

Emission Watch: Delhi-NCR

Regulators, Coal-based power generators, and their ignorance of public health crisis

7th December 2021

Air Pollution across north India is a globally known health hazard that causes huge health and economic burden on its citizens. Various researchers have estimated contribution from a multitude of pollution sources contributing to the pollution levels in north India; amongst them, the contribution of coal-based power generation to air pollutant concentration varies between 2-25 % depending on the scope of the research, geography, time period considered for estimation of impacts and methodology adopted by the researchers. However, one certain thing is that coal-based power plants are a significant stationary source of air pollution in the Delhi-NCR region and many other geographies, i.e., Singrauli, Chandrapur, Korba, Chennai, Tuticorin, etc.

Acknowledging the contribution of coal-based power plants to air pollution, MoEF&CC¹ came out with a stricter emission standard notification for coal-based power plants in [December 2015](#).

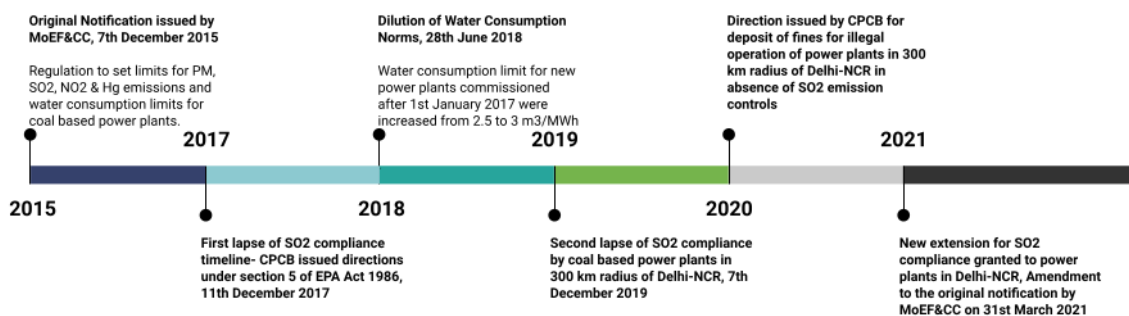
According to the notification, coal-based power plants had two years to retrofit with efficient pollution control technologies to reduce SO₂, NO₂, PM, and Hg emissions. At the same time, the notification also set a limit for water consumption for the power plants.

The power plant operators did not follow the initial deadline of two years (by 7th December 2017), and an extension in the timeline was provided by the CPCB² in [December 2017](#), extending the timeline for compliance to SO₂ norms to 31st December 2019. After which, all units except two units at Mahatma Gandhi TPP violated the emission limits from January 2020 to [March 2021](#) when another extension was granted to the power plants. As a result of the latest extension, the power plants in Delhi-NCR now have a time limit for the installation of SO₂ controls pushed to 2022 December, five years after the lapse of the first timeline and seven years since the announcement of the notification.

¹ Ministry of Environment, Forest and Climate Change (MoEF&CC)

² Central Pollution Control Board (CPCB)

While multiple extensions have been granted to coal-based power plants to control SO₂ emissions from their operations, the water consumption norms and NO₂ emission limits for power plants installed between 2003-2016 were diluted in [2018](#) and [2020](#), respectively.



While there were multiple attempts to dilute the SO₂ norms by the power generators and the government itself (CEA³ and MoP⁴ sighting various reasons like cost, space constraint, etc.) CEA has also gone to the extent of advocating extending the timeline till 2035 and seeking exemption for units in areas with low SO₂ concentrations. However, the report by CEA fails in acknowledging the basic fact that SO₂ is a reactive gas and converts to PM_{2.5}, forming a significant part of the dangerous pollutant leading to health impacts and economic loss.

Another report by CREA⁵ found that the operation of power plants in Delhi-NCR with pollution controls in line with the emission standard notification would have negated:

- 3000 lives lost,
- 3.2 million work absence days,
- > 4700 preterm births,
- > 7700 Asthma emergency room visits and
- ~3000 COPD cases in 2018.

³ Central Electricity Authority (CEA)

⁴ Ministry of Power (MoP)

⁵

https://energyandcleanair.org/wp/wp-content/uploads/2021/03/Health-and-economic-impacts-of-unabated-coal-power-generation-in-Delhi-NCR_Report-22nd-March-2021_Final-Report.pdf

The report also estimated that the operation of power plants according to the standards would have saved nearly ₹4800 Cr in 2018 by avoiding welfare losses and forgone labor costs caused by air pollution impacts.

