1 scenarios IISD.	Oil	-30%	2020
	Gas	-30%	
IEA NZE 2023[56]	Oil	-28%	2022
	Gas	-23%	

52. In this table you can recognise all of the aforementioned reduction percentages. I will therefore not go through the table with you, but for the moment will only refer you to the right-hand column in the table. This right-hand column sets out the relevant reference year for each sectoral reduction pathway. It stands out that all these reference years are after 2019. The reference years that were used are 2020, 2021 and 2022.

53. Because the reference year for Shell in this case is 2019, the above-mentioned percentages must be recalculated to this reference year. Only in this manner will it be possible to make a proper

[49] Exhibit MD-529, p. 3. These are threshold values based on the medium feasibility concerns mentioned in Exhibit S-140, IPCC, AR6, WG3, Annex III, Table 8, p. 1877. On the basis of recent research, the threshold value for BECCS is even somewhat on the high side. See in this respect: Exhibit MD-579B, pp. 484-485.
[50] Exhibit MD-529, p. 4.
[51] Exhibit MD-525, p. 198.
[52] The data in the Tyndall report and the NZE scenario relate to emission reduction figures, while the other reductions relate to production reductions. Like Professor Hawkes, Milieudefensie et al. uses the production reductions as a proxy for emission reductions (see Exhibit S-123, p. 33, para. 5).
[53] Exhibit MD-524, p. 26 shows the reduction figures for the IMP-Low Demand scenario.
[54] Exhibit MD-566, p. 21.
[55] Exhibit MD-566, p. 22.
[56] Exhibit MD-525, p. 198.

comparison to the 45% reduction by 2030 that Milieudefensie et al. is seeking, which applies with regard to the reference year 2019. This leads to the following corrected table.

Reduction percentages in 2030 compared to the reference year 2019[57]			
Source	**Fuel**	**Annual % change**	**Reduction in 2030 compared to 2019**
Tyndall report	Oil and gas	-6.4%	-51.7%
IMP Low Demand scenario[58]	Oil	-6.2%	-50.5%
	Gas	-6.2%	-50.5%
Recalculated C1 scenarios Prof. Hawkes[59]	Oil	-3%	-28.5%
	Gas	-3.6%	-33.2%
C1 scenarios Prof. Hawkes ***Developed countries***[60]	Oil	-3.6%	-33.2%
	Gas	-5.3%	-45.1%
C1 scenarios IISD.	Oil	-3.5%	-32.4%
	Gas	-3.5%	-32.4%
IEA NZE 2023[61]	Oil	-4%	-36.2%
	Gas	-3.2%	-30.1%

54. As you can see, all sectoral reduction percentages for 2030 have become higher. The highest percentage for oil and gas is 51.7%. The lowest percentage for oil is 28.5% and the lowest percentage for gas is 30.1%. All other percentages fall in between. Rounded off, the bandwidth for sectoral reductions for both oil and gas is between 30% and 50%. All of this is to be achieved by 2030.

55. The way in which the sectoral reduction percentages were recalculated to the reference year 2019 is based on the annual reduction pace in these scenarios and is described in the footnote.[62]

56. What the bandwidth between 30% and 50% shows, is that the reductions to be realised by the oil and gas sector will be substantially higher than Shell and its expert make it appear. I would like to point out once again that these substantial percentages are for the greater part calculated on the basis of the principle of cost effective working models, which are subject to the limitations and

[57] The data in the Tyndall report and the NZE scenario relate to emission reduction figures, while the other reductions relate to production reductions. Like Professor Hawkes, Milieudefensie et al. uses the production reductions as a proxy for emission reductions (see Exhibit S-123, p. 33, para. 5).
[58] Exhibit MD-524, p. 26 shows the reduction figures for the IMP-Low Demand scenario.
[59] Exhibit MD-566, p. 21.
[60] Exhibit MD-566, p. 22.
[61] Exhibit MD-525, p. 198.
[62] Based on the reduction percentage to be achieved in 2030 and the number of years between the reference year and the year 2030, it is possible to recalculate to determine the average reductions necessary every year between the reference year and 2030. This annual percentage can then be applied to the period from 2019 to 2030. In this manner the annual reduction effort that must be delivered according to the scenarios discussed, must be extrapolated to the period 2019 to 2030.

legal objections that were previously discussed in detail. With the exception of the Tyndall report, that takes account of a great part of these limitations.

57. In addition, these reduction percentages only show the reductions in the oil and gas sector to be realised globally by 2030.[63] The question that this raises is whether every oil and gas company must maintain that global percentage, or whether there is a reason to take account of the CBDR principle in this sector. In other words: does a small oil and gas company, with only domestic operations, have the same responsibilities and duty of care as an internationally operating supermajor like Shell? A company that has far more power in the value chain, earns hundreds of times more in revenue and primarily obtains that revenue from the richest countries.[64] To ask the question is to answer it.

58. Milieudefensie et al. therefore believes that within the oil and gas sector there is reason to apply the CBDR principle and that Shell, due to its historical responsibility, its large emissions scope, its capacity to change, its wealth and the fact that it is primarily active in developed countries, can and must move faster than applies on a global average to the oil and gas sector. In light of all of this, and taking the bandwidth between 30% and 50% into account, it is no more than reasonable that Shell makes a contribution of a 45% reduction in 2030 in the oil and gas sector.

59. It is interesting to state that such a reduction of 45% is actually achievable in the entire oil and gas sector in a period of approximately one decade. This is evident from the NZE scenario of the IEA. The NZE scenario shows that in the period up to and including 2035 an emission reduction for oil of 51.4% is achieved and for gas an emission reduction of 55.6% is achieved, compared to the emissions in the reference year 2022.[65]

60. In other words: the IEA believes that in a period of 13 years, the years 2023 to 2035, emission reductions of over 50% for both oil and gas can be achieved. In that period of 13 years oil can thus achieve an emission reduction of 51.4% and gas can even achieve an emission reduction of 55.6%.

