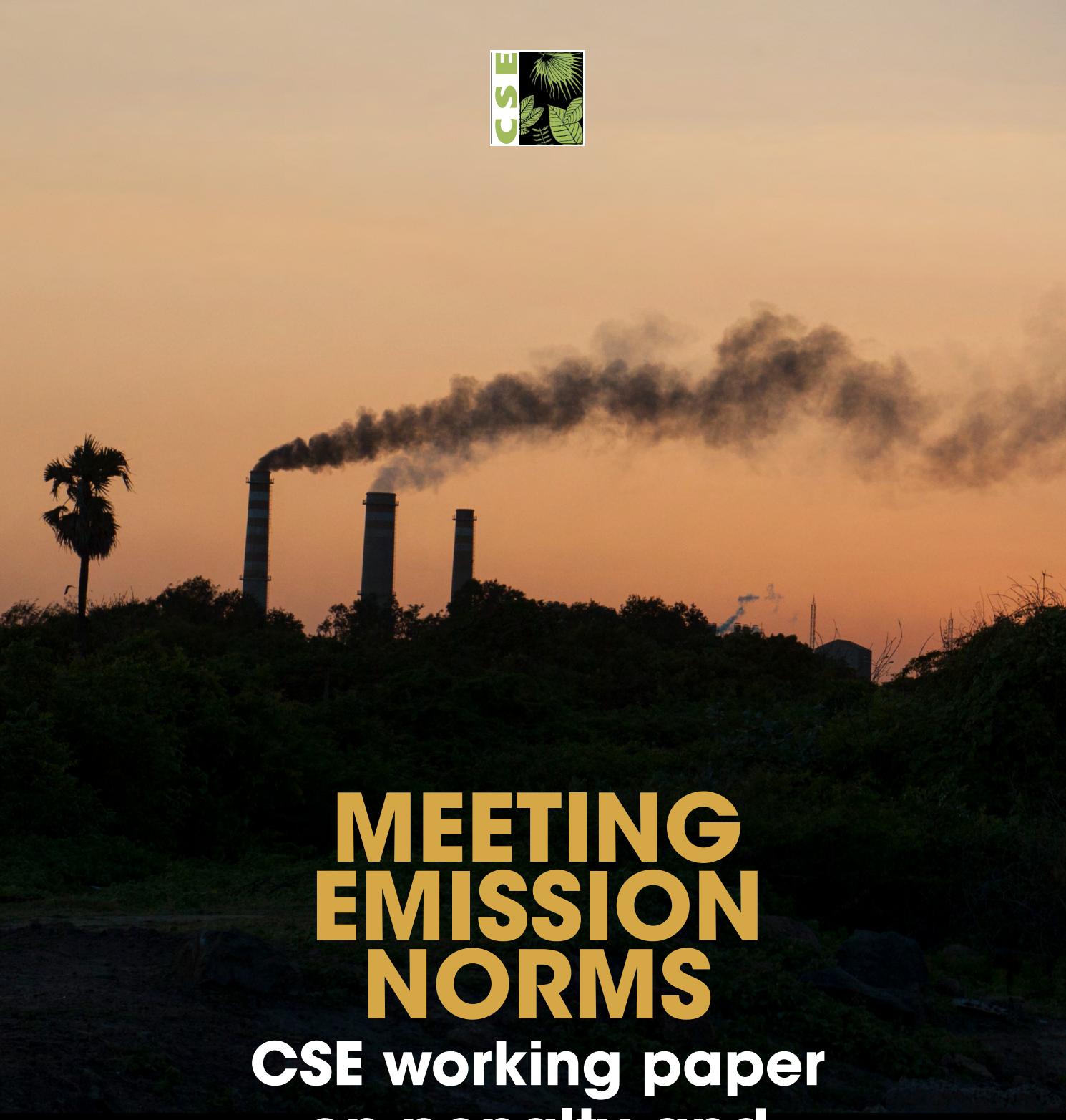

MEETING EMISSION NORMS

CSE working paper on penalty and incentive mechanisms for coal-based power plants

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1. Background

Current status of coal-based power

Coal-based power is one of the most resource-intensive and polluting industries. In a long-overdue action, on 07 December 2015, the Ministry of Environment, Forestry and Climate Change (MoEFCC) introduced stricter environmental standards for coal-based thermal power plants (TPPs) under the Environment Protection Act, 1986.

However, a new survey by the Centre for Science and Environment (CSE) shows that the revised deadlines of 2022 will not be met. Even after five years of announcing these norms, most plants have not taken adequate action and have not yet made significant progress. While three-fourths of the installed capacity could meet the deadline for particulate matter (PM) and also oxides of Nitrogen (NO_x), a massive 70 per cent of the installed capacity could miss the deadline for the sulphur dioxide (SO_2) standard (see *Figure 1: Current status of compliance*).

