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350 or Bust

Why We Must Reduce Atmospheric CO_2 Concentrations to Below 350 ppm

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Human-induced climate change is happening now — and at a rate faster than projected. These changes are self-reinforcing and potentially irreversible. For example, rising temperatures are rapidly melting the highly reflective Arctic sea ice, leading to more open water that absorbs more of the sun's energy and accelerates the warming trend. As Arctic permafrost thaws, it releases the powerful greenhouse gas methane into the atmosphere, contributing to another positive feedback loop. These climate feedbacks mean that weak action today will foreclose the ability to prevent catastrophe tomorrow. If we are to avoid saddling future generations with extreme economic and environmental hardships, we must immediately and drastically cut greenhouse gas emissions — or risk disastrous outcomes.

The scientific consensus is clear: We must reduce the level of atmospheric carbon dioxide, or CO_2, to 350 parts per million (ppm) or below to stabilize climate change and avoid global catastrophe.

- The United Nations' top climate scientist, Rajendra Pachauri, chairman of the Intergovernmental Panel on Climate Change, personally endorsed a 350 ppm target: "What is happening, and what is likely to happen, convinces me that the world must be really ambitious and very determined at moving toward a 350 target."

- A U.N. project to quantify the financial costs of climate change on nature concluded that current climate targets (approximately 450 ppm in the House bill) are not enough to save the world's coral reefs. "There's evidence that current levels of CO_2 are already causing damage to reefs. Stabilizing at anything more than about 350 ppm will lead to further destruction, and really we need to be aiming for zero emissions," said Alex Rogers of London's Institute of Zoology.

- Twenty top climate scientists recently issued an open letter to President Obama and Congress to "call attention to the large difference between what U.S. politics now seems capable of enacting [targeting reduction to 450ppm] and what scientists understand is necessary to prevent climatic disruption and protect the human future...We and many others are of the view that these objectives are inadequate to sustain the integrity of global climate and to hold the risk of ruinous climatic change to an acceptably low level."

- Bill McKibben's 350.org organization and top climate scientist James Hansen, formerly of NASA, have long advocated the need to reach 350 ppm.

Higher concentrations of greenhouse gases often considered as targets by policymakers, ranging from

450 – 550 CO_2eq, far exceed safe levels. Greenhouse gas concentrations of 450 CO_2 provide only a 50/50 chance of limiting warming to 2°C (3.6°F). Consequences of a 2°C temperature increase include the displacement of millions due to sea level rise, irreversible loss of entire ecosystems, the triggering of multiple climatic "tipping points" such as complete loss of summer Arctic sea ice and the irreversible melting of the Greenland ice sheet, decreased agricultural yields, and increased water stress for billions of people. Thus, climate policies that aim to stabilize greenhouse gases at 450 ppm seem, at best, content to flip a coin in the hopes that future generations are not left with few choices beyond mere survival.

To reach a level of atmospheric CO_2 of 350 ppm, greenhouse gas emissions from the United States and other developed countries should be reduced by 45 percent or more below 1990 levels by 2020:

- The Intergovernmental Panel on Climate Change (IPCC) has found that the emissions of the United States and other developed (Annex I) countries should be reduced by 25 percent to 40 percent below 1990 levels by 2020 to reach a 450 ppm CO_2eq stabilization level (corresponding to 400 ppm CO_2).[1] Thus, to reach 350 ppm CO_2, the United States must achieve or exceed the upper end of this range.

- The Alliance of Small Island Nations has called for Annex I countries to reduce their collective emissions by more than 45 percent below 1990 levels by 2020 to limit global emission to 350 ppm of atmospheric greenhouse gas concentrations.[2]

- Forty of the world's leading climate scientists, including the former chair of the IPCC Sir John Houghton, have called for developed countries to make a commitment at the U.N. climate summit in Copenhagen to cut carbon emissions by at least 40 percent below 1990 levels by 2020 "to avoid the worst impacts of climate change."[3]

Unfortunately, the emission reduction targets set by the climate bill passed by the U.S. House of Representatives and the bill proposed in the Senate fall far short of the reductions necessary to limit atmospheric concentrations of carbon dioxide to 350 ppm. The House bill calls for reductions of 17 percent below 2005 levels by 2020, or 3.5 percent below 1990 levels. While the Senate bill improves on this goal by setting a target of reducing emissions to 20 percent below 2005 levels by 2020, this still only amounts to a 7-percent reduction from 1990 levels. Targets in currently proposed climate legislation must be strengthened because the catastrophic physical consequences of exceeding 350ppm CO_2 are non-negotiable.

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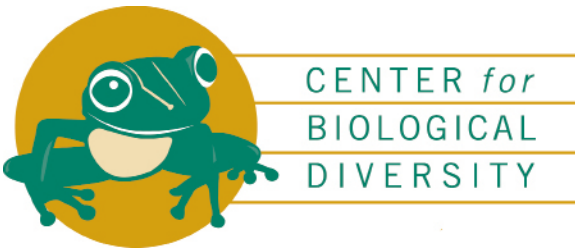
1. IPCC 2007. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, B. Metz et al, eds., Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA at 776; den Elzen, M. and N. Höhne. 2008. Reductions of greenhouse gas emissions in Annex I and non-Annex I countries for meeting concentration stabilization targets. *Climatic Change* 91: 249-274.

2. Available at **http://www.sidsnet.org/aosis/**

3. Available at **http://www.panda.org/about_our_earth/search_wwf_news/?174261/40-of-worlds-leading-scientists-call-for-40-emission-cut**



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