300 km radius of Delhi-NCR has more than 13500 MW installed coal-based power generation capacity (12 power plants), out of which:

- **Only 2160 MW (four units at Dadri and two units at Mahatma Gandhi Power Plant) have commissioned FGD to control SO₂ emissions.**
- **Out of the remaining ~11490 MW capacity, 5860 capacity (2480 MW under Central Sector & 3380 Mw under private sector) have awarded the bid,**
- **5660 MW has not even awarded the bids, showing no willingness to comply even with the extended December 2022 deadline.**

Table: Status of FGD installation at coal-based power plants in 300 km radius of Delhi-NCR

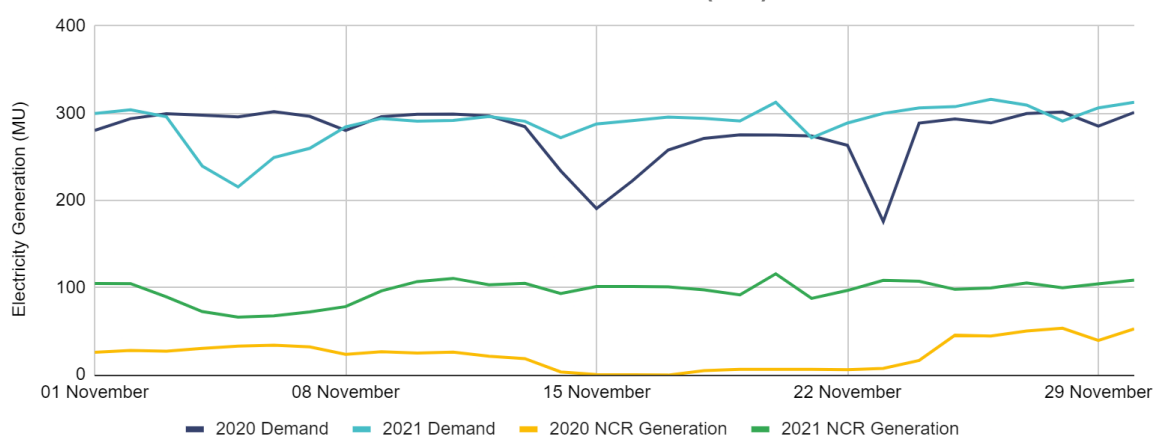
S.NO.	Power Plant	Sector	Installed Capacity	FGD status
1	Harduganj TPS	State	610	Tender Specification Made (Unit 8&9) * No info about Unit 7
2	Yamuna Nagar TPS	State	600	Bid Opened (Unit 1&2)
3	Mahatma Gandhi STPS	Private	1320	Commissioned (Unit 1&2)
4	Panipat TPS	State	920	Bid Opened (Unit 6-8)
5	Rajiv Gandhi TPP	State	1200	NIT Issued (Unit 1&2)
6	Indira Gandhi TPP	Central	1500	Bid Awarded (Unit 1-3)
7	Goindwal Sahib TPS	Private	540	Bid Opened (unit 1&2)
8	Guru Gobind Singh TPS	State	840	NIT Issued (Unit 3-6)
9	GHS TPS	State	920	Feasibility Study Completed (Unit 1-4)
10	Rajpura TPS	Private	1400	Bid Awarded (unit 1&2)
11	Talwandi Sabo TPS	Private	1980	Bid Awarded (Unit 1-3)
12	Dadri TPS	Central	1820	Commissioned (Unit 1-4), Bid Awarded (unit 5&6)

Case for Shut Down of Polluting Units during Winter Months

The data presented in the following figures show that the coal-based power plant in the 300 km radius of Delhi-NCR generated negligible or no electricity from 14th November 2020 to 23rd November 2020, when the electricity demand ranged between 175 MUs-275 MUs. Also, figure three represents the data for the electricity shortage, which shows the shortage to be in the range of 0-5⁶ MUs (0.65% of highest demand day, 20th November 2020).

The above facts depict that the electricity generation from other sources and import from other regions was able to meet most of the demand for Punjab, Haryana, and Delhi in November 2020. The demand met by other sources and imports for Punjab, Haryana, and Delhi was approximately 269 MUs on 20th November 2020, showing that the region could meet any such or lower demands without operating coal-based power plants in 300 km radius of Delhi-NCR.

Coal-based electricity Demand in Punjab, Haryana & Delhi with Delhi-NCR Coal based Generation (MU)

