

# Not-Their-Lands:

The land impact of Royal Dutch Shell's net zero climate target





## ***Shell's net zero climate plans will require land up to three times the size of the Netherlands to offset their emissions by 2030.***

- New analysis by ActionAid shows that the carbon offset plans of just one corporation's net zero climate target – Dutch company Shell Oil - includes planting forests on land up to three times the size of the Netherlands by 2030, and potentially far more by 2050.
- Instead of cutting emissions by rapidly shifting away from fossil fuels, the company's net zero climate target includes plans to invest USD 4 billion a year in fossil gas, USD 8 billion a year on oil & gas exploration – and just USD 2-3 billion a year in renewable energy.
- Shell's land requirements are just the tip of the iceberg. Hundreds of corporations and governments have similarly declared net zero targets that assume large-scale carbon offsetting through land use instead of bringing emissions down to real zero.
- Widespread and unrealistic assumptions about land availability suggest that climate targets that rely heavily on carbon offsetting are likely to fail, while driving large-scale conflicts over land and food, particularly in the global South.

As pressure grows on corporations and governments to take urgent climate action to avert the climate crisis, many are hailing Royal Dutch Shell's announcement of a net zero by 2050 climate target as a sign of climate progress.

However new analysis by ActionAid shows that far from signalling the end of the fossil fuel era, Shell's plans include increased fossil fuel extraction, and offsetting the resulting emissions through planting forests on a scale that is staggeringly unrealistic and dangerous.

While the company plans to invest two to three billion US dollars a year in renewable energy, it also plans to invest four billion a year in fossil gas, and eight billion a year in new oil and gas exploration<sup>1</sup>. To be able to claim that its emissions are heading towards net zero by 2050, the company therefore includes large-scale carbon offsetting in its climate target.

Dutch company Shell's stated pathway to achieving net zero by 2050 includes offsetting 120 million tonnes of carbon dioxide per year from the sale of their products in 2030 through planting forests<sup>2</sup> and branding this approach as contributing to "Nature Based Solutions". **ActionAid calculates that this would require around 12 million hectares of land – the equivalent of three times the land area of the Netherlands, the country where the corporation is headquartered<sup>3</sup>.**

Shell's heavy reliance on carbon offsetting to purportedly achieve net zero – and their problematic assumptions about the availability of land to do this - are not unique. They are representative of a wider problem of net zero targets being used to green-wash climate inaction, and potentially driving land grabs on a harmful and unsustainable scale<sup>4</sup>.

As pressure increases for urgent climate action, hundreds of companies and governments have declared "net zero by 2050" climate targets<sup>5</sup>. Critics are increasingly concerned, however, that the "net" in net zero targets, which allows actors to combine planned targets for both emission reductions and carbon offsetting into one "net" emissions target, creates a smokescreen that allows pollution to continue business-as-usual, instead of driving real change<sup>6</sup>.

The majority of government and corporate net zero climate targets are not yet undertaking transformational action to stop pollution<sup>7</sup>. Instead, in order to maintain current models of production and levels of consumption, most rely heavily on carbon offsetting and "negative emissions" to remove carbon dioxide from the atmosphere, or have not yet elaborated how they plan to achieve their target. Hopes largely rest on plans to plant new forests for carbon offsetting, or to plant vast areas of land with energy crops including tree plantations to combine with unproven new technologies for Bioenergy with Carbon Capture and Storage (BECCS)<sup>8</sup>.



Given that just one company, Shell, envisions needing land 3 times the size of the Netherlands in the next 10 years (and likely much more on its pathway to net zero by 2050), the world will not have enough land available to meet demand for all the new forests and tree plantations implied in the hundreds of announced targets.

If implemented on the scale projected, these developments will lead to forced displacement of marginalised rural communities, replacement of food crops with tree plantations and other bioenergy crops, rising food prices and hunger. Communities in the Global South – particularly indigenous peoples, smallholder farmers, women and low-income families – who have done the least to contribute to the climate crisis, but who are already disproportionately experiencing the brunt of climate impacts, will be particularly harmed by these developments<sup>9</sup>.

This means that **actors relying on offsetting will be unable to deliver on their climate targets, while efforts to find territory for planting trees will drive conflicts over land and food.**

### Lessons from the biofuel land grab

Vital lessons must be learned from the aggressive expansion of biofuel production to meet biofuel targets 2007 to 2012, which led to more than 17 million hectares of land being grabbed for the purposes biofuel production<sup>10</sup>. The biofuel land grab resulted in widespread deforestation, with devastating consequences for local and low-income communities who suffered from displacement and loss of livelihoods, rising food prices and food scarcity. As destructive as the biofuel push was, however, this will be dwarfed by the large-scale land grab for net zero climate targets, as Shell alone would require 12 million hectares, and there are hundreds more government and corporate net zero targets that rely heavily on offsetting.

