

10 myths about net zero targets and carbon offsetting, busted

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Comment: Carbon neutrality targets are often not as ambitious as they sound, relying on problematic carbon offsets and unproven technologies



Forest road (Pic: Gilbert Sopakuwa/Flickr)

By 41 scientists

The idea of carbon offsetting, which underpins so-called net zero targets, is founded on a number of myths.

In many cases, offsetting relies on capturing carbon in vegetation and soils. Such capacity is however limited and is needed to store carbon dioxide that we have already emitted.

Assumptions of future technologies and targets decades ahead delay immediate action. Countries and corporations must shift focus from distant net zero targets to real emissions reductions now.

The impacts of the climate crisis are becoming increasingly severe, everywhere. We are experiencing heat waves, floods, droughts, forest fires and sea level rise as a result of global heating. The average global temperature is rising at an unprecedented rate, rapidly diminishing the prospect of keeping global warming below 1.5C and with increasing risks of crossing irreversible tipping points.

In the face of growing demands for action, many countries and companies are making promises and setting targets to reach “net zero” emissions or “carbon neutrality”. These often sound ambitious and may even give the impression that the world is awakening and ready to take on the climate crisis.

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In practice, however, net zero targets several decades into the future shift our focus away from the immediate and unprecedented emissions reductions needed. Net zero targets are generally premised on the assumption that fossil fuel emissions can be compensated for by carbon offsetting and unproven future technologies for removing carbon dioxide from the atmosphere. But offsetting does not cancel out our emissions – yet action to do so is immediately needed.

There are a number of myths about net zero targets and carbon offsetting that must be dispelled. By revealing them, we aim to empower people, so that they can pressure governments and companies to create real solutions, here and now:

Myth 1: Net zero by 2050 is sufficient to solve the climate crisis. *Misleading.*

Major and unprecedented reductions in emissions are needed now. Otherwise, our current high emissions will consume the small remaining global carbon budget within just a few years. Net zero targets typically assume that it will be possible to deliver vast amounts of “negative emissions”, meaning removal of carbon dioxide from the atmosphere through storage in vegetation, soils and rocks. However, deployment of the technologies needed for negative emissions at the required scale remains unproven, and should not replace real emissions reductions today.

Myth 2: We can compensate for fossil fuel emissions using so-called “nature-based solutions” (such as carbon sequestration in vegetation and soils). *Misleading.*

Fossil fuels are part of the slow carbon cycle (see fact box). Nature-based solutions are part of the fast, biological carbon cycle, meaning that carbon storage is not permanent. For example, carbon stored in trees can be released again by forest fires. Fossil emissions happen today, while their uptake in trees and soils takes much longer. The overall capacity of nature-based solutions is also limited, and is anyway needed to help remove the carbon dioxide that we have already released into the atmosphere.

The Carbon Cycle

The carbon cycle has two parts: one fast cycle whereby carbon circulates between the atmosphere, land and seas, and one slow cycle whereby carbon circulates between the atmosphere and the rocks which make up Earth's interior.

Fossil fuels (coal, oil and gas) come from rocks (part of the slow cycle). Carbon emissions from fossil fuel burning are today 80 times larger than the natural flow of carbon from Earth's interior (via volcanoes). Since the return of carbon to Earth's interior takes millions of years, about half of the emitted carbon remains in the atmosphere for a long time and contributes to global warming.

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Myth 3: Net zero targets as well as carbon offsetting increase the incentives to reduce emissions because emissions are allocated a cost.

Misleading.

The incentive decreases as long as it is financially more advantageous and socially acceptable to buy low-cost carbon offsets from abroad than it is to reduce emissions at home. Promises of future negative emissions also reduce the incentive to cut carbon emissions now, as their costs in decades to come are heavily discounted.

Myth 4: Carbon offsetting in low-income countries must increase to meet the Paris agreement. Misleading.

Low-income countries have also established climate targets in connection with the Paris Agreement. They will need all the emissions reductions that can be achieved in their own country to deliver on their own climate targets. There is no remaining carbon budget for wealthy high-emitting nations to pass the burden for cutting their emissions on to low-income nations.

Myth 5: Funding renewable energy projects is a good way to compensate for fossil fuel emissions. Problematic.

Expansion of renewable energy in growing economies is crucial, but often only adds to, rather than replaces the fossil fuels in the energy mix. Because renewable energy is now often cheaper than fossil energy, these investments would likely have happened anyway, and should therefore not be counted as offsets. Actors in high-income countries should rather finance renewable energy expansion as a form of climate investment (as opposed to offsetting).

Myth 6: Technological solutions for carbon dioxide removal will solve the problem. Overly optimistic.

Technologies are being developed but they are expensive, energy intensive, risky, and their deployment at scale is unproven. It is irresponsible to base net zero targets on the assumption that uncertain future technologies will compensate for present day emissions.

Myth 7: Tree plantations capture more carbon than leaving old forests undisturbed. Misleading.

Old forests can contain centuries worth of carbon, captured in trees and soils, and can continue to capture carbon for hundreds of years. It is better to cut fewer trees, so that the carbon already stored is not released. The carbon released by felled trees can take a hundred years or more to be recaptured by new trees. We do not have that time.

Myth 8: Planting trees in the tropics is a cost-effective win-win solution for both nature and local communities. Oversimplified.

There are trade-offs between managing forests for cost-efficient carbon capture and for meeting the needs of nature and local communities. Planting trees with carbon capture as the main goal threatens the rights, cultures, and food security of Indigenous Peoples and local communities. These risks, as well as threats to biodiversity, increase as such projects multiply.

Myth 9: Each ton of carbon dioxide is the same and can be treated interchangeably. False.

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Carbon dioxide removal tomorrow cannot compensate for emissions today. Emissions from luxury consumption should not be considered equal to emissions from essential food production. Storage of carbon in plants and soils cannot compensate for emissions of fossil carbon (see fact box).

Myth 10: Products and travel can be “climate neutral” or even “climate positive”. *False.*

Products and travel that are sold as “climate neutral” or “climate positive” due to offsetting, do still have a carbon footprint. Such marketing is misleading and may even lead to more emissions as the offsetting incentivises increased consumption. We contribute more to climate solutions by consuming and travelling less.

Climate change poses existential threats to people, nations, children and to vulnerable groups all over the world. Unprecedented, rapid and sustained emissions reductions, starting here and now, are essential for tackling the climate crisis and living up to the commitments in the Paris Agreement:

- We must shift focus from mid-century net-zero targets to immediate, real emissions reductions in our own high-income countries. Reductions of at least 10% per year are needed. This massive transformation of our societies is our only way to fulfil the Paris agreement without relying on risky and unproven, large-scale deployment of negative emission technologies.
- We in high-income countries, in addition to maximizing emissions reductions at home, must hugely increase climate finance contributions to low-income countries. The countries that are least responsible yet most vulnerable to the climate crisis must be supported in their efforts to adapt and transform to zero carbon societies, as part of the climate debt they are owed.
- We must reject offsetting between high- and low-income countries and replace it with climate financing based on scientific evidence, a limited carbon budget and global climate justice.
- We must define separate targets for negative emissions and emissions reductions. It is essential that socially and environmentally appropriate negative emissions are undertaken as climate investments or climate financing, not as carbon offsets.
- We must stop marketing products as being “climate neutral” or “climate positive”.
- We must stop extracting and using fossil fuels, the primary cause of the climate crisis. As well as **real-zero** targets, we need an international treaty for the termination of fossil fuel production.

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The article was initiated by members of www.ResearchersDesk.se and is available in Swedish at [Dagens Nyheter](http://DagensNyheter) where it was first published.

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