# Fossil fuel giants drive surge in heatwave severity, study finds



Emissions from major fossil fuel and cement producers have been directly linked to significantly intensifying heatwaves globally, according to a groundbreaking study published in *Nature*. This research reveals that since the pre-industrial era, these emissions have made an average heatwave approximately 50 per cent more intense. The study analysed 213 heatwaves recorded between 2000 and 2023 from the international 'Emergency Events Database,' including the devastating 2022 heatwave in India, underscoring the broad geographic impact of rising temperatures.

The research team, comprising European experts including those from ETH Zurich, employed an attribution approach, a method designed to quantify how much human-driven climate change influences specific extreme weather events. Their findings indicate that emissions from 180 major carbon-emitting entities—comprising fossil fuel companies such as Saudi Aramco, Russia's Gazprom, Chevron, and coal-reliant nations like China and India—substantially contributed to the increased likelihood and intensity of all 213 heatwaves studied. The carbon majors are estimated to be responsible for around 57 per cent of all carbon dioxide emissions since 1850, a major driver behind global warming and the observed surge in extreme weather.

Significantly, the study estimates that roughly a quarter of these heatwave events would have been virtually impossible without the influence of human-caused climate change. The researchers highlight that climate change made typical heatwaves 20 times more likely during 2000-2009, and about 200 times more likely during 2010-2019, reflecting a rapidly escalating risk. Furthermore, individual carbon majors’ emissions were linked to enabling between 16 and 53 heatwaves that would not have occurred in a pre-industrial climate, suggesting that even smaller emitters play a considerable role.

This research adds to the mounting evidence that state-owned and investor-owned fossil fuel producers collectively bear significant responsibility for today’s climate crisis. According to data from the Carbon Majors database, 36 fossil fuel and cement producers account for more than half of the world’s greenhouse gas emissions in 2023. State-owned companies such as Saudi Aramco, Coal India, CHN Energy, the National Iranian Oil Company, and Jinneng Group contribute to nearly a fifth of these emissions, posing distinct challenges for regulatory accountability compared to private firms like ExxonMobil and Chevron.

Experts emphasise that such attribution studies are increasingly crucial, not only for understanding the escalating impact of climate change on extreme weather but also for holding specific companies and sectors accountable. Traditionally, studies focused on global or national emissions, but this research brings an unprecedented focus on individual emitters’ contributions to deadly heatwaves worldwide. The intensification of heatwaves—from Europe to Asia—spotlights the urgent need for comprehensive climate action and corporate responsibility to mitigate further harm.

In light of these findings, policymakers face renewed pressure to address emissions from the largest carbon producers, both state-backed and private, to curb the accelerating frequency and severity of heatwaves that threaten lives and ecosystems globally.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://www.awazthevoice.in/health-news/fossil-fuel-cement-companies-directly-responsible-for-making-heatwaves-c-more-intense-study-41487.html), [[7]](https://earth.org/fossil-fuel-companies-intensified-hundreds-of-heatwaves-worldwide-this-century-study/)
* Paragraph 2 – [[1]](https://www.awazthevoice.in/health-news/fossil-fuel-cement-companies-directly-responsible-for-making-heatwaves-c-more-intense-study-41487.html), [[2]](https://apnews.com/article/e9be54006402f5da9b5fe17d3c7596ec), [[3]](https://www.aa.com.tr/en/environment/study-links-fossil-fuel-giants-to-surge-in-heatwaves/3684846)
* Paragraph 3 – [[1]](https://www.awazthevoice.in/health-news/fossil-fuel-cement-companies-directly-responsible-for-making-heatwaves-c-more-intense-study-41487.html), [[2]](https://apnews.com/article/e9be54006402f5da9b5fe17d3c7596ec), [[3]](https://www.aa.com.tr/en/environment/study-links-fossil-fuel-giants-to-surge-in-heatwaves/3684846), [[5]](https://abcnews.go.com/Business/wireStory/study-links-frequent-severe-heat-waves-pollution-major-125442762)
* Paragraph 4 – [[6]](https://www.ft.com/content/7ba9da9c-2bba-4c0d-8ea0-ba907325a611)
* Paragraph 5 – [[1]](https://www.awazthevoice.in/health-news/fossil-fuel-cement-companies-directly-responsible-for-making-heatwaves-c-more-intense-study-41487.html), [[2]](https://apnews.com/article/e9be54006402f5da9b5fe17d3c7596ec), [[3]](https://www.aa.com.tr/en/environment/study-links-fossil-fuel-giants-to-surge-in-heatwaves/3684846), [[4]](https://www.abc.net.au/news/science/2025-09-11/heatwaves-more-likely-climate-change-nature-major-emitters/105747138)

