

# Coal and India beyond COP26 – Why the long phase?

*The criticism around India's role in the text change from coal 'phase out' to 'phase down' in the final COP26 declaration is much ado about nothing.*

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The two-week-long UN Climate Change Conference (COP26) concluded with the negotiated terms detailed in the Glasgow Climate Pact. According to the International Energy Agency (IEA), in the most optimistic scenario where all the announced pledges are achieved, global mean temperature rise can be limited to 1.8°C by 2100. Even if complete implementation may be unlikely, in terms of ambition and ratcheting, COP26 has made progress, albeit incremental.

On the other hand, developed countries refused to support the creation of the 'Glasgow Loss and Damage Facility', which was meant to help vulnerable countries, and rejected new climate finance promises. Developing countries had estimated climate finance requirements at USD 1.3 trillion annually, up to 2030, of which half would be for adaptation, but none of these details made it to the final draft of the Pact. The developed world, even decades after becoming so, has still not phased out fossil fuels, which include coal, oil, and natural gas. Against this backdrop, the criticism around India's role in the text change from coal 'phase out' to 'phase down' in the final COP26 declaration is much ado about nothing. They distract us from the failures of historical emitters.

In the first week of COP26, India announced its net-zero target for 2070 and backed it up with shorter-term targets for 2030. The 500 GW target for non-fossil fuel-based power by 2030 shows India's commitment towards reducing the dependence on coal. Completely phasing out the (unabated) coal economy, which India will need to eventually consider to reach net zero, is a whole new level of challenge.

## INDIA'S COAL CONUNDRUM

With falling costs of power from renewable energy (RE) sources, particularly solar, the share of the power sector in India's annual coal demand, ~65% today, is likely to reduce over time. India's enhanced 2030 targets and continued efforts towards energy efficiency could lead to coal consumption for power to fall by almost 40% by 2050 (compared to today). With sufficient finance and technology availability—battery storage, carbon capture, etc.—the unabated use of coal can potentially be

phased out in the power sector post-2050.

The more challenging problem, however, is phasing down the industrial use of coal. Industrial processes such as the production of steel, cement, etc., need very high heat—temperatures of more than 1000 Degree Celsius. Using electricity to produce such high temperatures is not yet technologically feasible. Therefore, there is currently no alternative to burning fuels.

For rapidly developing countries such as India, the fuel for industrial heat requirement is an important determinant for decarbonisation. Significantly more so compared to developed countries where industrial production and, therefore, the need for fuel has saturated. India's cement and steel production are expected to triple by 2050 to meet our infrastructure development goals. If today's fuel shares continue to be used, industrial coal demand will reach more than 800 Mt by 2050, which is around 2.5 times today's amount.

## TRANSITIONS

So, what are the climate-friendly alternatives to coal as an industrial fuel, and how long will it take to make the transition? Biomass, especially when torrefied (heated to improve quality and energy density of biomass), is one option. It is already being used at smaller scales but is unlikely to be a game changer, considering availability and other sustainability issues. The use of biomass along with alternative fuels such as fly ash (a by-product of coal combustion) and other wastes could help increase thermal substitution in the cement industry to ~50%, bringing down coal requirements for cement production.

In the steel sector, according to the National Steel Policy 2017, blast furnace–based production (BF-BOF plants) is expected to be the largest share, which will require over 180 Mt of coal by 2030. Since BF-BOF plants cannot be electrified, green hydrogen, once commercially viable, could be an alternative to coal. However, hydrogen-based steel production is still in its nascent stages, accounting for 0.1% of global steel production.

Through these interventions in the cement and steel industries, coal demand from these sectors could be lowered by 25%–30% from the otherwise projected estimate or counterfactual.

Other transformational changes need to be considered if we want to reach net-zero emissions in the industrial sector. Phasing out BF-BOF plants and moving towards

electric arc furnaces, reducing demand through recycling and the use of alternative materials, and reducing clinker to cement ratio (through the use of clinker substitutes) are some examples. Further, nuclear power plants can provide high temperatures, and several countries, including Sweden, Switzerland, and recently China, have used heat from nuclear power plants for industrial and district heating.

Apart from the demand for coal and lack of immediate alternatives, the other challenge in phasing out coal is that millions of jobs and livelihoods are directly or indirectly dependent on the coal sector. Revenues for the Indian Railways are also heavily dependent on transporting coal. Phasing out coal is, therefore, a complex process and will require systematic planning.

## CONCLUSION

Phasing down coal from the power sector makes economic sense given the falling costs of RE-based electricity and will most likely be the path that India takes. To phase down unabated coal from the industrial sector and eventually phase it out from both sectors would require commercial availability of technologies such as carbon capture, batteries for grid storage, and green hydrogen. This is contingent on support from developed countries in terms of low-cost finance and technology transfer or co-development. The focus should be on climate action rather than words.

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