

The burning of coal has actually cooled the planet by about 0.17°C

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(<http://ccdatacenter.org/documents/BurningCoalCoolsPlanet.pdf>)

That the burning of coal would lead to a decrease of the Earth's atmospheric temperature may seem counterintuitive, but it is a result of the many ways in which the emissions from the burning of coal interact with the Earth's atmosphere. It is well known that the CO₂ from coal-fired plants acts to warm the atmosphere, and it is estimated that the CO₂ that has accumulated in the atmosphere from the burning of coal since 1750 would likely raise the atmospheric temperature by about 0.33°C. However, the burning of coal also releases significant particulate pollution (aerosols), which interact both with the incoming radiation and with clouds, thereby having a cooling effect. Since the estimated cooling effect from the aerosols is about 0.5°C, the net effect of burning coal is about 0.17°C of cooling.

The following figure shows the cumulative human CO₂ emissions by proportion, and indicates that about 32 percent of the historical CO₂ emissions have come from the burning of coal:

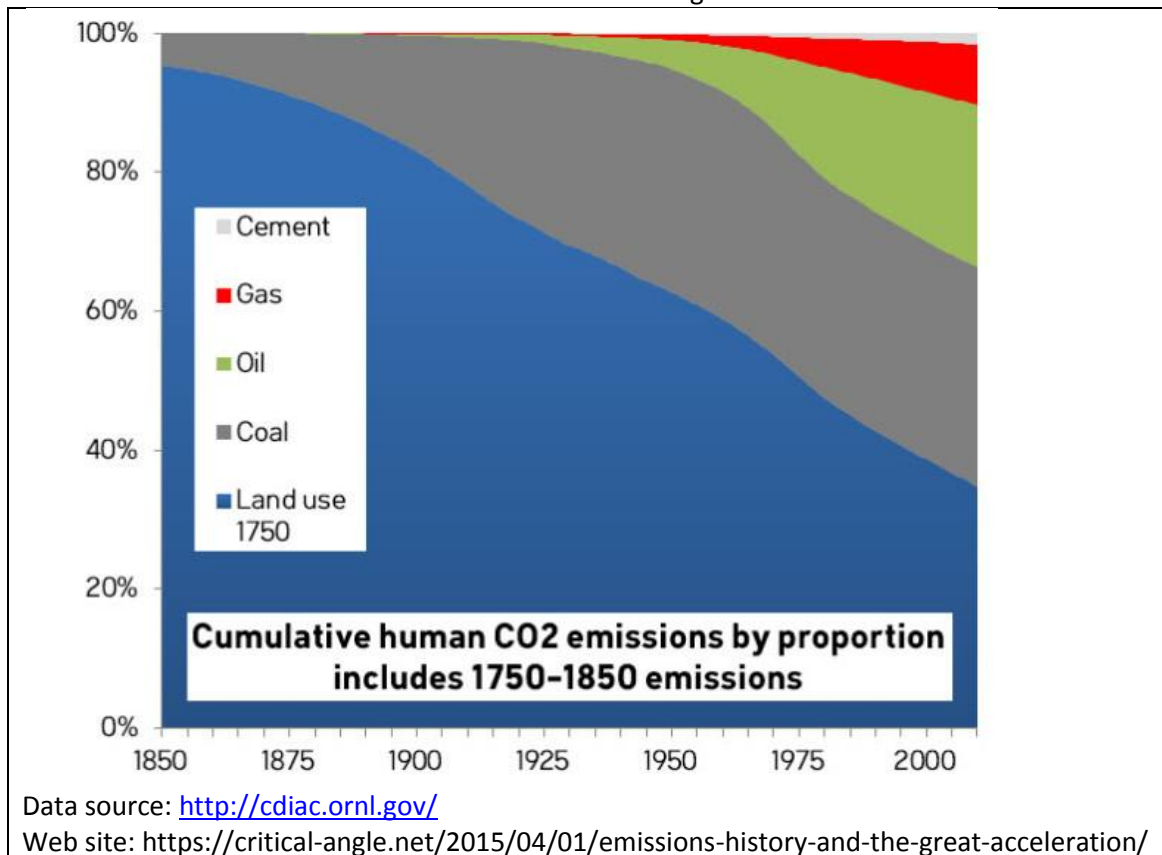


Figure 1 – Cumulative human CO₂ emissions by proportion

While greenhouse warming [from CO₂] would abate, the cessation of coal burning (if we were truly to go cold-turkey on all fossil fuel burning) would mean a disappearance of the reflective sulphate pollutants (“aerosols”) produced from the dirty burning of coal. These pollutants have a regional cooling effect that has offset a substantial fraction of greenhouse warming, particularly in the Northern Hemisphere. That cooling would soon disappear, adding about 0.5°C to the net warming.

http://www.huffingtonpost.com/michael-e-mann/how-close-are-we-to-dangerous-planetary-warming_b_8841534.html

Note: The above was reported on several blogs but I was not able to track down the original source. However, the IPCC reported that the total radiative forcings of sulfates, nitrates, and organic carbon was about -1.4 W/m², so if half of that is due coal, then the aerosols from coal reduce the radiative forcing by about 0.7 W/m²; and if more than half is due to coal then the aerosols could easily be masking 0.5°C

The following table shows the calculations used to determine the temperature change due to the CO2 from the burning of coal:

Component	Value
CO2 (all)	1.68 W/m ² (IPCC AR5)
CO2 (Coal)	0.54 W/m ² (1.68 x .32)
Equivalent PPM increase	42 (275 * POWER(2.718,(0.54+2)/5.35) – 400)
Temperature change due to coal	0.33°C (=3.1*(42/400) – for Climate Sensitivity = 3.1 and starting concentration of CO2 around 400 PPM)
Temperature change due to aerosols from coal	-0.50°C
Net impact of temperature of CO2 from burning coal	-.17°C