Installing a control device is critical to comply with SO_2 standards because:

1) During the retrofit shutdown of SO_2 control technology, power plants had planned an overhaul of PM and NO_x control equipment.
2) The SO_2 control technology also reduces mercury emissions, enabling the mercury requirements to be met.
3) SO_2 control systems work efficiently only when the PM and NO_x standards are met, which is another cross-check of compliance with standards. Since, at this stage, accurate emissions data on SO_2 is unavailable for many plants, a working flue-gas desulphurization (FGD) system in a power station can remain a cross-check.

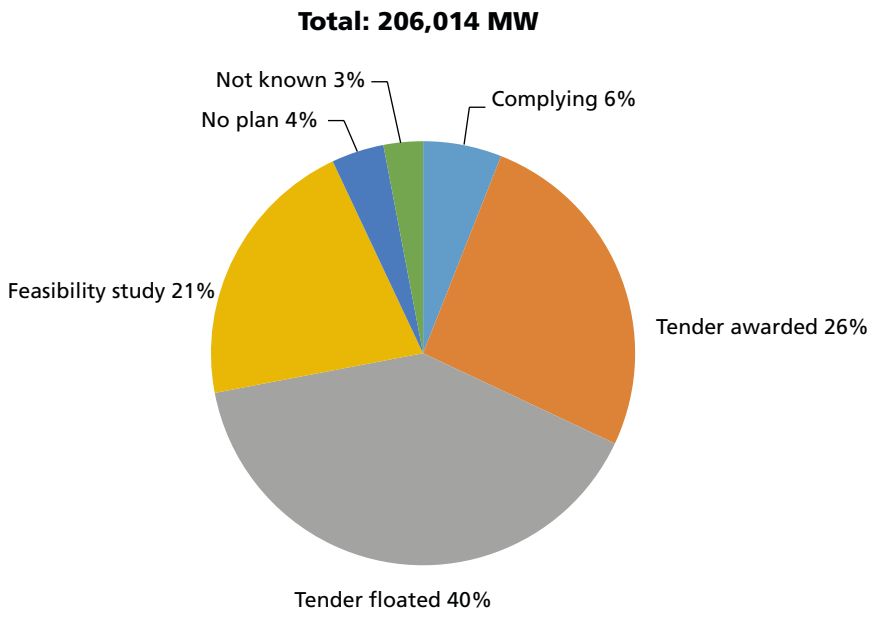
For these multiple benefits that SO_2 control systems provide, government agencies are closely monitoring the progress of SO_2 standards implementation. However, the delay in progress is evident, and remains unchecked.

CSE believes crucial measures are needed to be taken at this juncture to push power stations towards compliance. Any delay in implementation would mean a mockery of the government and the Supreme Court's (SC) efforts to reduce pollution from the sector. The Supreme Court has been closely monitoring the progress of implementation of the new emission norms. CSE recognizes the need for concerted efforts and systems based on incentives and penalties, which can aid in this process. Ideally, coal-based thermal power stations which are clean must be run continuously, and the rest should only be utilized on

70%

Of India's coal-fired power plants won't meet the 2022 deadline

Figure 1: Current status of compliance
Only one-fourth of the capacity will comply with SO_2 norms by 2022



Source: Centre for Science and Environment, 2020

a need basis. Only a few power stations, along with National Thermal Power Corporation (NTPC), are taking significant efforts to comply with the revised norms. CSE believes these stations which are putting in the effort, unlike their counterparts who are pushing back compliance, must be encouraged.

This paper aims to elaborate on the concept of 'first-run' which incentivizes cleaner power stations to run on priority. This could serve as a spur and bring in urgency in the coal-based power sector to abide by the 2015 emission standard deadlines. The paper also discusses the efficacy of the current deterrence system and the need to strengthen it.

2. How power is sold in India?

The Indian power sector value chain can be broadly segmented into generation, transmission, and distribution sectors.

The distribution companies or DISCOMS supply electricity to consumers like us depending on demand. Demand is the number of electricity units a household or industry or a commercial entity consumes. Depending on this demand, the DISCOMS sign contracts with power generation companies to buy electricity.

The power generation companies generates electricity. At an all-India level, the total installed generation capacity was 367,281 megawatt (MW) as on 31 December 2019. This includes coal, gas, thermal, renewable, and other sources of power generation capacity. A DISCOM could buy electricity from a power generation company in its own state or in another state. If the DISCOM signs a power purchase agreement with some other state, then electricity generated by this generation company in the other state is transported with the help of a transmission company. The DISCOM pays the transmission company for its electricity transportation services. India has one large transmission company called the Power Grid Corporation of India Limited (PGCIL) which transports over 50 per cent of the electricity. Apart from PGCIL there are few other state players. India's regional grids (Northern, Eastern, Western, North-Eastern, and Southern) for power transmission are currently integrated into one national grid and can transfer nearly 75,050 MW of power.

Power market and electricity costs

More than 90 per cent of the electricity supplied to customers by DISCOMS is purchased in India through long-term contracts (typically signed for 25 years) with the power stations within their states or in other states. Particularly coal-based thermal power stations of over 200,000 MW have signed long term contracts with DISCOMS.