61. These are interesting and important findings of the IEA, because they show that the world could handle it if all oil and gas companies in the world were to set a target to reduce their emissions by more than 50% in this period of 13 years, to 2035.

62. The IEA thus shows very large reductions in oil and gas up to and including 2035. Based on the reduction percentage to be achieved in 2035 and the number of years between the reference year 2022 and the year 2035, the annual reduction percentage of this reduction pathway can be calculated. On the basis of this annual reduction percentage a reduction pathway can also be recalculated to the reference year 2019, to then determine what reductions in oil and gas this will provide for the year 2030. This also results in interesting insights.

63. If the reduction pathway to 2035 in the NZE scenario is recalculated on the basis of the reduction percentages to be achieved annually, this will result in a 45.7% reduction for oil in 2030 relative to 2019. For gas this results in a 50% reduction in 2030 compared to 2019.[66] These are higher

[63] Except for the specified scenarios for developed countries.
[64] Exhibit MD-535B, MD-535C and MD-568H.
[65] Exhibit MD-525, p. 198.
[66] The annual reduction percentage in the IEA NZE scenario between 2022 and 2035 is an annual reduction of 5.4% for oil and an annual reduction of 6.1% for gas.

reduction percentages than the reduction percentages from the NZE scenario mentioned earlier in the table. The reason for this is that in the NZE scenario, the IEA models a considerable acceleration of emission reductions between 2030 and 2035. I will now explain why the higher reduction percentages of 45.7% for oil and 50% for gas are relevant for this case.

64. Just as with many other scenarios, the NZE scenario also relegates a large part of the reduction task to the future. The NZE scenario models relatively low reductions in the short term and must – to remain a 1.5˚C scenario – essentially make up for the slower reductions after 2030. In the short term the NZE scenario of 2023 takes the most recent investments in new oil and gas fields into account that were made after 2021. The most recent investments in new oil and gas fields are de facto protected on the basis of the IEA's choice of model, because it would not be cost effective to immediately write off these new fields and make them 'stranded assets'.[67]

65. I already described in the first part of the oral arguments what is actually happening here. And that is that continuing investments in new fossil fuel infrastructure have an influence on the outcomes of scenarios. These fossil fuel investments lead to a larger fossil fuel lock-in and to the continuing postponement of climate action in the models. This makes the model-based reduction task for 2030 smaller.

66. An example can further illustrate this. If the fossil fuel sector continues to invest in fossil fuel infrastructure in the coming years, the NZE scenario of, e.g. 2026, will in turn show lower reduction percentages for 2035 than is the case now. By continuing to invest in new oil and gas fields, the oil and gas sector creates the result desired by it: taking climate action is continually pushed into the future. In that manner the reduction percentages of the models thus de facto reward the poor behaviour of oil and gas companies.

67. That the IEA's NZE scenario defers climate action to the future, also appears from the fact that the NZE scenario of 2023 has become an overshoot scenario,[68] while the NZE scenario of 2021 was not.[69] This shows once again that continually relegating the taking of climate action to the future only increases the risks for society, and only decreases the chance that dangerous climate change is prevented.

68. It is of the greatest importance that this process of ever shifting and ever decreasing reduction targets is brought to a halt. This will only be possible by restricting investments of oil and gas companies, because these create a lock-in, both in models and in the real world, so that the efforts of taking climate action are continuously relegated to the future. If important systemic players like Shell were to be allowed to hide behind ever shifting reduction targets, no solution would never be achieved. The climate action that is necessary to reach the 1.5˚C target or any temperature target will simply not be undertaken. Shell cannot and may not hide behind these decreasing reduction targets for 2030. For Shell it has been clear for years what has to happen and it could have taken action much earlier.[70]

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[67] Exhibit MD-528, p. 149 and pp. 34 to 36. See also Statement of Defence on Appeal, paras. 566 et seq. The starting point described there, which is that the IEA avoids stranded assets as much as possible, therefore still applies in the IEA NZE scenario for 2023. See Exhibit MD-525, p. 56.
[68] Exhibit MD-525, p. 56.
[69] Exhibit MD-362, p. 47.
[70] See in this respect also the Statement of Defence on Appeal, paras. 574 et seq.

69. I again refer in this respect to the judgment of the German Constitutional Court, in the case of Neubauer versus Germany. As explained in the previous hour of these oral arguments, the Constitutional Court held in this case that it is not permitted to set up a reduction pathway in such way that the reduction burdens are divided disproportionately over time and between generations.[71] Following this decision, the German government increased its reduction target for 2030. This judgment is also relevant in this case.

70. After all, it follows from this judgment that the precautionary principle and the principle of intergenerational fairness demand that the reduction pathway in the NZE scenario to 2035, is not fragmented into a slow part up to 2030 and an accelerated part after 2030, to protect recent investments in new oil and gas fields. These legal principles actually demand that the emission reduction is deployed as quickly and as deeply as possible. As stated, an equal distribution of the reduction task over the years leads to a reduction of 45.7% for oil and 50% for gas in 2030 compared to 2019.

71. The foregoing has shown that on the basis of the NZE scenario, a global reduction of 45% can be achieved within the oil and gas sector in a timespan of approximately a decade. To be more precise, if the oil and gas sector had taken the necessary climate action in 2020, it would have been possible to achieve a global reduction of 45.7% for oil and 50% for gas in 2030.

72. *mr.* Cox already indicated in his oral arguments this morning that in this case it is only relevant that Shell can achieve a reduction of 45% in 2030 compared to 2019. This turned out not to be too onerous for Shell. The Judgment was awarded against Shell and against Shell alone. It has also been shown that the world can handle it if Shell reduces its emissions by 45% in 2030. In short: Shell can handle the Judgment, just as the world can handle the Judgment against Shell.