Net zero targets and accounting systems are therefore coming under increasing criticism<sup>11</sup> for being insufficient to drive transformation, compounding the injustices of climate change on marginalised communities in the Global South, and driving a wave of “climate colonialism”. **The smokescreen of “net zero” accounting enables actors to continue to pollute while using carbon offsetting to sound more ambitious than they really are.**

To put the planet on track to meet the Paris Agreement’s target of limiting global warming to 1.5°C, far greater scrutiny of net zero targets is required, and measures are needed to drive real action:

- Governments, sectors and corporations including Shell must take urgent and transformative action to transition away from fossil fuels, and to bring emissions to as close to zero as possible within the next decade.
- Emission reduction plans must take equity into account, and the actors with the greatest historical responsibility for pollution must take the most rapid action<sup>12</sup>, shaped through just transitions<sup>13</sup>.
- To avoid the obfuscation allowed by “net” targets, separate targets for emission reductions and carbon removals must be the basis of transparent climate plans<sup>14</sup>.
- Carbon accounting practices must not treat emissions in the biological carbon cycle and those from fossil fuels as equivalent and interchangeable. Burning fossil fuels releases carbon that has been safely stored underground for millions of years, while restoring forests can only truly compensate for ecosystems lost more recently<sup>15</sup>.
- Plans for removing carbon from the atmosphere must be based on the realistic planetary potential for protecting and restoring biodiverse ecosystems, while safeguarding land rights, the rights of indigenous peoples and communities and the human right to food, and recognising that the safeguarding the community forest rights of indigenous peoples is proven to be the most effective strategy for protecting biodiverse forest ecosystems<sup>16</sup>.
- UNFCCC negotiations at COP26 on “Article 6” aim to develop a rulebook for the global carbon offset market. Governments must reject any expansion of the carbon offset market, as this is likely to legitimise pollution-as-usual instead of the profound climate transformations that are urgently needed to avoid runaway climate breakdown.



## Shell's other land scenario numbers

- Shell's 2017 Energy Transition Report indicated an illustrative plan to plant "forests the size of Spain" – ie 50 million hectares - by 2050<sup>17</sup>. However this number was not mentioned under Shell's updated 2021 pathway to achieving net zero by 2050, as the company has chosen to limit its specific planning to a 10-year forecast. "Our operating plans do not yet reflect our long-term 2050 net-zero emissions target, as it is not feasible to make a 30-year detailed operating plan<sup>18</sup>."
- Shell's 2021 "Sky 1.5" scenario (February 2021) suggested that the world could need to plant forests the size of Brazil to offset the planet's emissions of 12 billion tonnes of CO<sub>2</sub>/year<sup>19</sup>. However, this appears to have assumed that forests can sequester an average of 17 tonnes/ha/year, even on such a large scale. ActionAid believes that 10 tonnes/ha/year is a more realistic sequestration rate in this context (See box on Methodology). Shell may therefore have significantly underestimated the amount of land that would be required to sequester the anticipated 12 billion tonnes of CO<sub>2</sub><sup>20</sup>.
- In Shell's "New sketch: A climate neutral EU by 2050<sup>21</sup>" (April 2020) the company outlines a possible illustrative scenario in which the EU achieves Net Zero by offsetting land half the size of Spain (25mha) and builds two major carbon capture and storage (CCS) units a month.

## ActionAid's methodology

ActionAid is using an assumption that tree plantations and forests promoted by Shell would sequester, on average, 10 tonnes of carbon dioxide per hectare this year. This number has been chosen as the mid point in the likely range between 5 and 15 tonnes CO<sub>2</sub>/ ha/ year.

Carbon sequestration rates for afforestation vary with multiple factors including the location's soil quality, temperature and precipitation. The approach to afforestation is also a factor, and this can range from resource-intensive establishment of monoculture plantations of fast-growing trees, to a "hands-off" reliance on natural regeneration allowing trees to establish and grow with little or no intervention.

Carbon sequestration rates exceeding 20 tonnes CO<sub>2</sub>/ha/year<sup>22</sup> have been found for plantation forestry in tropical regions. However such rates are an expression of "best case scenarios" in areas with good soil conditions and high precipitation rates that are unlikely to be available for large-scale efforts. Alternatively, they are reliant on inputs in the form of fertiliser and irrigation, the energy requirements of which will themselves lead to emissions. When the full life-cycle emissions of these approaches are taken into account, the plantation system would likely be unable to generate substantial negative emissions<sup>23</sup>. Similarly, rates as low as 2-3 tonnes of CO<sub>2</sub>/ha/year have been found in areas with low levels of precipitation<sup>24</sup>.

