

## Costly solution: Careful on flue gas desulphurisers

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**FGDs that power plants are mandated to install will have their own environmental costs, and the country will have to heavily rely on expensive imports to install these**



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**By R Srikanth**

On July 14, the National Green Tribunal (NGT) advised an NGO to approach the Central Pollution Control Board (CPCB) for highlighting some of the technical issues related to SO<sub>2</sub> emission. This may be a blessing in disguise for the power sector, and may allow the ministry of environment & forests and climate change (MoEFCC) to correct some of the steps that it probably took in haste without examining the implications of its mandate on the economy.

In December 2015, MoEFCC notified the Environment (Protection) Amendment Rules (EPAR), aimed at reducing emissions of particulate matter (PM), sulphur dioxide (SO<sub>2</sub>), and oxides of nitrogen (NO<sub>x</sub>) from coal-fired thermal power plants (TPPs). While the initial deadline for compliance was December 2017, the deadline was

extended to December 2022 by the Supreme Court. This time extension was necessitated because even government-owned TPPs had not placed orders for Flue Gas Desulfurisers (FGDs) till December 2017.

This indicates that MoEFCC had issued their notification in haste, without considering crucial operational and financial aspects of implementing such order. In August 2017, the self-goal of MoEFCC became obvious when ministry of power informed Parliament that FGD installations take at least 24-36 months. This is essentially due to the dependence on foreign entities for technology transfer as well as supply of critical equipment.

As per the Central Electricity Authority's report on FGDs, out of the 441 TPP units which are mandated to install FGDs, only four have managed to have these installed till date. Further, only 100 TPPs (including 73 government-owned plants) have ordered FGD equipment. Considering the time required (24-36 months) to design, install, and commission the FGDs, more than 340 TPPs cannot meet the 2022 deadline.

NTPC's submission to the Central Electricity Regulatory Commission provides an estimate of the additional capital expenditure—Rs 0.78-0.86 crore per megawatt (MW) is required to comply with the new emission norms. Specifically, retrofitting of FGDs will increase the auxiliary power consumption of the TPP by 1.7-2%, which will increase the specific coal consumption and CO<sub>2</sub> emissions. FGDs also impose additional operating costs to operate and maintain the system and increase the water requirement of TPPs. Finally, the shutdown of operating TPPs (for retrofitting the FGDs) will result in revenue losses for already stressed TPPs. Therefore, installation of FGDs in operating TPPs will increase the discoms' power procurement cost.

NTPC may have the finances to retrofit such FGDs, but the financial health of state-government-owned gencos and IPPs do not permit them to make these costly investments since the central government has shown its unwillingness to provide any financial aid for retrofitting FGDs. This is despite the fact that the central government is collecting more than Rs 280 billion on account of coal cess (@ Rs 400 per ton) which was originally introduced in 2010 inter alia to finance clean energy initiatives, but has been subsumed into the GST compensation fund from FY18.

The state governments are already struggling in an economy that may take two years to recover from the Covid-19 crisis while the gencos are now saddled with nearly Rs 1.2 trillion of overdue payments from the discoms. Several operating TPPs will have to shut down in an unplanned manner, if the deadline of December 2022 is not extended by the government.

Technically, too, the retrofitting of FGDs to enforce SO<sub>2</sub> emission will cause collateral damage on the environment such as incremental mining and transportation of limestone, additional water requirement, burning of more coal to meet the auxiliary power requirement, and generation of gypsum (a by-product with heavy metals) which

creates its own issues related to waste disposal. Last but not the least, FGDs will also enhance specific CO<sub>2</sub> emissions thereby negating the success of gencos in reducing specific CO<sub>2</sub> emissions by enhancing the use of supercritical technology.

Though the NGT did not pass any order against the MoEFCC, after the NGO—Veterans Forum for Transparency in Public Life—highlighted some of the above issues, the tribunal advised the NGO to approach CPCB for consideration of their viewpoints. All the above factors should prompt the MoEFCC to rethink on the merit of FGDs in the country.

FGDs are being imposed to limit SO<sub>2</sub> emissions from TPPs. However, MoEFCC may have overlooked the fact that Indian coals have lower sulphur-content compared to imported coal. Similarly, MoEFCC might have discounted the fact that height of TPP chimneys (220 – 275 meters) mandated by CPCB and the exit velocity of flue gases are designed to disperse SO<sub>2</sub> concentration below the ambient air quality standards under Indian tropical conditions. The efficacy of the CPCB standard regarding chimney heights for TPPs is demonstrated by the fact that the ambient SO<sub>2</sub> levels around most TPPs operated by Power Utilities in India are generally lesser than the 24-hour standard of 80 microgram/m<sup>3</sup> specified by CPCB.

MoEFCC/MoP must focus on reducing particulate matter (PM) pollution rather than SO<sub>2</sub>. Unlike high-performance Made-in-India Electrostatic Precipitators (ESPs) that can reduce PM pollution by more than 99.7% without major capital investments, FGDs have an import content exceeding 50% and involve outflows of foreign exchange to the tune of Rs 40,000 crore, besides their impact on CO<sub>2</sub> emissions, water consumption and power tariffs.

During the ongoing COVID-19 crisis, the ministries of coal and power, and the MoEFCC, must work together to expedite the utilisation of indigenous pollution control measures, such as coal beneficiation and high-efficiency ESPs. These, along with a calibrated transition path for Made-in-India FGDs for TPPs located in urban/sensitive/critically polluted areas, will not only help the power sector to breathe easy but also embody the true spirit of Atmanirbhar Bharat.

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