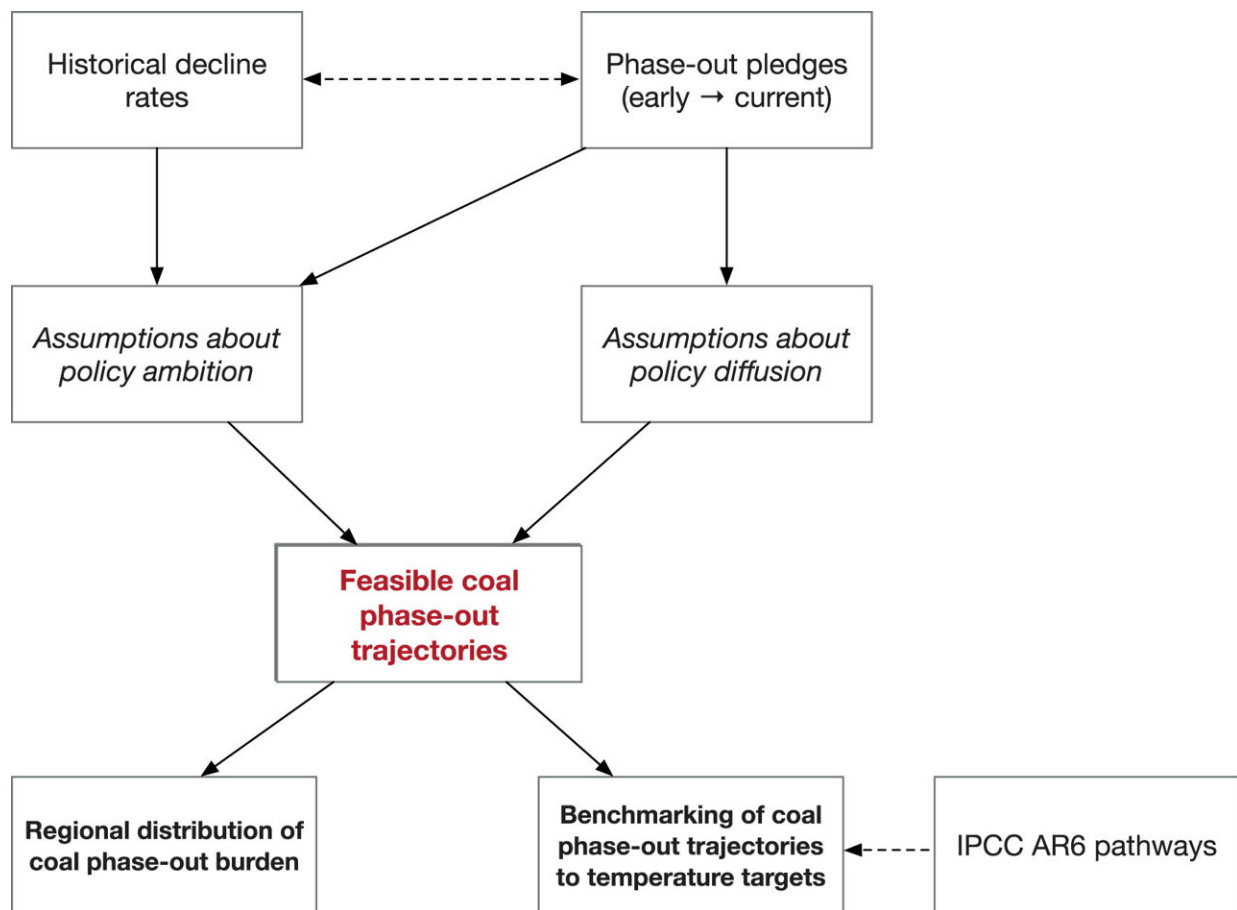


Moving towards 3 degrees of warming: The phasing out of coal is happening too slowly, warns study

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Organization of research in this article. Plain text—inputs, italic—assumptions used in building coal phase-out trajectories, bold—results. Dashed lines—use of contextual information for analysis and benchmarking. Credit: *Environmental Research Letters* (2022). DOI: 10.1088/1748-9326/acadf6

The use of coal power is not decreasing fast enough. The Paris Agreement's target of a maximum of 2 degrees of warming appear to be missed, and the world is moving towards a temperature increase of 2.5–3 degrees. At the same time it is feasible to avoid higher warming. This is shown by researchers from Chalmers University of Technology and Lund University, Sweden, in a new study.

"More and more countries are promising that they will phase out coal from their [energy systems](#), which is positive. But unfortunately, their commitments are not strong enough. If we are to have a realistic chance of meeting the 2-degree target, the phasing out of coal needs to happen faster," says Aleh Cherp, professor at the International Institute for Industrial Environmental Economics at Lund University.

China and India need to begin phasing out their coal use

Phasing out coal is necessary to keep the world's [temperature increase](#) below 2 degrees, compared to pre-industrial levels. In a study by the research program Mistra Electrification, a group of researchers have analyzed 72 countries' pledged commitments to phase out their coal use by 2022–2050.

In the best-case scenario, the researchers show that it is possible that the temperature increase will stay at 2 degrees. But that assumes, among other things, that both China and India begin phasing out their coal use within five years. Furthermore, their phase-out needs to be as rapid as it has been in the UK, which is the fastest that ever happened in a large country, and faster than Germany has promised. This may create inequities which will need to be addressed by international policies.

Global warming of up to 3 degrees is likely

The research group has also developed scenarios that they consider to be the most realistic. These scenarios indicate that Earth is moving towards a [global warming](#) of 2.5–3 degrees.

"The countries' commitments are not sufficient, not even among the most ambitious countries. In addition, Russia's invasion of Ukraine may prevent some countries from phasing out coal as they promised," says Jessica Jewell, Associate Professor at the Division of Physical Resource Theory at Chalmers University of Technology.

The study shows that the 72 countries' commitments to phase out coal power are similar to each other and in line with [historical data](#) for how quickly [coal](#) power was phased out in the past.

The study is published in the journal *Environmental Research Letters*.

More information: Vadim Vinichenko et al, Phasing out coal for 2 °C target requires worldwide replication of most ambitious national plans despite security and fairness concerns, *Environmental Research Letters* (2022). [DOI: 10.1088/1748-9326/acadf6](https://doi.org/10.1088/1748-9326/acadf6)

Provided by Chalmers University of Technology

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