Only in the case of an imbalance in the grid, if there is a need for more power than the amount signed in the contracts, do DISCOMS approach the short-term power markets. There are two short-term power markets in operation in India—India Energy exchange and Power exchange India Ltd. Various captive generating power stations of industries sell a portion of the electricity generated in this market.

367,281 MW

Total installed power generation capacity in India

90%
Share of electricity supplied through long-term contracts

As mentioned earlier, the contract system is the predominant method opted for buying electricity in the Indian power market. The contract system guarantees assured electricity supply to the DISCOM and the power station is guaranteed to get its investment back with 11–16 per cent return on investment. The contracts signed between these thermal power plants and distribution companies guarantee two-part payment of costs—1) Fixed and 2) Variable.

Fixed cost

Power market and electricity costs

Fixed cost is the cost of installing and operating an electricity generation plant. Say, when constructing a 500 MW power station, a company invests Rs 2,500 crore towards purchasing boilers and other equipment and, in addition, it spends Rs 10–20 crore for maintenance by recruiting staff and repairing minor components when needed. This total cost of Rs 2500 crore + Rs 10–20 crore, along with 11–16 percent interest on the investment, is reimbursed to the company as fixed cost in a span of 25 years irrespective of whether it operates or it doesn't as per contracts by the DISCOMS. Typically, fixed cost for a brand new coal plant is Rs 1.5–2/unit of electricity in the first few years. It falls each year by a few paisa due to depreciation of assets. Depreciation of assets can be understood with the example of a car or a mobile—the resale value of which falls every year compared to its purchase value.

If after signing a contract with a generation company the DISCOM does not buy electricity for a few days, months, or years, this fixed cost will still need to be paid on an annual basis by the DISCOM for all 25 years of the contract (see Box 1: *The case of NTPC Badarpur*). The 25 years' time frame is considered as the useful life of the plant, hence contracts are signed for this time period.

After 25 years, if the plant is healthy and continues to operate, then the DISCOMS can choose to extend the long term agreements with these plants and will not pay fixed costs to the plant. Hence some DISCOM companies find it cheap to buy power from old plants which charge no fixed cost.

Variable cost

Power market and electricity costs

The cost of operating the power plant by purchase of coal and oil is variable expense/cost of production. The purchase cost of coal and oil is reimbursed by DISCOMS within a month and a half (45-day cycle) to the power station depending on the actual expenditure.

Box 1: The case of NTPC Badarpur

Badarpur Thermal Power Station was a power station located at Badarpur area in NCT Delhi. The power plant was one of the coal-based power plants of NTPC. It had an installed capacity of 705 MW and was commissioned in the 1970s. The old station had insufficient pollution control technology to limit pollution.

As a result, during the Great smog of Delhi (2017), the power plant was shut down to alleviate the acute air pollution suffered by residents of the city. It was restarted on 16 March 2017. Environment Pollution Prevention and Control Authority (EPCA) had proposed to close down the plant by July 2018. The Delhi DISCOMS were also supportive of the move as the plant was the most expensive in the entire portfolio of Delhi DISCOMS with the total cost of power from the plant being in the range of Rs 5–5.5 per unit. 'Every year, close to 2,000 MUs (million units) from BTPS are scheduled forcefully by SLDC (State Load Dispatch Centre) to Delhi,' according to a letter sent to Delhi Electricity Regulatory Commission (DERC) by one of the three DISCOMS supplying electricity to Delhi. The average cost of power procured from other sources ranged from Rs 2.5–3 which was 45% lesser than what BTPS was offering. Even when the plant is temporarily shut, power utilities continued to pay the fixed costs which ultimately reflected in the tariffs.

Even the then Union minister of state for coal, power and renewable energy Mr Piyush Goyal had agreed that the power purchase agreement and fixed cost terms were a major hurdle preventing its closure.'The Delhi government can shut down Badarpur power plant according to the power purchase agreement (PPA) after paying fixed cost to the company for recovering its investments,' he had said to the media. Delhi DISCOMS paid about Rs 300-400 crore as fixed cost even during the closure of the plant.

The shutdown date was delayed until October due to delays in the construction of a necessary substation and the plant was finally shut down permanently on 15 October 2018. NTPC Badarpur was approved fixed charges until 2018–19 by the Central Electricity Regulatory Commission (CERC). The CERC allowed Badarpur to collect Rs 30,858 lakh for 2016–17, Rs 31,913 lakh for 2017–18, Rs 32,530 lakh for 2018–19 irrespective of whether the plant operated or not in the respective years.

Merit Order Despatch (MoD)

One of the important roles of the distribution companies is to estimate the electricity demand from customers/consumers both in the short-term and the long-term and, accordingly, plan purchase of electricity from generation companies.

182,533 MW

Peak demand in FY 2019–2020

For this, they measure electricity demand in their locality every 15 minutes and then purchase power based on the needs. The need for electricity is much higher in some hours of the day, which are considered as the hours of peak demand. The peak demand stood at 175,528 MW during FY 2018–19 and 182,533 MW in FY 2019–2020. The demand at the other hours of the day can be very low. The distribution firms therefore sign several contracts with various thermal power stations to ascertain the supply of electricity during peak demands.