The fact that negative emissions/ offsetting projects are implied in so many corporations' current climate plans implies that projects will end up targeting areas with lower precipitation and less fertile soils. This, in turn, implies that few areas will support the higher end of the sequestration spectrum. We have therefore arrived at an estimated 10 tonnes of CO<sub>2</sub>/ha/year of carbon sequestration. This is as a reasonable estimate of sequestration for plantations and regeneration/ restoration of secondary forest across temperature, subtropical and tropical regions. While this level is in the lower range of estimates used in some recent attempts at estimating global potentials<sup>25</sup>, these build on reviews of studies including of plantations that have been fertilised<sup>26</sup>. Given that that not all off the assumed negative emissions/ offsetting projects would target areas with high agricultural potential, this appears a reasonable estimate.

*With thanks to Jens Friis Lund and Kate Dooley for providing advice on methodology.*

## References:

- <sup>1</sup> "Shell accelerates drive for net-zero emissions with customer first strategy" (Feb 2021)  
<https://www.shell.com/media/news-and-media-releases/2021/shell-accelerates-drive-for-net-zero-emissions-with-customer-first-strategy.html>
- <sup>2</sup> Shell Energy Transition Strategy 2021  
[https://www.shell.com/investors/annual-general-meeting/\\_jcr\\_content/par/textimage\\_d70a\\_copy.stream/1618407326759/7c3d5b317351891d2383b3e9f1e511997e516639/shell-energy-transition-strategy-2021.pdf](https://www.shell.com/investors/annual-general-meeting/_jcr_content/par/textimage_d70a_copy.stream/1618407326759/7c3d5b317351891d2383b3e9f1e511997e516639/shell-energy-transition-strategy-2021.pdf) "Our net-zero target includes emissions from our operations, our Scope 1 and 2 emissions, and the life-cycle emissions, including from the end use, from all the energy products we sell, our Scope 3 emissions." Page 7
- <sup>3</sup> The Netherlands = 4.1 m ha
- <sup>4</sup> ActionAid, Corporate Accountability, Friends of the Earth, Global Campaign to Demand Climate Justice, Third World Network & What Next, NOT ZERO: How 'net zero' climate targets disguise climate inaction (October 2020)  
<https://actionaid.org/publications/2020/not-zero-how-net-zero-targets-disguise-climate-inaction>
- <sup>5</sup> Energy & Climate Intelligence Unit, Taking Stock: A global assessment of net zero targets (2021)  
[https://ca1-eci.edcdn.com/reports/ECIU-Oxford\\_Taking\\_Stock.pdf](https://ca1-eci.edcdn.com/reports/ECIU-Oxford_Taking_Stock.pdf)
- <sup>6</sup> Dkye, J., Watson, R., Knorr, W., (2021) Climate Scientists: concept of net zero is a dangerous trap  
<https://theconversation.com/climate-scientists-concept-of-net-zero-is-a-dangerous-trap-157368>
- <sup>7</sup> According to the Energy & Climate Intelligence Unit's March 2021 report Taking Stock: A global assessment of net zero targets, only 20% of existing net zero targets "meet a set of basic robustness criteria", and only one country (Sweden) is considered to stand apart from the pack in limiting the use of offsetting to 15% for delivering its 2045 net zero target.  
[https://ca1-eci.edcdn.com/reports/ECIU-Oxford\\_Taking\\_Stock.pdf](https://ca1-eci.edcdn.com/reports/ECIU-Oxford_Taking_Stock.pdf)
- <sup>8</sup> ActionAid USA BECCS: A dangerous distraction (2019) <https://www.actionaidusa.org/publications/beccs-a-dangerous-distraction/>
- <sup>9</sup> <https://actionaid.org/publications/2015/caught-net-how-net-zero-emissions-will-delay-real-climate-action-and-drive-land>
- <sup>10</sup> GRAIN (2013) Land grabbing for biofuels must stop <https://grain.org/article/entries/4653-land-grabbing-for-biofuels-must-stop>
- <sup>11</sup> The Guardian (2021) The climate crisis can't be solved by carbon accounting tricks  
<https://www.theguardian.com/commentisfree/2021/mar/03/climate-crisis-carbon-accounting-tricks-big-finance>
- <sup>12</sup> To calculate and learn more about countries' "fair share" of climate action, visit <http://civilsocietyreview.org/> and <https://calculator.climateequityreference.org/>