73. The issue before the Court is whether the Judgment against Shell can be upheld by the Court of Appeal. The case is explicitly not concerned with whether all oil and gas companies in 2030 must have achieved a 45% reduction. Nevertheless, I have shown with the foregoing that even in the hypothetical situation where in 2021 a Judgment had been pronounced against all oil and gas companies, the world could probably handle this too. The findings that have been discussed show that no matter what, the world can handle far more emission reductions in the oil and gas sector than is perhaps thought. These emission reductions are highly necessary. All of this shows once again that the Court can uphold the Judgment and that a reduction order of at least 45% is appropriate for Shell.

Other reasons for upholding the Judgment

74. Up to now I have reflected on the reduction pathways for oil and gas as these ensue from the IEA's NZE scenario, the Tyndall report and from C1 scenarios in the IPCC AR6 report. I explained that a sectoral approach for Shell also leads to a reduction obligation of 45% in 2030 compared to 2019.

75. In this last half hour of this part of the oral arguments I would like to provide you with a number of other important insights. Insights that show that arguments presented by Shell and M&M relating to the energy transition cannot succeed and therefore cannot detract from Shell's duty

[71] Exhibit MD-381, p. 1 (concerning para. 192 of the Neubauer decision, Order of 24 March 2021, 1 BvR 2656/18, 1 BvR 288/20, 1 BvR 96/20, 1 BvR 78/20).

of care. This concerns arguments presented by Shell and M&M regarding, inter alia, the importance of an orderly transition, energy security and the continued demand for oil and gas in various sectors. I will present the findings of the IEA, the IPCC and UNEP to the Court. These findings show that the arguments presented by Shell and M&M do not serve any of these interests. On the contrary. Following these arguments will make the transition more complex, more expensive and more disorderly. The findings of the IEA, the IPCC and UNEP in fact confirm Shell's duty of care.

76. Let me start with the demand for oil and gas of various sectors that use fossil fuels, like the electricity sector, the transport sector and the industry sector. Shell repeatedly refers to various reduction pathways for such sectors to show that these sectors will not cut emissions by 45% in 2030. This should apparently entail that the oil and gas sector – and Shell, too – cannot cut emissions by 45%. Shell appears to suggest that in the models you must first look at the users of oil and gas, before being able to determine what the providers of oil and gas have to do. This is incorrect. The aforementioned reduction pathways for sectors other than the oil and gas sector are not relevant for this case. This is because the reduction pathways for these other sectors are already included in the modelling results for the reductions in oil and gas. I will explain this.

77. I have already discussed the high emission reductions that can be achieved according to the IEA in the oil and gas sector in the timespan of approximately one decade. This involved more than 50% for oil and more than 55% for gas in a timespan of 13 years. These findings of the IEA carry significant weight, as the IEA takes account of 'real world' feasibility in its assumptions.[72] The IEA has thus incorporated in its modelling what is possible in the real world for the sectors that use oil and gas. This means that these sectors can also handle such a substantial reduction. In other words: the modelling results for the reductions in oil and gas include what the consuming sectors can handle. This is also acknowledged by Shell's expert, Professor Hawkes.[73]

78. In addition, Milieudefensie et al. already explained in the Statement of Defence on Appeal on the basis of findings of the IPCC that the global mitigation potential is such that the global emissions in 2030 can fall by more than 50% compared to 2019.[74] According to the IPCC a great deal is possible in a period of approximately one decade. An ambitious climate approach is therefore not a matter of being able to, but a matter of wanting to.

79. What is more, according to the IPCC the potential for affordable[75] emission reductions to 2030 in, among others, the electricity sector, the transport sector and the industry sector, is greater than the emission reductions that follow from the IAM scenarios for those sectors. Certainly in the transport and industry sector the actual mitigation potential according to the IPCC is substantially greater than appears from the models.[76] Among other reasons, this is due to the fact that IAMs do not include various mitigation options in their modelling. For example, most IAMs for mitigation in the industry sector do not take account of capabilities for efficient material use and recycling.[77] This shows once again that these sectors can certainly handle the oil and gas reduction that arises as of 2030 from the models, and that they could even do more. For this reason too there need be no discussion in this case regarding the emission reductions that can take place in the sectors that use fossil fuels.

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[72] Exhibit MD-525, p. 57. See also: Exhibit MD-568A, p. 2.
[73] Exhibit S-123, pp. 29-30.
[74] Statement of Defence on Appeal, para. 514 et seq.
[75] Affordable emission reductions to 2030 means that the reduction costs are lower than 100 USD per ton CO2eq.
[76] Exhibit MD-496E, pp. 1258-1260. See, inter alia, Figure 12.1 on p. 1258.
[77] Exhibit MD-496E, p. 1260.

80. Shell argued yesterday that its clients do not form a reflection of the world as a whole and that it supplies more than average fuel to the transport sector. Milieudefensie et al. already explained in the Statement of Defence on Appeal why a difference in client portfolio is not a reason not to proceed to a 45% reduction in 2030.[78] I have the following additional remarks in this respect.

81. In the IEA's NZE scenario the emissions of the transport sector will decrease worldwide between 2022 and 2030 by (rounded) 24%.[79] If one looks at the period to 2035, these emissions decrease by 48% according to the NZE scenario; this means a 48% reduction in a period of 13 years. This means that in a period of approximately one decade, very large reductions are also possible in the transport sector. In addition, this concerns the entire transport sector, thus including the 'harder-to-abate' shipping industry and air travel sectors. The reduction pace of the road transport sector is substantially higher. In addition, modelling scenarios are in fact conservative with regard to the possibilities of the transport sector, as we discussed just now. Supplying fuel to the transport sector consequently certainly cannot be a reason for a slower reduction pathway. As stated, this is purely supplemental to the argument already made by Milieudefensie et al., that the difference in client portfolio cannot help Shell regardless.

82. Shell then created the idea that the reduction order would impede making sustainable investments, because sustainable projects also involve emissions. It should be clear that this argument cannot succeed. It goes without saying that the emissions that are involved with scaling up sustainable energy will also have to remain within the carbon budget. The scaling up of sustainable energy is, of course, encompassed in the modelling scenarios and has already been included in the modelling outcomes, as already explained.