By signing such agreements each distribution company will create a pool of thermal power plants from which to buy electricity. During non-peak or low electricity demand, the distribution companies buy power from those stations whose cost of generating electricity/variable cost is the lowest among this pool of thermal power stations; however, they will be paying the fixed cost to all the power stations with which they have contracts. The rest of the stations are placed on standby and scheduled only when demand is high. This principle of scheduling cheapest power generating stations by variable cost is called merit order despatch.

The concept of MoD exists because of two reasons: 1) variation in fuel prices; and 2) most of the contracts signed by the DISCOMS are not originally signed by them but rather allotted by the Central Government, and DISCOMS are liable to run the cheapest of the lot.

Given that bulk of the power is procured through long-term agreements, the role of MoDs is limited only to variable costs.

3. The significance of clean power

To encourage clean power generation, the Indian government, under the Electricity Act, 2003, has asked for the scheduling of renewable energy generating plants on a compulsory basis irrespective of their cost. The Electricity Act, 2003 under section 86 (e) asks the state electricity regulatory commission to ensure distribution companies purchase the quantity of electricity that they (renewable energy companies) produce to satisfy the demands. Accordingly, the state and central electricity grid code regulations have incorporated such clean plants as 'must-run'. Further, they are scheduled for generation even before applying MoD principles discussed above. This means even if the price of electricity generated by renewable sources is over Rs 10 per unit, a state will still have to procure all the electricity generated by renewable sources like solar, wind, small hydro, and biomass. This measure has been introduced to promote running of cleaner, pollution-free power stations.

Till date, the installed capacity of renewable power stations in the country is 86,400 MW. Their electricity generation depends on weather conditions like sunlight and wind speed, which makes their production intermittent. Also, payment delays to renewable energy generators and curtailment remains a major hurdle to implementation of the must-run concept. In-fact, the Andhra Pradesh government is renegotiating contracts with renewable energy generators, which were installed few years back, over expensive renewable power. Nearly half the capacity installed in the state is affected with outstanding dues, with an average estimated delay of over 12 months until last year. Curtailment numbers are not available in public domain. According to Wind Association members in Tamil Nadu, curtailment up to 10–20 per cent is common. Tamil Nadu also has been delaying payments to renewable generators; however, the average estimated delay is less than six months. Overall renewable energy (RE) contribution to Indian power grid rermains less than five per cent.

The first challenge of the Indian government after transfer of power in 1947 had been ensuring 100 per cent electrification of India. Two years back, India achieved this milestone according to the government. Though this figure is disputed by researchers, the fact remains that the grid has reached the entire country. The next challenge is ensuring clean power gets supplied at affordable cost for sustainable development.

86,400 MW

Installed capacity of renewable power stations in the country

77%

Share of India's electricity generated by firing coal

Coal-based power and long-standing agenda of its clean-up

Coal continues to be the bulk energy provider, making up 205,312 MW or 89 per cent of the thermal power capacity. About 77 per cent (895 TWh, or terawatt-hour) of the country's total electricity generation is by firing coal in thermal power stations, which are distributed almost equally in the centre, state, and private sector.

Coal-based power is one of the most resource-intensive and polluting industries. It contributes to a disproportionate share of industrial-sector air pollution. Coal-based power stations emit 60 per cent of the total particulate matter, 45 per cent of the total sulphur dioxide, 30 per cent of the total nitrogen oxides, and more than 80 percent of the total mercury emitted by all industries in India.

To contain the pollution caused by coal-based power plants, MoEFCC introduced stricter environmental standards for coal-based TPPs on 07 December 2015. This was done under the Environment Protection Act, 1986. All TPPs were required to comply with the revised standards within a period of two years—by December 2017. The industry has been giving excuses and the deadline has been pushed to 2022 (see *Box 2: Coal-based thermal power plant norms—where the discussions stand now*). CSE analysis reveals that even this deadline will not be met by 70 per cent of the installed capacity. It is however to be noted that 30 per cent of the capacity is still striving to meet the norms.

NTPC is gearing up on all fronts to meet the norms. In fact, it has been the only company in the country which has installed a SO_2 pollution control system at NTPC Dadri ever since the announcement of the environmental norms in 2015. All the plants run by the NTPC are meeting the PM norms, they have awarded tenders to a significant capacity to upgrade their systems to meet the NO_x norms, and similar tenders have been awarded for over 59,110 MW of their capacity to meet the SO_2 norms.

