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Why Environmental Action Is so Hard

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Gambles may be appealing in a casino, but in the real world humans crave certainty.

By Gernot Wagner and Martin L. Weitzman

Exactly how bad is climate change going to be? That's no small question. It's also the wrong one. It's precisely the uncertainty—the unknowns and perhaps unknowables—that should really be driving action to curb greenhouse-gas emissions today.

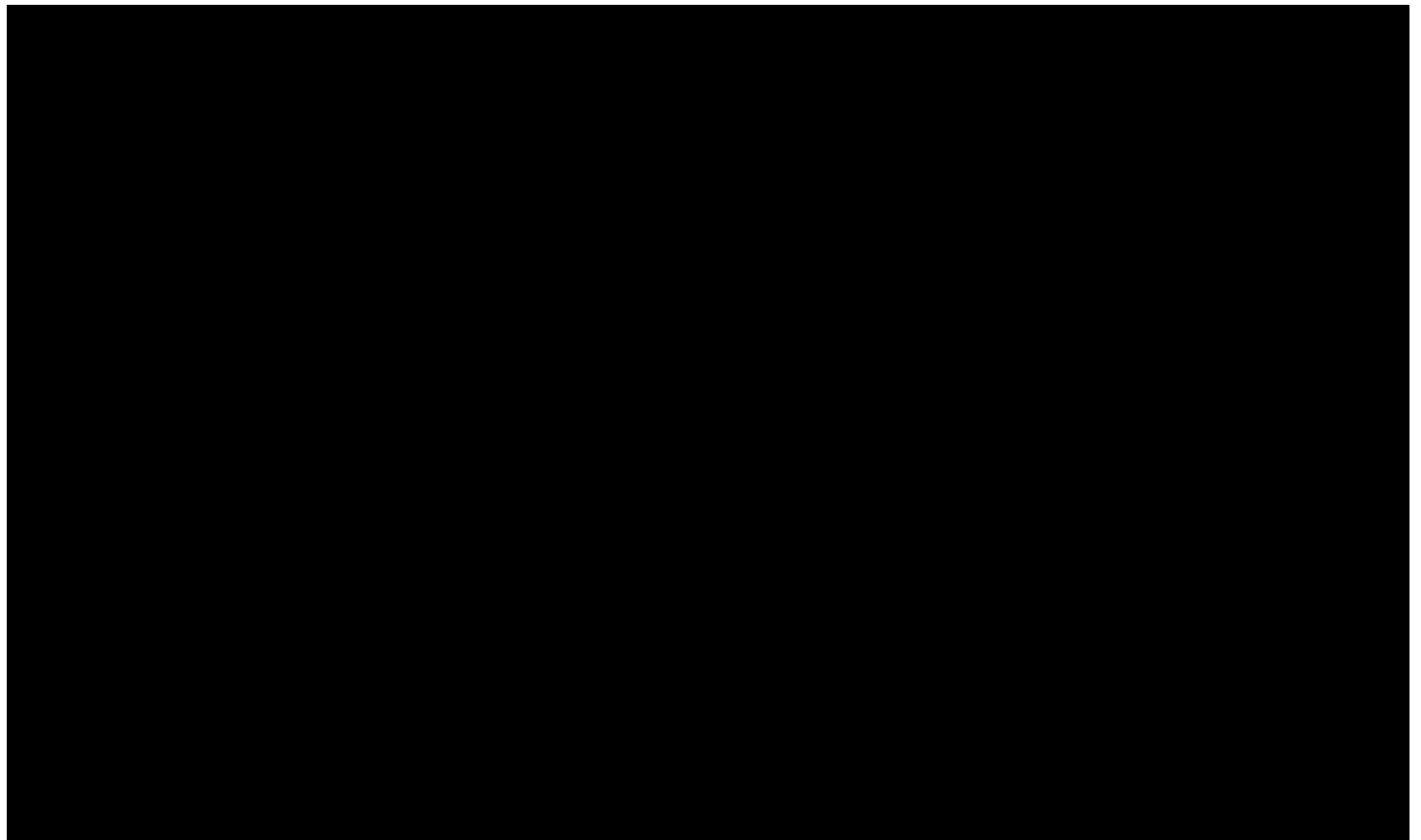
Climate science has made significant strides over the past few decades. Based on a plethora of information and observations, the confidence of the Intergovernmental Panel on Climate Change (IPCC) that global warming is being caused by human activity has gone from “more likely than not” in 1995 to “likely” in 2001 to “very likely” in 2007 to “extremely likely” in 2013. This is all the more striking, given that, by professional preference, scientists are wary of coming to definitive conclusions. By now, however, denying the reality of human attribution amounts to nothing short of **willful blindness**.

It is also impossible to ignore the issue that the final temperature rise—exactly how bad it's going to get—is not certain. Of course, there's no doubt that global temperatures have already warmed by around 0.85°C (1.5°F). The increase has been at least twice as high at the poles: bad news for ice caps and beachfront properties alike. Arctic sea ice has already lost half its area and three-quarters of its volume in the past three decades alone. The *Foreign Affairs* article “**The Coming Arctic Boom**” takes all of that as a given. Global average sea levels have been increasing at faster rates, leading to average projections of one to three feet by century's end.

But global warming doesn't stop in 2100. That's where the all-important climate sensitivity parameter comes in: what happens to eventual temperatures as concentrations of greenhouse gases in the atmosphere double. The verdict after decades of research and tens of thousands of model runs: a doubling of concentrations is expected to lead to "likely" warming of between 1.5° and 4.5°C (2.7° and 8°F). The lower end is bad enough. The upper end is far worse.

Here's where it gets tricky: despite amazing advances in climate science, we've now been looking at this same range for 35 years. We have more confidence today that the range is correct, but we haven't been able to narrow it. In 2007, the IPCC tried. Research at the time led them to conclude that the lower bound of 1.5° (2.7°F) seemed unduly optimistic. IPCC consensus narrowed the range to between 2° and 4.5°C (3.6° and 8°F). By 2013, however, new research prompted the IPCC to widen its range once again to include 1.5° (2.7°F). Cue the headline: "Global Warming Not as Bad as Feared"! If only.

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