83. The foregoing again shows that on the basis of scientific sources and international legal principles there are good reasons to come to faster reductions in oil and gas than what ensues from the IAMs modelling results. This is particularly important if, as in this case, the issue is not assessing the feasibility of a global reduction pathway for oil and gas, but merely the feasibility of Shell's duty of care.

84. I will now discuss the findings of the IEA regarding the energy transition that are relevant for this case.

85. It is first important to know in this respect that the IEA and its NZE scenario has a special status, in a political sense as well.

86. As is known, the IEA was founded in 1974 following the 1973 oil crisis. The IEA's goal from that point onward was to ensure energy security, by securing the supply of oil (and later gas) to the West as much as possible. It is the primary role of the IEA to ensure energy security and to coordinate problems at times of a shortage of oil and gas. The IEA also coordinates the use of the oil reserves that its members are obliged to maintain. Member states and aspirant member states must further take other measures, such as having a demand limitation plan to immediately reduce national oil consumption by 10% in times of shortages.[80]

87. The IEA has 31 member states, 5 countries that are in the process of becoming a full-fledged member and 13 affiliated countries ('association countries'). Together these countries represent

[78] Statement of Defence on Appeal, section 5.4.
[79] Exhibit MD-525, p. 198.
[80] See: https://www.iea.org/about/membership/.

a good 80% of global energy use and 80% of global CO_2 emissions.[81] Countries that represent the bulk of the global energy use and the global emissions are thus affiliated with the IEA.

88. In 2015 the IEA member states expanded the IEA's mandate. It is to serve the importance of energy security in a broad sense (in addition to oil security), to work together with important emerging economies and to place a greater focus on renewable energy and energy efficiency.[82] Partly in line with this new mandate the IEA started to involve itself with the energy transition and to address dangerous climate change. This ultimately led to the publication of the NZE report in 2021.

89. In 2021, after the COP26 climate conference in Glasgow, the IEA member states further explained the IEA's mandate and specifically instructed the IEA to guide countries in the energy transition.[83]

90. The IEA took on this task that came from the member states and worked during COP28 in Dubai to unite the global community behind important principles of the NZE scenario that was updated in 2023. These principles are, among others:
    a. tripling global capacity for renewable energy in 2030; and,
    b. doubling the annual speed of energy efficiency improvement by 2030.[84]

91. The IEA explains in the 2023 NZE report and the *Oil and Gas in Net Zero Transitions* report of 2023 that these two measures are the most important factors in bringing the demand for fossil fuels down.[85]

92. During COP28, the global community then gathered behind these and other measures proposed by the IEA.[86] The global community also decided during COP28 to move away from fossil fuels.[87] This created a political consensus on important principles from the NZE scenario. It indicates that the IEA and the NZE scenario have an important global status and that that status is recognised by all countries in the world.

93. The IEA also announced in its NZE report that the scaling up of renewable energy has taken off in practice in the past few years. The IEA has developed a methodology, called the Clean Technology Deployment Index, to measure how far the scaling up of renewable energy technologies has come compared to the NZE scenario. The IEA points out in this respect that the average growth tempo is on schedule.[88] Good steps are being taken in the scaling up of renewable energy technologies. Naturally this does not mean that we are already there.

94. The political consensus created during COP28 will only accelerate the scaling up. It is likely that the global community will, more than before, work to remove obstacles to scaling up renewable energy. The IEA also plays an important role by identifying these thresholds, warning of them and giving policy advice on how to deal with this.

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[81] See: https://www.iea.org/about.
[82] See: https://www.iea.org/about/history.
[83] Exhibit MD-568D, p. 1. See also the press release: Exhibit MD-568C.
[84] Exhibit MD-527C.
[85] Exhibit MD-525, p. 14 and Exhibit MD-528, p. 47.
[86] Exhibit M-568E, p. 1, Exhibit MD-569B, p. 5, point 28, and Exhibit MD-527C, p. 2.
[87] Exhibit MD-569A, p. 1, Exhibit MD-569B, p. 5, point 28. See also Exhibit MD-569C, p. 225.
[88] Exhibit MD-525, p. 40. See also, e.g., pp. 42, 55 and 71 regarding the scaling up of solar energy, electric vehicles and batteries.

95. The political adherence to important principles from the NZE scenario was furthermore confirmed during the IEA *Ministerial Meeting* of February 2024, two months ago. In the Ministerial Communique published in connection with this meeting, the IEA member states again acknowledged the danger of the climate crisis, the need to accelerate climate action and the importance of the 1.5°C . They also reaffirmed their efforts for the goals relating to renewable energy and energy efficiency discussed during COP28,[89] indicated that their ambition is a carbon-free electricity sector in 2035 and indicated that they want to release the necessary financing. In addition, the important role that the IEA plays in guiding the member states in the energy transition was once again confirmed.[90]

96. In the Ministerial Communique the IEA member states once again agreed on the need to move away from fossil fuels and acknowledged that in the NZE scenario, new oil and gas fields are not needed or are hardly needed. According to the IEA member states, together with the other findings of the IEA, this offers an important guideline for an orderly shift away from fossil fuels, as was decided during COP28.[91]

97. Lastly, the IEA member states confirmed in the Ministerial Communique that acceleration of the energy transition provides a permanent solution to combating price volatility and pursuing energy security.[92] They also support the fundamental and central role that the IEA has in monitoring and guaranteeing global energy security. This is, inter alia, due to the use of collective protection mechanisms where necessary in the case of disruptions in energy supplies.[93] Think of the mandatory oil reserves maintained by the IEA member states, regarding which the IEA is in charge of the coordination, and the demand limitation plans of the member states.