Apart from NTPC, the following plants have already been running with an FGD—CLP India Pvt. Ltd at Jhajjhar, IL&FS Cuddalore, JSW Ratnagiri, Adani Dahanu, few units at Adani Mundra, Tata Trombay; smaller thermal power stations operating with CFBC boilers are meeting the SO_2 norms already. This quarter, four private-run power stations—Reliance Sassan, Reliance Rosa, TAQA Neyveli, and Sterlite Talwandi Sabo TPP with about 7,390 MW (9.5 percent capacity)—claim to have awarded tenders for installing FGD. Similarly, three state-run power stations—Karnataka Power Corporation Limited Raichur, Uttar Pradesh Rajya Vidyut Utpadan Limited Parichha and Anpara with a total capacity of about 4,220 MW (6.2 per cent)—claim to have awarded tenders for installation of FGD. These stations stand out in not adopting any delay tactics unlike others and in striving to meet the law. CSE believes that

Box 2: Coal-based thermal power plant norms—where the discussions stand now

- **December 2015:** Emission norms introduced for PM, SO_2, NO_x, water and mercury—two years given to meet the norms
- **September 2016:** Ministry of Power (MoP) appoints committee to revise deadline
- **September 2017:** The committee after discussions with TPPs says norms to be adopted in nine years.
- **October 2017:** Ministry of Power submits a revised report, after consultation with power stations to meet the norms by 2022, to Supreme Court
- **December 2017:** Applications filed at the SC seeking relaxation of NO_x and water norms by the Ministry—due to constant nudging by the industry
- **June 2018:** Specific water norms relaxed
- **May 2019:** NO_x norms are relaxed
- **July 2020:** FICCI, the industrial body, approaches PMO seeking relaxation in the deadline to meet the SO_2 norms alleging several components to install FGD need to be imported from China

an incentive to these plants appreciating their sense of commitment could drive the rest to compliance. However, deterrence is also required to push non-complying units down the ladder to ensure timely implementation.

First-run concept

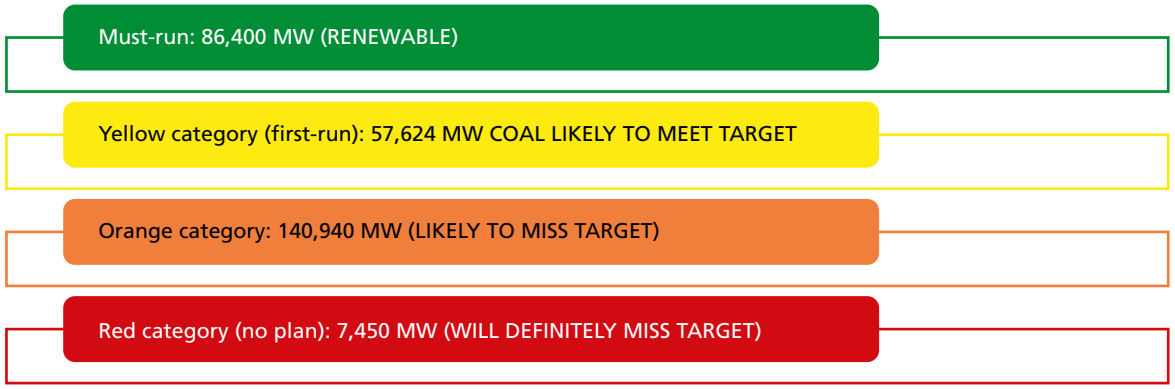
Power stations which are generating clean energy are incentivized by the country. Today, 86,400 MW (solar, wind, biomass, and small hydro) of renewable capacity or five percent of the total electricity generation in India, from these stations is scheduled as MUST-RUN as per Indian Electricity Grid Code (IEGC) irrespective of their cost. The rest of the power stations in the country are listed after these must-run plants as per their costs and scheduled under MoD.

Similarly, to encourage stations complying with the norms, CSE recommends that the plants complying with the norms will be called the 'FIRST-RUN' plants. These plants will also require a certificate from the pollution control board to certify they are complying or are suitably advanced in the direction to comply with the December 2015 environmental norms, mainly in emissions of PM, SO_2, and NO_x. A ranking of first-run power stations will have to be made and power procured from them on priority after must-run plants. This can serve as an incentive to motivate power stations which are materializing efforts to meet the new emission norms at the earliest. Fear of no operation or minimal operation can also drive the rest of the non-complying power stations to meet the norms at the earliest.

5%

Share of electricity generation in India scheduled as MUST-RUN as per IEGC

Figure 2: The four categories of power plants



Source: Centre for Science and Environment, 2020

CSE has studied in detail the large coal-based generation capacity of 206,014 MW. Broadly based on the deadlines and the status of compliance with FGD norms, CSE split the capacity into categories: Red, Orange, and Yellow (see *Figure 2: The four categories of power plants*). Red category plants are those which have no plans in place to meet the deadlines yet, Orange category plants are those which have not awarded tenders yet and are likely to miss the target, and Yellow category plants are those which have awarded tenders to install FGD or already have FGD in operation (57,624 MW) and are advanced in the direction of meeting the norms.

CSE advises that penalties be imposed on the Red and Orange category plants (see *Box 3: Existing penalty system on noncompliance*); and yellow category plants be encouraged to operate with first-run status.

