The Closing Window for Action to Avoid Dangerous Climate Change:

Key Points for the Cancún Climate Negotiations

The window for action to avoid dangerous climate change is rapidly closing. The decisions we make today will determine the health and livability of the planet for generations to come. Further delay in reducing greenhouse gas pollution will foreclose our ability to avoid severe and irreversible climate impacts. This paper highlights three key points critical for successful climate negotiations taking place in Cancún.

1. Set an Objective of Cutting Atmospheric Concentrations of CO_2 to 350 ppm or less

The objective of an international climate agreement must be to safeguard the planet for future generations. The best-available science indicates that atmospheric concentrations of CO_2 must be reduced from current levels of ~389 ppm to at most 350 ppm to avoid dangerous climate change and preserve a planet similar to that on which civilization developed and to which life on Earth is adapted. Reducing CO_2 levels to 350 ppm also provides a good chance of limiting future warming to 1.5°C, while levels between 300 to 350 ppm can restore sea ice, re-establish the balance of ice sheets and glaciers to prevent runaway sea level rise and protect alpine water supplies, and avoid levels of ocean acidification that destroy coral reefs.

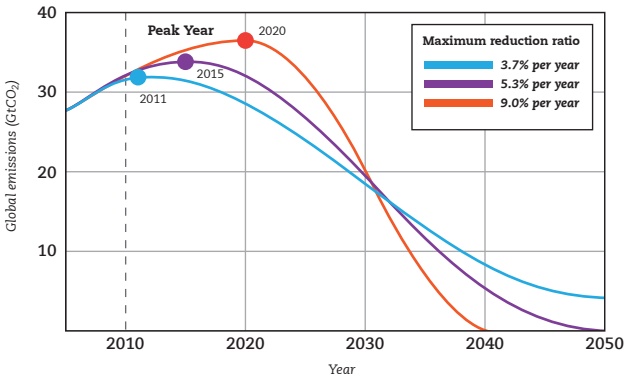
2. Close the "Gigatonne Gap"

Even viewed in the most optimistic light, the climate pledges made in Copenhagen would lead to CO_2 concentrations of 650 ppm, or roughly a 3.5°C increase in temperature by 2100. A temperature increase of this magnitude would result in widespread catastrophic impacts that far exceed what can rationally be considered safe.

There is a considerable difference or "gigatonne gap" between carbon emissions projected for 2020 based on the pledges made in Copenhagen and the emissions level consistent with a 2°C or 1.5°C/350 ppm trajectory. To provide a 50/50 chance of limiting warming to an average of 2ºC above pre-industrial levels, emissions by 2020 should be reduced to 44 gigatonne (Gt) CO_2e globally. For the safer 1.5ºC/350 ppm target, global emissions would need to be no greater than 40 $GtCO_2e$ and as low as 23 $GtCO_2e$.[1] However, since the Copenhagen Accord would result in 48-55 $GtCO_2e$ by 2020, Parties must formally acknowledge this gap in Cancún and adopt a firm process to close it.

3. Require Global Emissions Peak No Later Than 2015

Whether we are aiming for a target of 350 ppm CO_2 or for limiting warming to 1.5 or 2°C, global emissions must peak in the near future, by or before 2015, and then rapidly decline.[2] Peaking later than 2015 would require prohibitively steep annual reductions, making them technologically and economically infeasible, and foreclosing the possibility of reaching a 350ppm/1.5°C or 2°C target. As illustrated in the figure below, one pathway with a 67 percent probability of limiting warming to 2°C requires a maximum annual reduction rate of 5.3% if the emissions peak occurs in 2015 but an increasingly difficult rate of 9% if the peak is delayed until 2020.[3] Indeed, if the emissions peak was delayed until 2020, the entire emissions budget for a 350 ppm target would be exhausted along with any chance of reaching this goal.



Although the path forward is challenging, we still have the time and ability to reverse current trends and pass on a healthy planet to future generations. As outlined here, the way forward is clearly sign-posted. However, the precious window of opportunity for action is slamming shut. Only through mobilization at all levels—from the grassroots to the international—can we overcome the political barriers to action and achieve the emissions reductions needed for a sustainable future.

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1. Reducing emissions to below 40 $GtCO_2e$ by 2020 would be highly beneficial as this emissions reduction trajectory presumes significant quantities of net-negative global emissions after 2050 due to biomass sequestration, which may be difficult to achieve. In contrast, reducing emissions to 23 $GtCO_2e$ by 2020 relies on achieving modest net-negative emissions after 2050 using existing carbon removal methods.

2. N. RANGER ET AL., MITIGATING CLIMATE CHANGE THROUGH REDUCTIONS IN GREENHOUSE GAS EMISSIONS (August 2010), at 12, found that emissions pathways that offer at least 50 per cent probability of global average temperature being no more than 1.5°C above its preindustrial level in the long term, with a temporary overshoot to 2°C or less of no more than 100 years, must peak no later than 2015. Similarly, the IPCC CLIMATE CHANGE 2007: SYNTHESIS REPORT, at Table 5.1, found that mitigation scenarios that stabilize atmospheric CO_2 at 350 to 400 ppm require global emissions to peak between 2000 and 2015.

3 M. Messner et al., The budget approach: a framework for a global transformation toward a low-carbon economy. 2 JOURNAL OF RENEWABLE AND SUSTAINABLE ENERGY 2 (2010).