- <sup>13</sup> ActionAid Principles for Just Transitions in Extractives and Agriculture (2020)  
<https://actionaid.org/publications/2020/principles-just-transitions-extractives-and-agriculture-shaping-energy-and-food>
- <sup>14</sup> McLaren et al (2019) Beyond "net zero": A case for separate targets for emissions reduction and negative emissions  
<https://www.frontiersin.org/articles/10.3389/fclim.2019.00004/full>
- <sup>15</sup> Carton, W., Friis Lund, J., Dooley K. (2021) Undoing Equivalence: Rethinking carbon accounting for just carbon removal  
<https://www.frontiersin.org/articles/10.3389/fclim.2021.664130/full>
- <sup>16</sup> Climate, Land, Ambition and Rights Alliance- CLARA (2018) Missing PATHways to 1.5°C: The role of the land sector in ambitious climate action <https://www.climatelandambitionrightsalliance.org/report>
- <sup>17</sup> Shell Energy Transition Report (2017) p28  
[https://www.shell.com/energy-and-innovation/the-energy-future/shell-energy-transition-strategy/\\_jcr\\_content/par/textimage.stream/1524757699226/3f2ad7f01e2181c302cdc453c5642c77acb48ca3/web-shell-energy-transition-report.pdf](https://www.shell.com/energy-and-innovation/the-energy-future/shell-energy-transition-strategy/_jcr_content/par/textimage.stream/1524757699226/3f2ad7f01e2181c302cdc453c5642c77acb48ca3/web-shell-energy-transition-report.pdf)
- <sup>18</sup> Shell Energy Transition Strategy (2021) Page 11  
[https://www.shell.com/investors/annual-general-meeting/\\_jcr\\_content/par/textimage\\_d70a\\_copy.stream/1618407326759/7c3d5b317351891d2383b3e9f1e511997e516639/shell-energy-transition-strategy-2021.pdf](https://www.shell.com/investors/annual-general-meeting/_jcr_content/par/textimage_d70a_copy.stream/1618407326759/7c3d5b317351891d2383b3e9f1e511997e516639/shell-energy-transition-strategy-2021.pdf)
- <sup>19</sup> Shell, The Energy Transformation Scenarios (February 2021) p 66  
[https://www.shell.com/promos/energy-and-innovation/download-full-report/\\_jcr\\_content.stream/1612814283728/d14d37b7dd060d78b65bfee3c7654520e10381aa/shell-energy-transformation-scenarios-report.pdf](https://www.shell.com/promos/energy-and-innovation/download-full-report/_jcr_content.stream/1612814283728/d14d37b7dd060d78b65bfee3c7654520e10381aa/shell-energy-transformation-scenarios-report.pdf)
- <sup>20</sup> Graph showing approximately 12 gigatonnes CO2 sequestered in 2060. Text refers to 700 million hectares. 12 gt divided by 700 m ha = 17.14 tonnes CO2/ha/year. Note 1 gigatonne = 1 billion tonnes.
- <sup>21</sup> <https://www.shell.com/energy-and-innovation/the-energy-future/scenarios/scenario-sketches/new-sketch-a-climate-neutral-eu.html>
- <sup>22</sup> This is based on Table S9 in the supplementary material of Griscom, B. W., Adams, J., Ellis, P. W., Houghton, R. A., Lomax, G., Miteva, D. A., Schlesinger, W. H., Shoch, D., Siikamäki, J. V., Smith, P., Woodbury, P., Zganjar, C., Blackman, A., Campari, J., Conant, R. T., Delgado, C., Elias, P., Gopalakrishna, T., Hamsik, M. R., ... Fargione, J. (2017). Natural climate solutions. Proceedings of the National Academy of Sciences of the United States of America, 114(44), 11645–11650. <https://doi.org/10.1073/pnas.1710465114>
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- <sup>25</sup> Griscom, B. W., Adams, J., Ellis, P. W., Houghton, R. A., Lomax, G., Miteva, D. A., Schlesinger, W. H., Shoch, D., Siikamäki, J. V., Smith, P., Woodbury, P., Zganjar, C., Blackman, A., Campari, J., Conant, R. T., Delgado, C., Elias, P., Gopalakrishna, T., Hamsik, M. R., ... Fargione, J. (2017). Natural climate solutions. Proceedings of the National Academy of Sciences of the United States of America, 114(44), 11645–11650. <https://doi.org/10.1073/pnas.1710465114>
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All images used throughout were taken to document the devastation that communities in the Niger Delta are facing as a result of persistent gas flaring and oil spills by Shell. Access the full collection here: <https://stories.actionaid.org/?c=57962&k=e1162a6254> (@Nora Awolowo/ActionAid)