98. It ensues from the foregoing that COP28 and the Ministerial Meeting have led to political consensus regarding important principles of the IEA's NZE scenario. What is necessary, is both to move away from oil and gas and to scale up renewable energy and energy efficiency. There cannot be any misunderstanding in this respect. Simply tripling renewable energy and doubling energy efficiency is not enough for the climate approach to succeed. Shifting away from oil and gas is essential in this respect.

99. As the editorial board of the renowned scientific journal *Nature* puts it succinctly in its editorial '*COP28: the science is clear — fossil fuels must go'*:

"No amount of clean energy is going to prevent global warming without a concurrent phase out of fossil fuels."[94]

100. The IPCC also makes it clear that the climate approach will not succeed by merely providing sustainable alternatives, but that to achieve this there has to be a change in the dominant position of the fossil fuel industry, to break through the carbon lock-in. To quote the IPCC:

"Overcoming the carbon lock-in is <u>not simply a matter of the right policies or switching to low-carbon technologies</u>. Indeed, it would mean a radical change in the existing power relations between fossil fuel industries and their governments […]" [emphasis added by counsel].[95]

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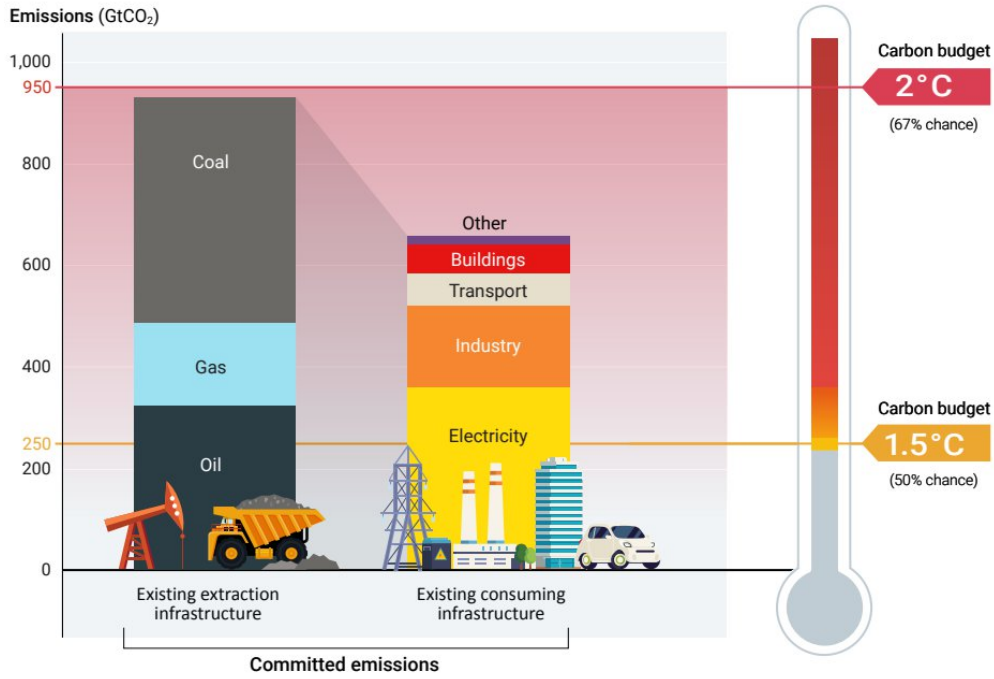
[89] Exhibit MD-568G, p. 2, points 13 and 14.
[90] Exhibit MD-568G, p. 1, point 3 and e.g. 14.
[91] Exhibit MD-568G, p. 2, point 9.
[92] See also Exhibit MD-568D, p. 1, point 8.
[93] Exhibit MD-568G, p.1, point 5, and p. 3, point 20.
[94] Exhibit MD-596C, p. 225.
[95] Exhibit S-140, IPCC, AR6, WG3, p. 1745.

101. It will thus not be enough to scale up renewable energy. In addition, it must actually be ensured that the production and the use of fossil fuels decreases and does not exceed the carbon budget. That this will indeed happen if there is no intervention, ensues from the following figure of the Emissions Gap Report 2023 of UNEP.[96]



102. It ensues from this UNEP figure that the oil fields that are in production or for which an investment decision has been made on their own are enough to exceed the carbon budget for 1.5°C. Oil and gas fields together represent almost twice the remaining carbon budget for 1.5°C in emissions. The figure also makes it clear that the emissions that are encompassed in the supply side (represented in the left-hand column) are substantially higher than the emissions that are encompassed in the demand side (represented in the right-hand column). It makes it clear that the supply of fossil fuels must be reduced as quickly as possible and that there is no room at all for new fields. The investments in new oil and gas fields must be stopped as quickly as possible, so that the road to reduction can be embarked upon.

103. The IEA also acknowledges that the supply of fossil fuels for a 1.5°C scenario is too large and that too much is invested in this. This is the reason why the IEA indicates that no investment or very little investment in new oil and gas fields are needed and that some already existing fields have to be closed, before the end of their (technical) lifespan.[97]

104. Shell, on the other hand, is focusing on a fossil fuel future. According to Rystad data, Shell wants to have its production of oil and gas even grow by 10% to 2030 compared to 2022.[98] This cannot be reconciled in any way with a 1.5°C scenario. This is, nota bene, even more than twice the growth of the production of oil and gas in the STEPS scenario of the IEA.[99] For the record: the STEPS scenario is a scenario that leads to a temperature increase of 2.4°C.[100] Even in this scenario

[96] Exhibit MD-523, p. XXIII.
[97] Exhibit MD-528, p. 61.
[98] Exhibit MD-573A, p. 19 and p. 22.
[99] Exhibit MD-573A, p. 19 and p. 22.
[100] Exhibit MD-525, p. 64.

the production of oil and gas will increase in 2030 by less than 5% compared to 2022.[101] The 10% production increase that Shell has in mind exceeds this by some considerable amount. Shell's approach thus cannot even be reconciled with this catastrophic STEPS scenario. While countries in the meantime have taken new, more ambitious steps for tightening existing plans and at COP28 again indicated to want to limit the warming to 1.5°C, Shell is thus making a contrary movement.

