Global Carbon Emissions Continue To Rise Despite Efforts To Cut Them

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Picture Credit:

AILSA CHANG, HOST:

Think about a world in which not a single new gas car hits the road. All new homes are heated with electricity, not gas. New power plants come online free of fossil fuels, and a quarter of existing power plants shut down right away, well before their expected lifetime is up.

That's the kind of dramatic change scientists say we should be aiming for if we want to avoid potentially catastrophic effects of climate change. Steven Davis of the University of California, Irvine is one of those scientists. And here's the thing. He says right now, we are moving backwards.

STEVEN DAVIS: That's right. So in recent years, we've actually seen global CO2 emissions rising. And, obviously, if we want to turn this ship around and get to a stable climate, we need to have those things be decreasing very rapidly. So we are moving in the wrong direction.

CHANG: OK. And I understand that you co-authored a paper that looks at all the carbon emissions we're already committed to. Can you explain what all of that includes?

DAVIS: Sure. The idea was pretty simple. It started out as a thought experiment that if we never built another power plant or car or anything that burns a fossil fuel and, instead, we allowed all the ones that are out there in the world to retire according to their normal expected lifetime, how much CO_2 would all of those already existing things add to the atmosphere?

And so what we did was set about collecting data on all of those different devices - power plants, cars, factories - and tried to figure out how old they were and how much CO_2 they would produce. And when we did all those calculations...

CHANG: Yeah?

DAVIS: ...We figured out that if all of these things operate as they have historically and retire according to their normal lifetimes, we'd have another maybe 650 billion tons of CO_2 emitted to the atmosphere.

CHANG: That sounds pretty ugly.

DAVIS: Yeah, that's a very large number because we can compare that to sort of the budget we have that the United Nations has identified as being safe targets; 1 1/2 degrees Celsius of warming relative to the preindustrial is considered the safe operating space right now. And this would put us in jeopardy of being beyond that.

CHANG: I mean, I guess we're assuming that nothing will change, but couldn't there be big technological breakthroughs that could prevent temperatures from rising far beyond 1.5 degrees Celsius?

DAVIS: Yes, that's - a very important caveat is that we're assuming in this estimate that everything does operate as it has historically. What we obviously want is to have new technologies coming online that make the old stuff outdated before the end of their expected lifetime so we can retire coal-fired power plants and even gas-fired power plants earlier than they have historically.

CHANG: Now, your research found that China accounts for a gigantic share - like, 41% of these committed carbon emissions - right? - that they built a lot of power plants in recent years. Could China make a dent in this pretty quickly, you think?

DAVIS: They could. So you know, the average lifetime of a power plant historically is about 40 years. And we know that since 2001, really after China joined the World Trade Organization, they've had a surge of build-out of their coal-fired power plants. Almost 20% of the world's electricity generating capacity is a coal-fired power plant less than 10 years old in China.

So the good news there is that there is some record of China closing down power plants well before the end of a 40-year lifetime as they've tried to modernize and really improve the air quality, which is a big problem, as a lot of people know.

CHANG: OK. I feel like this whole conversation we're having could feel pretty abstract to people who are not looking at data or scientific modeling like you and other scientists are. If there is one thing that you want people to understand about the future as it relates to carbon emissions, what would that one thing be?

DAVIS: I think the point of all of this work is that there's a lot of inertia in the problem itself. Climate change is something that is going to take decades to repair. So even if we figured out a miracle energy technology tomorrow, we've got a lot of stuff out there that we have to worry about retiring and getting rid of before we solve this problem.

CHANG: Steven Davis is an Earth systems scientist with the University of California, Irvine.

Thank you so much for joining us today.

DAVIS: It was my pleasure, Ailsa. Thanks.

CHANG: And you can explore all the conversations we've had this summer about carbon emissions and climate change. Just Google NPR Getting to Zero Carbon.

(SOUNDBITE OF TONY ALLEN SONG, "EVERY SEASON")

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