Fixed costs are paid on plant availability, it does not matter whether electricity is actually bought from the plant or not. So not buying electricity from non-compliant plants does not make much of a difference to them. On the other hand, imposing a penalty on the non-complying power stations by restricting a portion of their operation will reduce the plant availability which in turn will affect the reimbursement of its fixed cost and could motivate the stations to install pollution control equipment at the earliest. It is necessary to incentivize units that are complying and penalize units that are non-complying. The current mechanism of penalty is inadequate to force the plants to comply with the limits. Strong deterrence mechanism should be coupled with the incentive scheme to drive higher compliance.

To understand how this first-run and penalty concept can work on ground in the current scenario, CSE has taken the example of Madhya Pradesh (see *Box 4: First-run concept application analysis*). The plants which are complying with the norms are listed after the must-run stations in the state as first-run plants. These stations are arranged in a descending order based on the variable

Box 3: Existing penalty system on non-compliance

Penalty on non-compliance can be computed two ways in the existing legal framework:

Type 1: Penalty formula of the CPCB
According to this method, for 330 days per year, a penalty of Rs 99,00,000 (or say Rs 1 crore) per annum for one pollutant violation can be charged.

Type 2: The Environment Protection Act, 1972
According to Section 15(1) of the Environment Protection Act, 1972, a maximum fine of up to Rs 1,00,000 a day can be charged for non-compliance. EPCA in its Report No. 81 dated 14 February 2018 recommended the same to the Supreme Court. The estimates indicate that assuming (on an average) three non-compliant pollutants, a unit would need to pay Rs 10 crore every year till it meets the standard.

An old power station unit, depending on its size, collects fixed cost of Rs 100–300 crore on an average even while it is not in operation (see *Table: Fixed cost collected by generating units*). In this case imposing a penalty of Rs 1–10 crore is miniscule. The plant could choose to pay the penalty and continue staying idle and collect fixed cost from the DISCOMS.

Table: Fixed cost collected by generating units

Unit size in MW	Fixed cost collected in a year, Rs Cr	Penalty imposed in a year by CPCB, Rs Cr
500	298	1.5
250	149	0.75
210	125	0.63

Source: Centre for Science and Environment, 2020

cost in the first-run category. Then, the rest of the stations which are likely to miss the targets are arranged in a descending order. These stations must be penalized by the state pollution control boards to operate at half their capacity on failure to meet the new norms. Plants operating at lower capacity cannot fully recover their fixed cost as they will have to show lesser availability to the regulators. This move can cause significant penalty to be borne by the stations.

Box 4: First-run concept application analysis

Typical daily demand for electricity in Madhya Pradesh state is 219,646 MWh. Five stations have been identified to qualify for first-run status. Depending on the technicality, by arranging them on the basis of cheapest first principle as in MoD, these stations can be scheduled on the basis of the first-run concept.

Table: New Generation schedule—including first-run concept

Station	Plant capacity (MW)	Capacity allotted to state (MW)	Fixed cost (Rs/ kWh)	Variable cost (Rs/ kWh)	Total cost (Rs/ kWh)	Category
FIRST-RUN PLANTS						
SASAN UMPP	3,960	1,396	1.46	0.17	1.63	Yellow
VTPS 2	1,000	304	1.66	0.7	2.36	Yellow
VTPS 1	1,260	408	1.76	0.86	2.62	Yellow
VSTPS 3	1,000	235	1.66	1.05	2.71	Yellow
SIPAT 2-WR	1,000	180	1.37	1.25	2.62	Yellow
SIPAT-1	1,980	325	1.35	1.32	2.67	Yellow
VSTPS 4	1,000	271	1.66	1.58	3.24	Yellow
VSTPS 5	500	135	1.7	1.67	3.37	Yellow
MAUDA-I	1,000	174	3.21	1.89	5.1	Yellow
DURGAPUR STEEL THEMAL POWER STATION (DSTPS)	1,000	100	-	-	0	Yellow
MEJIA TPS	1,340	200	-	-	0	Yellow
KSTPS-WR	2,100	457	1.34	0.69	2.03	Orange
PLANTS THAT ARE LIKELY TO MISS TARGETS						
STPS SARNI	830	830	2.53	0.83	3.36	Orange
KAHALGAON-II	1,500	70	2.37	1.1	3.47	Orange
LANCO AMARKANTAK POWER LIMITED (LAMKPL)	600	300	2.16	1.35	3.51	Orange
KSTPS 3-WR	425	74	1.31	1.4	2.71	Orange
MAUDA-II	660	119	2.87	1.42	4.29	Orange
ATPS (210MW) CHACHAI	210	210	1.56	1.49	3.05	Orange
STPS SARNI 10 & 11	500	500	2.09	2.04	4.13	Orange
SSTPS KHANDWA (SINGAJI)	1,200	1,200	2.74	1.54	4.28	Orange
MB POWER	600	210	2.42	2.05	4.47	Orange
JHABUA POWER	600	180	2.38	2.18	4.56	Orange
JP NIGRIE	1,320	495	0.59	2.31	2.9	Orange

Station	Plant capacity (MW)	Capacity allotted to state (MW)	Fixed cost (Rs/ kWh)	Variable cost (Rs/ kWh)	Total cost (Rs/ kWh)	Category
CHANDRAPURA THERMAL POWER STATION (CTPS)	760	-	-	-	0	Orange
JINDAL INDIA THERMAL POWER LIMITED (JITPL)	1,200	123	-	-	0	Orange
JP BINA	500	350	-	-	0	Orange
LARA-1	800	74	-	-	-	Orange
GADARWARA-I	1,600	800	-	-	-	Orange
SSTPS KHANDWA (SINGAJI)-II	1,320	660	-	-	-	Orange

*Only thermal power stations analyzed. No 'Red' category power station supplying electricity in Madhya Pradesh.

