

## Jeffrey Sachs: On climate, more 'now' and 'how' is needed

By [John Rennie](#)

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To hear Jeffrey D. Sachs tell it, if humanity manages to avert catastrophic warming from manmade greenhouse gases, it won't be because of an astonishing technological breakthrough that suddenly saved the day. It will be because policymakers mustered the will to start acting today rather than later, and focused on how to transform global energy systems before squabbling about who should pay for it.

Unfortunately, that has not happened yet. "What we have is mostly a debate about what's fair and unfair, but very little understanding about what to do," he says.

Sachs, renowned as an economist and advocate for sustainable development, is [director of the Earth Institute at Columbia University](#) and of the U.N. Sustainable Development Solutions Network, and special adviser on the Millennium Development Goals to U.N. Secretary General Ban-Ki Moon. He is also a coauthor, with climatologist James Hansen and a multidisciplinary team of other specialists, of a [recent report in the journal PLOS ONE](#) that made a plea for 1 degree Celsius, not 2 degrees, as the appropriate ceiling for permissible warming in the future.

To get his impressions of the report's content and of its policy implications, I spoke with Sachs a few days before the paper's publication. What follows is a summary of that conversation.



Jeffrey D. Sachs, director, Earth Institute, Columbia University.  
(Credit: Eiwebnyc; CC-BY, via Wikipedia)

### 2 °C is too much

Asked to describe the PLOS ONE report, Sachs calls it "one of the best, concise, up-to-date summaries" of current scientific understanding about the state of the warming problem, drawing on paleoclimate data, climate models, and empirical tracking of global temperatures. (He is also quick to credit it primarily to Hansen, who led the work.)

All those indications, Sachs says, lead to the same conclusions: that the impacts of climate change are already being felt, that they will multiply tremendously in the future, and that feedbacks in the climate system could greatly amplify both the future warming and the consequences associated with it.

No matter whether one favors the limit for future warming to be 1 °C or 2, Sachs says, "we're off course for either," with current mainstream projections suggesting that future warming could be headed toward 3-4 °C. But the PLOS ONE paper argues that [even the 2 °C target accepted in past global discussions is potentially far more dangerous than was realized](#). "That two degree figure, which is taken as optimistic by most mainstream observers, is itself wildly complacent," Sachs says.

Nevertheless, with respect to policy, both the 1 °C and 2 °C targets carry the same implication, in his view: what he calls “the need for a dramatic change in the global energy system” that should start right away to achieve the essential scale. The profound changes would involve fundamental decisions about favoring electric motors over internal combustion engines in vehicles, about how to heat and cool buildings, and how to generate rapidly rising amounts of electricity. Playing out over 30 years or more, the lengthy process would aim for deep changes that include, “as best one can judge right now, either the full phase-out of coal or [the use of] coal only with carbon capture and sequestration—which does not look overwhelmingly promising,” Sachs says.

To be sure, the list of factors warming the climate extends beyond fossil fuel CO<sub>2</sub> to methane, industrial chemicals such as fluorocarbons, and land use, and some aerosols. However, as the PLOS ONE report and [other recent publications have argued](#), the impact of reforming those other influences would be trivial in the short run if CO<sub>2</sub> from fossil fuels continues to accumulate in the atmosphere at anything close to current rates. Thus, as desirable as it will be to curb those other influences over time, “we absolutely need to get the CO<sub>2</sub> under control,” Sachs says. “Let’s get to the crux of this: this is about fossil fuel and about energy.”

Moreover, the needed energy reforms “should take place in a context of a growing world economy because there’s both a lot of pent-up growth and motivation for that growth in the developing countries over the coming decade. So that makes the problem even tougher,” Sachs says.

Making those changes quickly enough to limit warming to 2 °C sounds so daunting that even the thought of 1 °C might seem like the sheerest folly. But in Sachs’ view, commitment to that more aggressive target has the virtue of eliminating some options that are attractive in the short run but ultimately counterproductive. It would mean, for example, that the exploration for new oil resources in the Arctic and exploitation of tar sands and other unconventional sources of fossil fuels would be pointless: burning the known reserves of coal, oil, and gas would be more than sufficient to use up all the remaining carbon budget.

## The limitations of taxation

A carbon tax figures prominently in the PLOS ONE report’s discussion of ways to reduce fossil fuel emissions in the short term: higher prices would reduce demand for products made with fossil fuel energy. Carbon taxes are of course famously controversial, and have often been treated as politically dead in the water, given the unpopularity of any new taxes. The report holds out hope that if the U.S. and China chose to impose such a tax on imports and heavy carbon producers, other countries would follow suit, thereby achieving a global price on carbon without international negotiation. (The PLOS ONE paper does include the caveat, however, that “[t]he legality of such a border tax adjustment under international trade law is untested but is considered to be plausibly consistent with trade principles.”)

Sachs says that he and Hansen disagree somewhat about the singular importance of a carbon tax as such. “I would say that a carbon tax, or carbon price, is a part of the solution. I don’t think this paper does justice to the full range of policies that are really needed,” he says, adding that the authors intended it as “shorthand” for a variety of mitigation measures. Whereas Hansen sees a carbon tax as “fundamental,” Sachs says that “if we want to reduce emissions substantially by mid century, we’re going to need a lot more [policy] instruments than just the price of carbon.”

