We are poised to pass 1.5°C of global warming—world leaders offer four ways to manage this dangerous time

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Credit: AI-generated image (disclaimer)

For three decades, the goal of international climate negotiations has been to avoid "dangerous" warming above 1.5°C. With warming to date standing at around 1.2°C, we haven't quite reached the zone we labeled dangerous and pledged to avoid.

But recent scientific assessments suggest we're on the brink of passing that milestone. Within this decade, global annual temperatures will likely exceed 1.5°C above the pre-industrial average for at least one year. This threshold was already briefly passed for the month of July 2023 during the Northern summer.

The question is, how do we manage this period of "overshoot" and bring temperatures back down? The goal will be to restore a more habitable climate, as fast as possible.

Today an independent group of global leaders released a major report. The Climate Overshoot Commission offers guidance at this crucial time. So far the report's call for an immediate moratorium on "solar radiation management" (deflecting the sun's rays to reduce warming) has attracted the most attention. But the details of other recommendations deserve closer inspection.

How can we respond to climate overshoot?

Historically, climate policies have focused on mitigation (reducing greenhouse gas emissions). More recently, adaptation has gained prominence.

But the climate overshoot report identifies at least four different kinds of responses to warming above 1.5°C:

1. cut emissions to mitigate warming
2. adapt to the changing climate
3. remove carbon that is already in the atmosphere or ocean
4. explore intervening to limit warming by intentionally reflecting a fraction of sunlight into space.

The commission's task was to examine how all possible responses might

best be combined. Their report was written by 12 global leaders —including former presidents of Niger, Kiribati and Mexico—who worked alongside a youth panel and a team of scientific advisers.

The four-step plan to reining in warming

Not surprisingly, the commission argues our central task is mitigation. Transitioning away from fossil fuels remains the first priority.

But reaching net zero emissions is just the first step. The commission argues developed countries like Australia should go further and aim for net-negative emissions.

Why net-negative? In the short term, drawing down carbon can create space for the least industrialized countries to fight poverty while transitioning to clean energy. In the longer term, the whole global economy must achieve net-negative emissions if the planet is to return to our current "safe" climatic zone.

The second step is adaptation. Only a few decades ago former United States Vice President Al Gore branded adapting to climate change a "lazy cop-out". Today we have no choice but to adapt to changing conditions.

However, adaptation is expensive—whether it is developing new crop varieties or rebuilding coastal infrastructure. Since the poorest communities who are most vulnerable to climate harms have the least capacity to adapt, the commission recommends international assistance for locally controlled, context-specific strategies.

As a third step, the commission agrees with scientific assessments that carbon dioxide "will need to be removed from the air on a significant scale and stored securely" if we are to avoid permanent overshoot

beyond 1.5°C warming. But how to achieve large-scale permanent, carbon removal?

Some environmental activists support natural solutions such as planting trees but oppose industrial methods that seek to store carbon in inorganic form such as carbon capture and storage underground. The commission agrees the organic/inorganic distinction is important. However, it points out while forests bring many benefits, carbon stored in ecosystems is often re-released—for example, in forest fires.

The commission worries many carbon removal approaches are phony, impermanent or have adverse social and environmental impacts. However, instead of ruling out technologies on ideological grounds, it recommends research and regulation to ensure only socially beneficial and high-integrity forms of carbon removal are scaled up.

The fourth step—"solar radiation management"—refers to techniques that aim to reduce climate harms caused by reflecting some of the sun's energy into space. No-one likes the idea of solar radiation management. But no-one likes getting vaccinated either—our gut reactions don't provide a fool-proof guide to whether an intervention is a worth considering.

Should we trust our guts on this one? While climate models suggest solar radiation management could reduce climate harms, we don't yet properly understand associated risks.

The commission approaches this topic with caution. On the one hand, it recommends an immediate "moratorium on the deployment of solar radiation modification and large-scale outdoor experiments" and rejects the idea that deployment is now inevitable. On the other hand, it recommends increased support for research, international dialog on governance, and periodic global scientific reviews.

Time to examine intervention in the climate system?

The idea we can avoid dangerous warming completely seems increasingly quaint. Like baggy jeans, the boy band NSYNC and the iPod shuffle, it reminds us of a more innocent era. Yet, Australia's climate debate often seems stuck in this era.

The widespread hope we "still have time" means we are not yet discussing the merits of more interventionist responses to the climate crisis. However, there's increasing reason to be skeptical incremental measures will be sufficient. We may soon be forced to move beyond the non-interventionist, conservation paradigm.

Whether or not its recommendations are taken up, the Climate Overshoot Commission's work shows how the international community has failed to avert dangerous climate change. Reckoning with the consequences of this failure will dominate public policy for decades to come. This new report takes us a step forward.

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