105. Because of the lock-in effect of investments in new oil and gas fields, Shell is not only investing its money in a future without an effective climate approach, but it is actively helping to create this future. If all oil and gas companies – like Shell – continue investing at this time in a production of oil and gas that cannot be reconciled with 1.5˚C, it is certain that that target will not be reached either. The fossil fuel industry will continue to fight tooth and nail against the transition path to 1.5°C, because it does not wish to write off the investments it has made.

106. The IEA acknowledges this problem of fossil fuels companies, that just keep investing in new fossil fuel projects. The warnings about this frequently recur in its reports.[102] To quote one of those warnings: "*new projects would risk locking in emissions that push the world over the 1.5 °C threshold*."[103]

107. What it comes down to is that according to the IEA, the existing fields can provide enough production in the coming decades to realise the NZE scenario to 2050, and that there is no longer any room to add new fields. The IEA therefore also explicitly refers to the risk of over-investment in oil and gas.[104]

108. The current investments of the oil and gas industry as a whole, are at the level of the STEPS scenario of 2.4˚C and are consequently almost two times higher than required in the NZE scenario. It again makes it clear that the investments in oil and gas are far higher than needed in a world that takes any further climate action, on top of the policy that has already been implemented. That is what the STEPS scenario is about.

109. In view of the additional pledges of countries that have already been made and partly in view of the consensus reached at COP28 with regard to the tripling of renewable energy and the doubling of energy efficiency, extra climate action is already being taken. This means that far more is being invested in oil and gas than is needed. This is the over-investment risk and the lock-in the IEA warns against.

110. The IEA also warns that it is not possible to wait any longer with regard to making the difficult choices that are necessary to globally reach net zero emissions in 2050. The further postponing of difficult choices will only make the transition more difficult. To quote the IEA: "*Further delaying the hard choices necessary to reach global net zero emissions by 2050 would make the problems substantially worse, and much harder to solve.*"[105]

111. The IPCC also recognises the risk of waiting longer and allowing the fossil fuel infrastructure to continue growing. The IPCC indicated that maintaining the same course and following the current national climate plans to 2030 make it impossible to limit the temperature increase to 1.5°C. But

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[101] Exhibit MD-526B, p. 130 (for oil, 4.5%) and p. 135 (for gas, 3.9%).
[102] Exhibit MD-525. See, e.g., p. 16 and p. 164. See also Exhibit MD-528, p. 14, p. 19 and p. 60.
[103] Exhibit MD-525, p. 164.
[104] Exhibit MD-526B, pp. 50-51. See, e.g., Exhibit MD-528, p. 64.
[105] Exhibit MD-525, pp. 150-151.

not only that. The IPCC also warns that it will then be much more difficult to limit the warming to 2°C, precisely because of the continuing construction of infrastructure for fossil fuels that will take place between now and 2030.[106]

112. The foregoing once again makes it clear that the period to 2030 may rightly be called the critical decade. According to the IEA and the IPCC a limit must be set for the production of fossil fuels as soon as possible. This applies all the more for the production from new fields. The IEA only leaves some limited room for certain investments in fields with a very short lead time.[107] Stopping investments in new fields is the only option for limiting the temperature increase to 1.5°C. The NZE scenario is based on that principle.[108] If only the production from existing fields is continued, the production of oil and gas will fall by itself. Due to the drop in production that will arise by itself in the existing fields, the world will set on the path toward the 1.5°C scenario. This is the key idea behind the NZE scenario.

113. This means in essence that in the NZE scenario not a single oil and gas producer will develop new fields. However, many oil and gas producers apply arguments as to why precisely they should be allowed to continue with new production.[109] The IEA is a continual target of the oil and gas sector lobby.[110] Because of that oil and gas lobby, the IEA also hears those arguments. It comes down to every producer trying to come up with a reason as to why it should be the exception to the rule that there is no longer any room for new oil and gas fields. Every producer is trying to come up with a reason why it has the greatest entitlement to being allowed to continue without making changes. The IEA also knows those arguments and explicitly states why these arguments do not lead to a change in the approach in the NZE scenario.[111] The four most common arguments according to the IEA will not appear unfamiliar to the Court. Shell has presented these arguments in various ways in these proceedings.

114. According to the IEA, the arguments are as follows:[112]
    i) The first commonly heard argument is that new production must still be possible in low income countries, because this stimulates the economic growth of these poorer countries;
    ii) The second commonly heard argument is that priority must be given to production with low emissions intensity, because this would be better for the climate;
    iii) The third argument is that producers that can produce at low costs must have priority over others;
    iv) The fourth commonly heard argument is that energy security requires more domestic production of oil and gas or a higher production by geopolitical allies.

115. The IEA discussed these four scenarios in detail and refuted them.[113] The IEA shows that following up these arguments entails large disadvantages and risks for oil and gas producers, for the energy markets and for the energy transition as such.

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[106] Exhibit S-140, IPCC, AR6, WG3, Chapter 3, Executive Summary, p. 298.
[107] In this context the IEA speaks of "*no new long lead time conventional oil and gas projects*". See in this respect p. 32 of Exhibit MD-573A, in which this approach of the IEA is explained on the basis of various passages from IEA reports.
[108] Exhibit MD-528, p. 58.
[109] Exhibit MD-528, pp. 47 and 48.
[110] See as an example: Milieudefensie et al.'s Opening Argument, part 2 of 2 April 2024, paras. 56 and 68.
[111] Exhibit MD-528, pp. 47-59
[112] Exhibit MD-528, pp. 47 and 48.
[113] Exhibit MD-528, pp. 47-59.