He points out that a carbon price alone would not predispose toward more nuclear power, make cities more sustainable and energy-efficient, alter population and land use strategies, eliminate resistance to the construction of offshore wind farms, or compel the U.S. to transition to an essentially all-electric personal automobile fleet by the 2030s. “A national power grid that can tap into wind and solar energy isn’t going to

come by itself from a carbon price,” he says.

How much of the economic burden various nations should shoulder in this reinvention of energy systems is also wildly contentious. The U.S. bears the single biggest share of responsibility for climate change because it has contributed the most to the cumulative CO<sub>2</sub> burden (26%), but China is already number two (with 10.7%) and now leads by far in annual emissions. A rapidly rising share of the cumulative CO<sub>2</sub> will come from developing countries as they toil for overdue prosperity.

How to address the discrepancies and historical legacies of this problem fairly matters, Sachs grants. “But we’ve spent so much time debating who should pay that it has crowded out the question that’s far more important of what to do and how to do it,” he adds with frustration. Some countries have abundant solar, wind, hydroelectric, or geothermal resources; some have none; their access to the capital and trained personnel needed to develop those resources vary just as much.

## Decisions, decisions

What’s needed now, Sachs argues, is a more practical discussion aimed at figuring out what each region of the world can realistically do to make the needed energy transition. “Once that’s known, then one can talk about how to finance it, how to share the costs and so forth. But we’re not even doing the preliminary work adequately,” he argues. “I don’t believe putting on a price by itself is going to sort all that out. These are really hard technological challenges that require planning, decision making, public infrastructure investments, regulatory land-use liability and other rules that we’ve made very little progress on.”

Indeed, to Sachs, even if the challenges are ultimately technological, the primary relevant questions still have more to do with policy. Given how quickly industrial society needs to cut back on its CO<sub>2</sub> emissions, he says, the suite of technologies for low-carbon electricity production that can be deployed at scale over the next three decades is limited to nuclear, solar, wind, geothermal, and hydroelectric, along with improvements in energy efficiency. Each of these technologies has its own practical problems to work out, he acknowledges: the intermittency of solar and wind, the safety of nuclear, and the environmental threats of dams. Nevertheless, he says, “that’s our universe on how to do this.”

Similarly, to decarbonize the transportation fleet, Sachs argues, one must turn to electric vehicles powered by batteries and fuel cells for individual mobility. Airplanes and other vehicles too big to run on batteries will need to run on more carbon-neutral biofuels.

Research and development will play an essential role in improving these options and solving their problems, but Sachs emphasizes that these technologies are already practical to a meaningful degree: the cycles of R&D they need will make the systems better and more affordable and teach how best to use them. “My automotive engineering friends say, ‘Don’t go for a million battery-operated vehicles by 2015. Go for 10,000 in which you’re doing intensive R&D over two or three cycles, and then you’ll be able to get to 25 million or 50 million or 100 million much faster,’” he says.

Sachs draws a sharp distinction between that approach to R&D (with a heavy emphasis on development) and the quest for more ideal technologies that are barely at the bench top level today. Critics who insist that today’s options for low-carbon electricity are too expensive sometimes claim it would be more prudent to defer action on climate change in favor of research into more innovative, cheaper solutions. Yet they can only get away with that “very loose chatter,” as Sachs puts it, by ignoring how much future warming that delay would commit the world to—and how fast carbon emissions would later need to drop to compensate. “It’s good for a *Wall Street Journal* op-ed,” Sachs says, “but it’s pretty meaningless in terms of actual climatology or policy targeting.”

I asked Sachs whether he was optimistic that the needed actions on climate and energy policy were forthcoming, given the lack of progress at the recent Warsaw talks. With a sigh, he acknowledged that it was hard to be hopeful: deep decarbonization is not yet taken seriously in the U.S., and in the fast-developing nations, economic growth was still far more of a priority.

“One of the things I’m trying to do to prepare for next year’s climate summit and the 2015 negotiations, through my work with the Secretary General, is to help lay out much clearer scenarios of how this deep decarbonization could actually be accomplished in each of the major emitting regions,” he says. “And I hope that can add to the sense of possibility and clarity because the worst case—and it’s not impossible by any means—is that we will simply be pointing fingers for years to come without much action.”

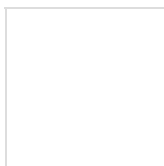
The choices are stark. “Either growth is going to choke up, or we’re going to wreck the planet, or we’re going to fundamentally change the way we produce and use energy,” Sachs says. “And only that third [option] seems to me to be desirable. That’s really the message of the paper.”

## References

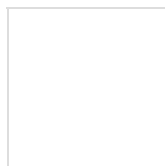
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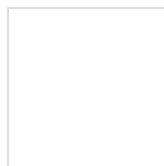
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**Abhaya T.** says:

December 12, 2013 at 12:17 pm

One valuable step that the international community could take is to negotiate an Arctic Treaty, similar to the Antarctic Treaty of 1961 — to set aside disputes over territorial sovereignty, to demilitarize the area, to ban new drilling, and to allow the region to be used exclusively for international scientific cooperation — for the sake of the entire planet.

I would be interested to know if this is being advocated, and by whom, and if grassroots support for such a treaty would be useful.

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