Source: Merit India portal, 2020

4. State-wise assessment of clean power

An overall assessment was done tracing the states which are buying electricity from cleaner coal-based thermal power stations, the variability in procurements, and the impact of first-run concepts on distribution companies/consumers. For this study, CSE has sourced data on compliance from the Central Electricity Authority and the information on contracts signed by these power stations with various DISCOMS from the portal: Merit order despatch of Electricity for Income Rejuvenation and Transparency.

State-wise contracts and supply: Current scenario

State-wise contract details were found for 166,688 MW of the total 206,014 MW of coal and lignite based thermal power stations in the country (see *Figure 3: State-wise contracts with coal-based thermal power stations*). A total of 33 states (including union territories) have signed contracts with coal-based thermal power stations to procure electricity. Majority of the contracts with coal-based thermal power stations are with the state of Maharashtra (about 25,000 MW) followed by ten states which have contracts over 10,000 MW with coal-based thermal power stations—Gujarat, Uttar Pradesh, Tamil Nadu, Madhya Pradesh, Andhra Pradesh, West Bengal, Haryana, Punjab, Telangana, and Karnataka.

First-run capacity: State-wise power supply analysis

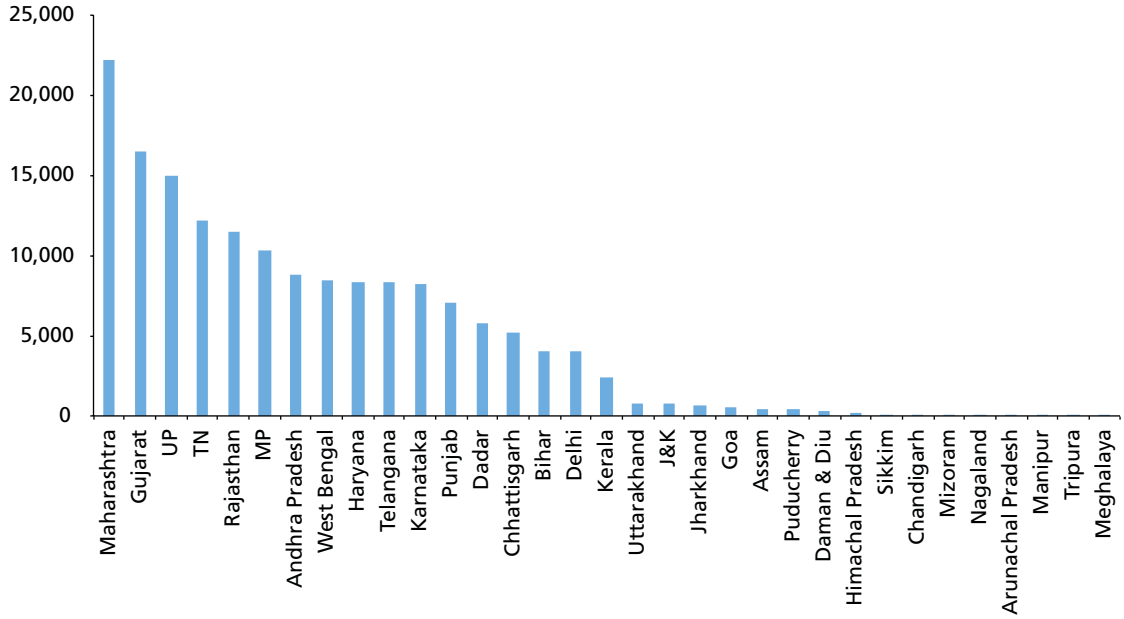
Maharashtra

State with majority of contracts with coal-based thermal power plants

Power stations which have already complied with the norms, and stations whose deadline is between 2020 and 2022 to meet the new norms and have awarded tenders to construct FGD systems to control sulphur dioxide, have been considered as capacity which qualify to be first-run/Yellow category in this analysis.

