It’s time to make deep emission cuts

Human activities, the collective choices we have made to deploy fossil fuels and change land uses, are responsible for the release of greenhouse gases (GHGs) and associated global warming. In 2016, the earth’s temperature was 1.3°C warmer than in pre-industrial times — as warm as in the Eemian interglacial period some 125,000 years ago — when sea levels were 6-9 metres higher than they are today. More dishearteningly, even if countries take the action they promised at the Paris climate change conference in 2015, the world would be about 3°C warmer by 2100, well above the 2°C temperature guardrail to avoid dangerous climate change.

Clearly, the current pattern of increasing emissions (which reportedly grew at the rate of 2.6% per year during 2000-2015) needs a rapid phase down. But the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) indicates that the earth can stay below 2°C. Closer examination reveals that many of the integrated assessment models used to study future scenarios and emissions assume that the world would somehow make use of significant amounts of ‘negative emissions’. These are ways to **remove carbon dioxide** from the atmosphere, or even change the earth’s radiation balance through geoengineering. These negative emissions in the models are used in addition to increasing use of renewables and improving the efficiency of energy services.

CO2 emissions must be nil by 2070 to prevent disaster: U.N.

Some of the approaches that could remove or absorb carbon dioxide in the atmosphere are better agricultural practices that leave carbon in the ground, use of biochar, undertaking afforestation and reforestation. One method that is widely discussed is bioenergy for fuel in combination with carbon capture and storage (BECCS). This involves the use of plants as fuel. The released carbon dioxide is then captured and safely stored indefinitely. However, due to competition for land for food and other purposes, and due to technological limitations, this approach is believed to be inappropriate for extensive use.

Other methods to suck carbon dioxide from the atmosphere and increase carbon dioxide absorption by the oceans are also being explored, but their long-term implications are not clear. Some scientists have been discussing the possibility of injecting cooling aerosols at a large scale in the atmosphere, but these geoengineering technologies pose huge risks and are also not long-term solutions.

Many scientists have voiced concern about over-reliance on BECCS and other large-scale engineering strategies, noting that these reflect political expedience rather than knowledge.

If BECCS and other approaches for negative emissions fail, we are likely to see a 4°C increase in global temperatures. In their recent *Climate Policy* article, Alice Larkin and her colleagues estimate that the cost optimisation models being used for these analyses are overly optimistic about negative emissions in the future.

These models also fail to consider equity dimensions and social and technological barriers. As a result, they pose a severe risk to society, especially to the poorest countries, which will experience the worst impacts of climate change. The irony is that these poor countries have emitted the least amount of GHGs.

India’s greenhouse gas emissions up by 4.7% in 2016

There is also fear that policymakers do not fully recognise that widespread deployment of negative emissions is a central assumption in many climate models and the scenarios that are now being advocated to keep to a 2°C rise. A society that places most of its eggs in the negative emissions basket will likely face catastrophic choices. Negative emissions also create a moral hazard problem, where we expect (future) others to bail us out while we continue to lead profligate lives.

This situation complicates an already immense problem and implies that near-term reductions in GHG emissions should receive more and immediate attention. If negative emissions become feasible in future, they could help the world stay on course in reducing warming, but this cannot be assumed while we are running short of the carbon space available to dodge dangerous climate change.

Another critical scientific finding is that even if global emissions were to go down to zero by 2050 through some Herculean feat, there would be considerable amount of warming that the world is already locked into. The adverse effects of these would be severe and difficult to adapt to. This is already in evidence all over the world with several seasons of intense storms, droughts, floods, fires and their aftermath, meaning that any further delay in reducing emissions would put at risk many more lives, livelihoods and investments for decades to come.

According to Kevin Anderson and Alice Bows, the elephant in the room is that economic growth as usual cannot be reconciled with climate impacts, especially as Earth continues to warm. Scientists, they urge, need to speak openly and freely about the dangers of climate change without leaning on euphemisms. Climatologist James Hansen has also brought up the dangers of scientific reticence in the past, particularly in the context of sea level rise.

Policies therefore need to support practices that successfully keep carbon in the ground, prevent deforestation, support agricultural practice that sequesters carbon and promote sustainable land use practices that reduce emissions. We also need a carbon tax — various models for these have been discussed. ‘Lifestyle’ and other consumption activities that may have hitherto been outside the radar of climate policy because they disturb the status quo or are difficult would have to be considered. Policies should nudge especially the more prosperous communities towards less carbon intensive lifestyles, either through taxes or incentives or both. Otherwise, today’s largely policies would merely shift current problems on to the shoulders of future generations.

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The new U.S. Fed Chairman is unlikely to opt for policies that might upset the President’s plan

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