

In 2023, humans generated more energy-related emissions than ever before. Here's why clean energy hydropower was the culprit

Hydropower is a staple of clean energy—the modern version has been around for over a century, and it's one of the world's [largest sources of renewable electricity](#).

But last year, weather conditions caused hydropower to fall short in a major way, with generation dropping by a record amount. In fact, the decrease was significant enough to have a measurable effect on global emissions. Total energy-related emissions rose by about 1.1% in 2023, and a shortfall of hydroelectric power accounts for 40% of that rise, according to a [new report from the International Energy Agency](#).

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The world actually added about 20 gigawatts of hydropower capacity in 2023, but because of weather conditions, the amount of electricity generated from hydropower fell overall.

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As hydroelectric plants fell short, fossil fuels like coal and natural gas stepped in to fill the gap, contributing to a rise in global emissions. In total, changes in hydropower output had more of an effect on global emissions than the post-pandemic aviation industry's growth from 2022 to 2023.

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It's not likely that hydropower will slow to a mere trickle, even during dry years. But the grid of the future will need to be prepared for variations in the weather. Having a wide range of electricity sources and tying them together with transmission infrastructure over wide geographic areas will help keep the grid robust and ready for our changing climate.

[\*\*This is an excerpt. Read the full article here\*\*](#)