

In-depth: Experts assess the feasibility of ‘negative emissions’

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To limit climate change to “well below 2C”, as nations [agreed to do](#) in Paris last December, modelling shows it is likely that removing carbon dioxide emissions from the atmosphere later on this century will be necessary.

Scientists have imagined a range of “negative emissions” technologies, or NETs, that could do just that, as [explained](#) by Carbon Brief yesterday. But are any of them realistic in practice?

Carbon Brief reached out to a number of scientists, policy experts and campaigners who have studied both the necessity and feasibility of negative emissions.

We sent them the following identical email:

The Paris Agreement calls for “holding the increase in the global average temperature to well below 2C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5C above pre-industrial levels”. However, as the IPCC AR5 report showed, the majority of modelling to date assumes a significant global-scale deployment of negative emissions technologies in the second half of this century, if such temperature limits are to be achieved.

- 1) What negative emissions technologies offer the most promise – and why?
- 2) Is it feasible to achieve the scale of deployment required to meet the aims of the Paris Agreement? If so, how? If not, why?

These are the responses we received, first as sample quotes, then, below, in full:

- [Ottmar Edenhofer, Intergovernmental Panel on Climate Change](#) – “Whether we can achieve the deployment needed for the aims declared in Paris last year... depends very much on which negative emissions options will end up to be at our disposal ultimately.”
- [Detlef van Vuuren, PBL Netherlands Environmental Assessment Agency](#) – “At the moment, BECCS and large-scale reforestation seem to be most promising based on a combination of technology-readiness, costs, and potential. At the same time, both options are not without challenges.”
- [David Keith, Harvard University](#) – “I am skeptical that BECCS should be used beyond narrow niches... Instead, I would focus on accelerated weathering and air capture which could, in principle, be scaled to many gigatonnes per year with low