

The saga of regulating India's thermal power emissions

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On 30th December 2024, the environment ministry (MoEFCC) issued a notification amending the Environment Protection Rules by pushing back the deadline for thermal plants to comply with sulphur dioxide (SO₂) emission norms by three years without giving any reasoning. As it happens, the existing deadline for about 20 gigawatts (GW) of thermal plants, all located in close proximity to densely populated areas, was 31st December 2024. This is just the latest instance of a nearly decade-long saga that would appeal to fans of Franz Kafka.

MoEFCC notified revised emission norms for Indian thermal plants in December 2015 after public consultations, and all thermal plants were expected to comply with them by December 2017, though it was a tight deadline. This notification tightened the prevalent norms for particulate matter emissions and introduced norms for other emissions, including SO₂, for the first time. These norms were understood to be broadly on par with existing practices in countries such as Australia, China and the United States.

Indian coal generally has a lower sulphur content than other coal, which should have made it easier for Indian thermal plants to meet the SO₂ emission norms. But rather than focusing on the best ways to meet the norms given Indian coal's characteristics, the debate morphed into the challenges around implementing the Flue Gas Desulphurisation (FGD) technology for desulphurisation of high-sulphur coal. Despite the norms never mandating FGDs, the discussion became about issues such as the scheduling of FGD installations given their long gestation periods and the likely costs of installing them.

In parallel, a different discourse questioning the SO₂ emission norms themselves also took shape, often driven by different arms of the government. The Central Electricity Authority (CEA) published papers in 2020 and 2021, questioning the need for uniform norms across the country and proposing that its implementation be phased out till 2035 across the country. CEA also commissioned a study from IIT Delhi in 2022 which concluded that installation of FGDs does provide air quality benefits but argued for extending the timelines due to issues such as FGDs being expensive, their supply chain being inadequate, and their operation leading to increased coal consumption (and hence greenhouse gas emissions). In 2024, NITI Aayog commissioned the CSIR-National Environmental Engineering Research Institute to conduct a study on this. This study concluded that SO₂ emission norms are not important to achieve good ambient air quality in India, and instead the focus should be on particulate emissions. There was also one strand of debate about secondary aerosol formation from SO₂ emissions as the reason to have norms for it even though Indian coal is relatively low-sulphur. Thus, rather than debating these issues and building a consensus *before* notifying the first set of norms, it continues robustly nearly a decade *after* notifying them.

In the midst of these debates, MoEFCC both diluted some norms and also extended the timelines for compliance multiple times, with the December 2024 notification being the fourth in the series. As a result, there are different deadlines for thermal plants in different locations and for different types of emissions, with SO₂ emission deadlines being well after the deadline for other emissions. Indeed, the final deadline for compliance with other emissions, which include particulate matter emissions that are considered important by all government agencies, was 31st December 2024 with many plants having to comply from 31st December of 2022 and 2023. But it is not clear if various Pollution Control Boards are verifying adherence to even these norms as there is no easily available public source that provides this information.

Given the evolving timelines in the various MoEFCC notifications, many thermal plants have already tendered out contracts to install FGDs – though not at a pace required to meet their deadlines before the latest notification. This was enabled by electricity regulators introducing regulations to pass through the costs of installing FGDs and other pollution control equipment to electricity consumers, irrespective of whether emission norms are met, so that it is not a burden on thermal plants. As a result, though the earliest deadline for meeting SO₂ emission norms is now December 31, 2027, 22 GW of thermal plants have already installed FGDs. Additionally, 102 GW, nearly 50% of India's installed thermal capacity, is in advanced stages of setting up FGDs.

Given the new timelines for compliance, chances are that plants with FGDs will not run them since it would increase their cost of generation and hence push them down the preferred list of generators. As a result, electricity consumers are likely to be paying for installed but unused equipment, even as citizens living around thermal plants do not get the benefit of cleaner air for at least three more years, if not longer.

Perhaps this modern variant of Birbal's 'khichdi' will one day get cooked, but the institutional, environmental, health and financial costs of doing so is likely to end up being quite high. And, unlike the original fable, it is not even clear whether the right lessons would be learnt from this saga.

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