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## Bibliography

1. <https://www.awazthevoice.in/health-news/fossil-fuel-cement-companies-directly-responsible-for-making-heatwaves-c-more-intense-study-41487.html> - Please view link - unable to able to access data
2. <https://apnews.com/article/e9be54006402f5da9b5fe17d3c7596ec> - A recent study published in *Nature* reveals that emissions from major fossil fuel and cement producers have significantly increased the frequency and severity of heatwaves worldwide. Researchers analysed 213 heatwaves between 2000 and 2023 and found that 55 of them would have been virtually impossible without human-induced climate change. The study attributes 57% of carbon dioxide emissions since 1850 to just 180 major cement, oil, and gas producers, highlighting the substantial impact of these companies on global warming and extreme weather events.
3. <https://www.aa.com.tr/en/environment/study-links-fossil-fuel-giants-to-surge-in-heatwaves/3684846> - A study published in *Nature* has directly linked the emissions of major fossil fuel companies and cement producers to the rising frequency and intensity of deadly heatwaves. By analysing 213 significant heatwaves between 2000 and 2023, researchers concluded that nearly one-quarter would have been 'virtually impossible' without human-caused climate change. The study also found that the emissions of the carbon majors are responsible for half of the increase in heatwave intensity since the mid-19th century.
4. <https://www.abc.net.au/news/science/2025-09-11/heatwaves-more-likely-climate-change-nature-major-emitters/105747138> - A new study found that around a quarter of heatwaves from 2000 to 2023 would be nearly impossible without climate change. The analysis also indicated that 180 major carbon emitters, including companies like Chevron and BP, are collectively responsible for around 50% of the increase in intensity of heatwaves in the 21st century. The study highlights the significant role of these companies in contributing to global warming and extreme weather events.
5. <https://abcnews.go.com/Business/wireStory/study-links-frequent-severe-heat-waves-pollution-major-125442762> - A new study has determined that 55 heatwaves over the past quarter-century would not have happened without human-caused climate change. Planet-warming emissions from 180 major cement, oil, and gas producers contributed significantly to all of the heat events considered in the study, which was published in the journal *Nature* and examined a set of 213 heatwaves from 2000 to 2023. The study underscores the substantial impact of these companies on global warming and extreme weather events.
6. <https://www.ft.com/content/7ba9da9c-2bba-4c0d-8ea0-ba907325a611> - A recent report from the Carbon Majors database has identified that 36 fossil fuel and cement producers are responsible for more than half of the world's greenhouse gas emissions in 2023. State-owned companies accounted for the majority among the top emitters, with Saudi Aramco, Coal India, CHN Energy, National Iranian Oil Company, and Jinneng Group contributing to nearly a fifth of global emissions. Investor-owned companies like ExxonMobil and Chevron made up 5 percent. The findings highlight challenges in holding state-run firms accountable compared to privately owned enterprises.
7. <https://earth.org/fossil-fuel-companies-intensified-hundreds-of-heatwaves-worldwide-this-century-study/> - A first-of-its-kind study has found that the world's largest fossil fuel and cement producers have intensified hundreds of heatwaves worldwide this century. Researchers analysed 213 heatwaves that occurred between 2000 and 2023 across 63 countries and found that these events have become more frequent and intense as a result of climate change. The study highlights the significant role of major fossil fuel and cement companies in contributing to global warming and extreme weather events.