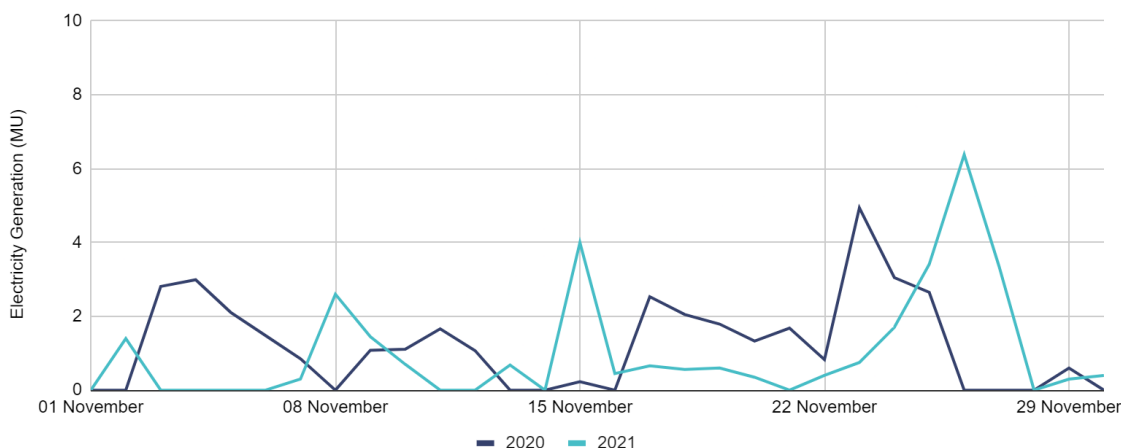


If power plants with FGD commissioned (Mahatma Gandhi and Dadri power plant) are operated at 85% PLF, these two plants alone will produce >44 MU/Day, ensuring around 314 MUs/Day from these two plants, other sources, and imports⁷. i.e., there is a case to be made for shutting down power plants within 300Km during the winter season.

⁶ 5 MUs shortage was seen on lowest demand day (175 MUs), 23rd November 2020, showing it was not due to lack of grid constraints.

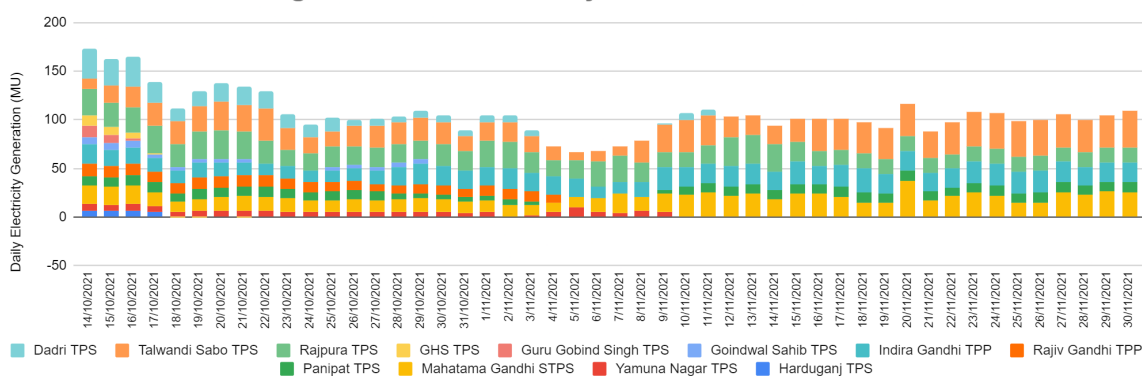
⁷ These numbers does not look at peak demand but are based on total energy requirement for the day

Electricity Shortage in Punjab, Haryana & Delhi (MU)



Due to hazardous air quality, CAQM issued direction on 26th November 2021 directing all power plants except five (Rajiv Gandhi TPP, NTPC Jhajjar; Rajiv Gandhi TPP, RGTPS, Hisar; Panipat TPS, HPGCL; Rajpura TPP, Nabha Power Ltd., and Talwandi Sabo TPS, Mansa) to be under shut-down till 30th November 2021. The directions were further extended till 15th December on 30th November 2021 as the air quality was still in adverse range.

Plant wise generation of electricity in 300 Km radius of Delhi-NCR



Although this is a good move to direct closure of power plants by the CAQMS because, in adverse air quality conditions, the key to improving air quality is reducing emission load; however, the directions issued by CAQMS falls short because:

- All other power plants were anyway not operated since 12th November 2021 due to low demand or other reasons, so the action could not effectively result in any emission load reductions

- *Four units at Dadri Power Plant, which have FGD controls installed, were also directed to close by CAQM. In contrast, others without SO₂ controls were allowed to operate, meaning relatively higher emissions and pollution. Instead, the four units at Dadri that have installed SO₂ controls could have been allowed at the place of others who do not have FGD installed.*

After the lapse of the second extension given to the power plants in Delhi-NCR to reduce SO₂ emissions, CPCB issued directions to the non-compliant power plants in [May 2020](#), directing them to deposit a fine of Rs 180000 per month per non-compliant unit⁸. However, the power generators challenged the directions, and later, because of another extension secured in March 2021, no penalties were deposited by any violators. Securing extensions after the lapse of earlier timelines and legalization of violations is a dangerous precedent to be adopted and should be done away.

Recommendations:

- Install SO₂ control at all power plants immediately without any further delay.
- Penalize power plants that have not awarded the bids till now, as it required at least 18 months to install FGD after bid award, meaning if a unit has not awarded the bid, they will not be able to install FGD by December 2022 (deadline as per 31st March 2021 amendment).
- Operate power plants with SO₂ controls at maximum capacity to reduce the need for power plants without FGD controls.
- CAQMs and CPCB should utilize air quality forecasting system efficiently and regulate the operation of polluting power plants in a proactive manner directing them to shut down if they do not have pollution control devices or only operate the most efficient plants if the plants with FGD controls cannot meet the demand deficit left after generation from plants with FGD and imports from other sources and regions.
- Real-time and historical emissions from power plants units should be made available to the public through a common platform by CPCB or CAQM to enhance accountability and transparency.
- Shut down the non-compliant coal-based power plant units from October - February.