

# Gernot Wagner



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## Rio Isn't All Lost

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***Carbon emissions have increased by 50 percent since the first Earth Summit meeting in Rio de Janeiro, but the rapid development of wind and solar energy offers hope.***

*By Christian Azar, Thomas Sterner and Gernot Wagner*

IN June 1992, world leaders, including President George Bush, agreed to combat climate change at the Earth Summit meeting in Rio de Janeiro. This week, at “Rio+20,” leaders, experts and activists will once more gather to ponder the fate of the planet.

Optimism will be in short supply. Since the first conference, global carbon emissions have increased by some 50 percent — an outcome that those who were present 20 years ago would surely have seen as disastrous. And we are continuing this sorry trend: As the Arctic becomes ice-free, we can expect that it will be drilled for oil.

But below most radars, and despite the alarming news, the seeds of an energy revolution are being sown. Given some luck and the right policies, that revolution could yet help us resolve the climate crisis.

Solar and wind energy are developing faster than predicted — indeed, faster than most people realize. Europe is showing the way. Denmark gets about 20 percent of its electricity from wind. On a nice day, Germany, which no one thinks of as a sunny place, gets from the sun over 40 percent of the electricity it uses.

Worldwide, solar and wind capacity now tops 300 gigawatts, three times as much as the total capacity

in Britain, or roughly as much electricity as 50 nuclear reactors, nearly half the number now operating in the United States. Most of this renewable capacity has been installed in just the last five years. In fact, over that period, solar capacity has been growing by over 50 percent a year, wind by 25 percent.

As these markets grow, costs are plunging. The cost of photovoltaic cells has fallen by two-thirds in three years. Today, solar energy costs around 15 cents a kilowatt-hour in the United States. In some regions, like Southern California, the cost of solar power is nearly on par with what consumers pay for electricity now.

To be sure, this sunny picture does not diminish the magnitude of the challenge. In absolute terms, fossil fuels are growing faster than renewables, and global greenhouse gas emissions are still rising. In addition, governments continue to provide hundreds of billions of dollars in subsidies to the fossil fuel industry.

It won't be easy for the world to kick its addiction to fossil fuels, but it is doable. First and foremost, we need to put a price or cap on carbon emissions. Every ton of coal, every barrel of oil does more in socialized damage to economies, health and ecosystems than it adds in value to overall economic output. That cost in simple fairness ought to be reflected in the price of the fuels themselves. Otherwise, the oil and coal and power companies are simply leaving the tab for adverse consequences — from bad health to coastal flooding — to be picked up by everyone else.

Second, we need direct support for research, development and deployment of renewable technologies. Installing the first solar panel is more expensive than the one-millionth. That cries out for a temporary subsidy. Governments will not always back the right horses, but we know what direction the horses need to run in. We need to jump-start the race.

On top of that, we ought to make government rules a catalyst — rather than an obstacle — for private investment. That goes for everything from zoning to home mortgages. Putting a solar panel on your roof ought to allow you to sell electricity to the grid.

This two-pronged policy approach is not some pie-in-the-sky idea. The European Union already has a cap on carbon pollution and is directly supporting the deployment of solar and wind technologies. China, which has aggressively supported its renewable-energy industries, is also implementing cap-and-trade systems in seven regions and cities, including Beijing. India is pursuing utility-scale solar installations and has a coal tax raising \$500 million a year. Australia's government has put a price on

carbon. South Korea has instituted a direct carbon cap. And California is readying America's first comprehensive cap-and-trade system to reduce greenhouse gas emissions, combined with direct subsidies like its successful Solar Initiative.

None of these policies are sufficient by themselves. But all are pointing in the right direction. As Thomas Edison said almost a century ago: "I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that."

The solar and wind revolution is just beginning. But with determination and the right policies, by the time Rio+30 rolls around, optimism might be the order of the day.

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