116. The IEA then explained why these arguments cannot succeed and why the approach in the NZE scenario is the better approach:

i) Let me start with the scenario in which the low income countries may produce more. The IEA has the following to say about this. In the scenario in which poorer countries increase their production, richer countries in the Middle East, Europe and North America would have to bring their production of oil and gas down more rapidly. Only in that manner would it be possible to avoid global overproduction. According to the IEA this would be incredibly difficult to realise in practice and this would result in a great risk of over-production, with lock-in effects and failure to achieve the 1.5°C target as a consequence. Even if this risk did not manifest itself, the poorer countries would not benefit much from this approach. If the world were to move in a 1.5°C pathway, according to the IEA this would result in a lower demand for oil and gas and consequently lower market prices. As a result, according to the IEA the poorer countries would probably not be able to generate a substantial return with their oil and gas production and many poorer countries would not even be able to earn back their investment.[114]

ii) Another scenario is the scenario in which the oil and gas production with the lowest Scope 1 and 2 emissions have priority. The IEA has the following to say about this scenario. According to the IEA, an increase in the production by producers with a relatively low emissions intensity would also result in a sub-optimal pathway. The additional oil and gas projects that would have to be started up in the countries with the lowest emissions intensities, would lead to substantially higher costs for oil and gas. While according to the IEA this would only yield a limited reduction in emissions. In the NZE scenario all producers must therefore make an effort to reduce their operational emissions (Scope 1 and 2). With regard to emission reductions, this would result in ten times the result for the same cost, according to the IEA.[115]

iii) The third scenario that the IEA discusses, is the scenario in which those parties that can produce at the lowest costs may produce the most. An increase in production by producers with the lowest costs would, according to the IEA, lead to a concentration of the oil and gas production in a small number of countries. Particularly countries in the Middle East would be the best performers and this scenario would therefore lead to a 30% higher production in the Middle East. Due to the lower oil prices that this choice would lead to, the revenue from oil and gas for these countries would fall by 60%. Such a strategy is thus not very attractive for these countries. According to the IEA, the decrease in revenue would have a large impact on the budgets of the countries in question, so that they might no longer be able to finance essential matters like education, health care and employment in the public sector. With such low prices it would be difficult to continue investing in the production of oil and gas, which would lead to volatility on the market and possibly a rise in prices.[116]

iv) Lastly, the IEA discusses the energy security scenario: the scenario in which countries, under the guise of energy security, will focus as much as possible on the national

[114] Exhibit MD-528, pp. 49-52.
[115] Exhibit MD-528, pp. 52-53.
[116] Exhibit MD-528, pp. 53-55.

production of oil and gas. If the countries that at present import the bulk of their oil and gas were to focus as much as possible on their own production, according to the IEA this would lead to a strong fragmentation of the international oil and gas markets. The current importers of oil and gas would have to choose more expensive national production over cheaper oil and gas on the market. The current exporters of oil and gas would in turn have to reduce their national production, according to the IEA. In this scenario the total cost of oil and gas would be approximately 1500 billion US dollars higher up to 2050 than in the NZE scenario. This is an increase of 25%.[117] This energy security scenario thus disadvantages the collaboration between countries, fragments the world, distances itself from the effect of global markets, on balance leads to higher energy prices and thus affects the affordability of energy and consequently access to energy. This does not benefit energy security.

In the view of the IEA, in this scenario countries like China and India in particular will be able to considerably increase their own national oil and gas production. This is far less the case for other countries.[118] The energy security scenario thus results in a fragmented world in which China and India in particular can increase their national production to a great extent. The European Union has little benefit from this energy security scenario, as it can barely increase its production. In addition, the European Union has been dependent for its oil supply for more than 90% on imports from countries outside the European Union since 1990.[119] For gas that dependency on countries outside of the European Union has been more than 80%.[120] This very great dependency of the European Union on other countries is permanent and the European Union cannot combat it by more domestic production. Every suggestion to the contrary by Shell and the consultants mentioned by it would be completely incorrect.

117. The IEA consequently does not see any reason in the arguments presented by oil and gas producers to come to a different modelling of its NZE scenario. As shown, the other scenarios entail large disadvantages and risks, for oil and gas producers, the energy markets, international collaboration between countries and the energy transition as such. The IEA also explicitly indicates that acting in accordance with these kinds of arguments by oil and gas producers can in fact result in price volatility and a disorderly transition.[121] Following the arguments of the oil and gas producers consequently also leads to additional and unnecessary risks for a successful climate approach.

118. It is also clear that the arguments presented by the oil and gas industry according to the IEA cannot be a reason to delay the phasing out of oil and gas as such. They are only pathways that outline an alternative route to the route from the NZE scenario.[122] In these alternative scenarios as well, an increase in production at one location leads to a faster decrease in the production at another location. In the real world this is of course not a given, in the absence of lack of global coordination in the form of a regulator that determines what fields may and may not produce. That is why the IEA sees it as a risk with all these scenarios that the increase in production at one location will not

[117] Exhibit MD-528, pp. 55-56.
[118] Exhibit MD-528, p. 56.
[119] Exhibit MD-554A. See also Shell's Brief commenting on exhibits of 19 December 2023, p. 9, footnote 42.
[120] Ibid
[121] Exhibit MD-525, p. 164. See also Exhibit MD-528, pp. 33 and 34.
[122] Exhibit MD-528, p. 58.

lead to a decrease elsewhere and that due to the increased supply, demand is stimulated, leading to overproduction and lock-in. The IEA therefore states: "*Producers need to explain how any new resource developments are viable within a global pathway to net zero emissions by 2050 and be transparent about how they plan to avoid pushing this goal out of reach […] In the demand environment of the NZE Scenario, any new oil and gas resource developments would need to be matched by production reductions elsewhere to avoid oversupply and fossil fuel lock-in.*"[123]

119. On balance, according to the IEA, there is no room for new oil and gas fields in any 1.5°C scenario. In addition, the IEA indicates why the NZE scenario is to be preferred over the arguments and scenarios presented by oil and gas producers themselves. Arguments that are primarily presented so that the proponents can continue producing themselves and can take a position that excepts them from restraints. As stated, those arguments are at the expense of international collaboration between countries and the energy transition as such.

120. The NZE scenario, on the other hand, is a scenario in which the world collaborates as much as possible, as intended under treaty law. Countries have committed in the climate conventions to collaborate to contain the global climate danger and are obliged to do so on the basis of international law.[124] This agreement to collaborate has also been excellently worded in the recent decision of COP28. The global community collectively emphasises:

"the critical role of multilateralism based on United Nations values and principles […] [and] [r]eaffirms its commitment to multilateralism, especially in the light of the progress made under the Paris Agreement and resolves to remain united in the pursuit of efforts to achieve the purpose and long-term goals of the Agreement."[125]

121. The international agreement and consensus that global collaboration is necessary for the climate approach to succeed, is a relevant circumstance that must be involved when finding that Shell has a duty of care. When finding Shell's duty of care the starting point must therefore be that international collaboration is necessary and must be promoted as much as possible. It is in any event not logical when fleshing out Shell's duty of care to take as the starting point that Shell should be allowed to undermine the necessary international collaboration. Shell cannot use fallacies and arguments to continue producing, while its actions in fact interfere with international collaboration and climate action.

122. Shell does this, inter alia, by encouraging states to increase their national production by presenting states with one or more of the arguments set aside by the IEA. But also by widely discussing these arguments in the public domain. Shell is thus interfering with the international law relating to climate action.

123. It is specifically the case for Shell, as a global production company, that it cannot make use of several of the above-mentioned arguments at the same time. If it wishes to encourage importing countries to increase their national production, under the guise of energy security, it is appropriate that it reduces its production elsewhere, in exporting countries, at an accelerated pace. If Shell wants to make the argument that developing countries must be able to produce and

[123] Exhibit MD-528, p. 14 and p. 19. Pp. 58-59.
[124] Milieudefensie et al.'s Opening Argument, part 1 of 2 April 2024, paras. 90 et seq. See also para. 5.7.7 of the Urgenda judgment (ECLI:NL:HR:2019:2006).
[125] Exhibit MD-569B, p. 1, last paragraph, and para. 153.

export oil and gas, it is appropriate that it reduces its production in developed countries at an accelerated pace. Naturally Shell is not doing this, which shows that these are opportunistic arguments, in order to be able to continue producing oil and gas, regardless of the climate problem.

124. What Shell keeps working toward, and for which it presents all these opportunistic argument, is to remain an oil and gas company that is as large as possible. The IEA explicitly warns against such a business strategy. The IEA states: "*Many producers say they will be the ones to keep producing throughout transitions and beyond. They cannot all be right.*"[126] Because all companies apply the same strategy and want to be '*the last man standing*', we have come to the point of enormous over-investments and that is precisely where the problem is. According to the IEA, all oil and gas companies must therefore take action and start on the path toward reduction. They can do so by ceasing investments in new fields and taking into account that a part of the existing fields will have to be taken out of production early.

125. In addition, the IEA negates another commonly heard hobby horse of the oil and gas industry, i.e. that it is up to society to reduce the demand for oil and gas, before the oil and gas industry can come into action. Our earlier discussion of the political influence of the industry, the lock-in effect and the influence of a persistent production on demand shows that this argument cannot succeed. But the IEA makes this emphatically clear. The IEA even mentions this as the first of two pitfalls in the discussion about the future of oil and gas. I quote:

> "*A productive debate about the oil and gas industry in transitions needs to avoid two common misconceptions.*[127] *The first is that transitions can only be led by changes in demand. "When the energy world changes, so will we" is not an adequate response to the immense challenges at hand. […] In practice, no one committed to change should wait for someone else to move first."*[128]

126. These are clear words of the IEA. Each party will have to take its own responsibility. This means that Shell cannot wait until society moves first. Action must be taken simultaneously on the supply side and on the demand side and Shell has an influence on both sides. There is no one who will or can coordinate this globally and that is why it is all the more important that each party takes its own responsibility.

127. Shell's policy[129] and its position in this case[130] entail, however, that it is up to society – consumers and political decision makers – to change the demand for oil and gas. This is the reason why Shell has referred extensively to and is hiding behind European and Dutch policy.

128. I will conclude this section. It ensues from all of the foregoing that the goal to bring about an orderly transition does not mean that the demand for oil and gas must fall first, but that actors on both the demand and the supply side must commit to achieving the 1.5°C target. As explained, the global community already committed itself during COP28 to the rapid scaling up of renewable energy and energy efficiency and to the phasing out of fossil fuels. This is the time for oil and gas

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[126] Exhibit MD-528, p. 15.
[127] According to the IEA, the second 'common' misconception is the high expectations for CCS.
[128] Exhibit MD-528, p. 16. See also p. 40. The same point was also already made in the expert report of Erickson et al. (Exhibit MD-469, p. 8).
[129] See in this respect Statement of Defence on Appeal, section 6.2.9.
[130] See, e.g., Statement of Appeal, para. 1.4.1 and para. 2.7.5, footnote 131.

companies, and specifically Shell, to urgently start on the path to reduction, to stop investing in new fields and bring about far-reaching emission reductions. This is all the more important now that according to the IEA there are over-investments, resulting in a great risk of lock-in. The needed action in this decade can no longer be postponed, if there is to be a chance of limiting the temperature increase to 1.5°C. This is where Shell will have to make its contribution. For all the reasons discussed today, according to Milieudefensie et al. this must lead to upholding of the Judgment.

129. It ensues from all sources discussed today, including Dutch law, the climate protocols for companies, the international guidelines for human rights, the best available climate science and the findings of the IEA, that companies bear their own independent responsibility to prevent dangerous climate change and that no party can wait for anyone else. This applies particularly to the oil and gas sector. Contrary to all of this, Shell and its consultants have indicated that there would be no point if an individual actor, like Shell, were to take climate action. *mr*. Cox will discuss this topic later.