Figure 3: State-wise contracts with coal-based thermal power stations (capacity in MW)

Eleven states have signed more than 10,000 MW contracts with coal power stations



*For some states like Jharkhand complete data not available

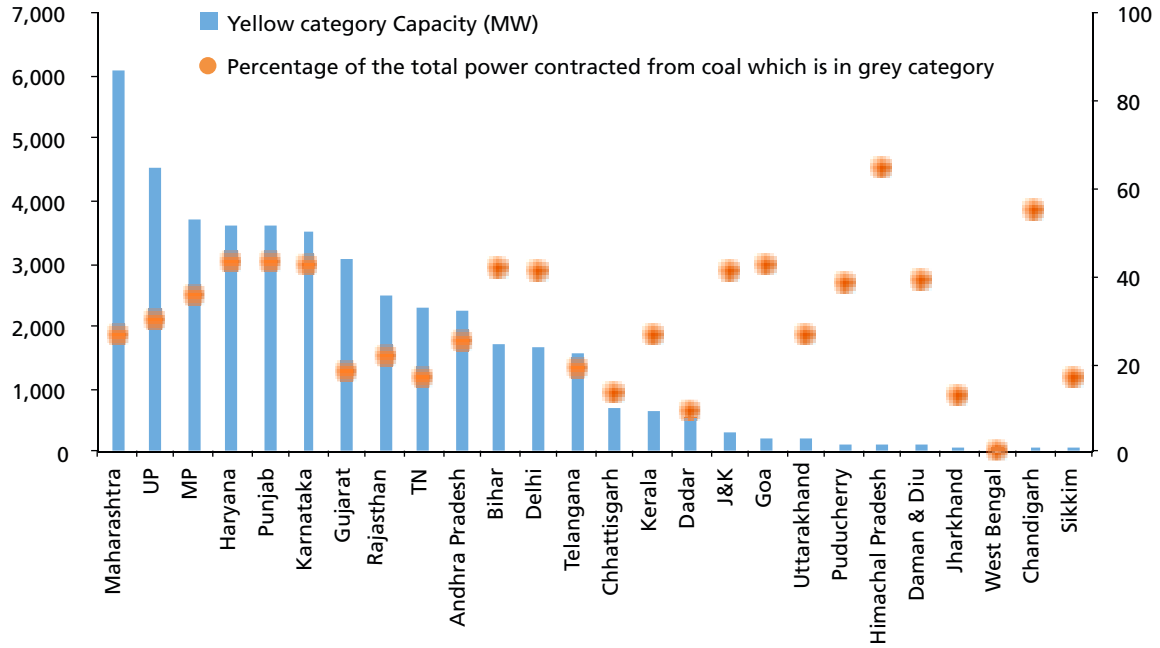
Source: MERIT India portal, 2020

Data was available in the Merit India portal only for 43,365 MW of the 57,624 MW which has been identified as first-run capacity. Accordingly, it was assumed that the rest of the power plants may not have power buying/purchasing agreements/contracts and might be selling power in the short-term markets.

On analyzing this data, it was found that Maharashtra has the maximum contracts with first-run or cleaner coal-based power capacity—the largest amongst other states in the country with about 6,000 MW of clean power capacity. After Maharashtra come U.P, M.P, Haryana, Punjab, and Gujarat with about 4,000 MW clean power capacity. However, in terms of percentage of total contracts with cleaner coal-based power stations—Himachal Pradesh has the highest at 65 per cent and West Bengal has the lowest at one per cent (see *Figure 4: Yellow category power stations—state-wise*).

Figure 4: Yellow category power stations—state-wise

Majority of the states have contracts to procure over 30 per cent of their electricity from clean sources



Source: Centre for Science and Environment, 2020

Limitations to first-run concept

Few states—West Bengal, Dadar, Chhattisgarh, Jharkhand, and Telangana—have less than 20 per cent contracts with cleaner generation. Most of the power stations which supply electricity to these states have to meet the deadline by 2021 and it is very unlikely they will meet the deadlines given their current stages of progress. Imposing a blanket ban on their operations will be difficult. Similarly, implementing first-run concept in these states might not bring in any momentum in pushing other capacity to comply.

Also, there might be technical limitations to scheduling first-run plants according to experts. Certain power stations must crucially operate to balance the grid and these are called load centre stations. The regional dispatch centre will be able to comment on the technical feasibility of scheduling all power stations identified on priority list as first-run. Transmission constraint could emerge as a major roadblock in materializing this concept to the fullest.

Therefore, the concept of first-run will be successful only by coupling it with a penalty measure. Reducing availability or allowing only part-load operation of power stations could be one option (see *Table 1: How decreasing availability could hit the profits and serve as deterrence*).

Notice issued by CPCB to a power station to operate at half its plant load factor can have magnitude effects. Pollution also increases with low-load; therefore, the board should allow operation of the plant for a restricted number of days

Table 1: How decreasing availability could hit the profits and serve as deterrence

Up to Rs 50 crore can be lost by a 210 MW unit on restricting its availability

Unit size in MW	Fixed cost collected in a year @availability 85%, Rs Cr* (A)	Fixed cost collected in a year @availability 60%, Rs Cr** (B)^	Fixed cost collected in a year @ availability 55% (technical minimum), Rs Cr** (C)
500	298	210	193
250	149	105	96
210	125	88	81

Note: Fixed cost assumed to be *0.8 Rs/unit; ** B = (0.50*A/0.85); and C = (0.55*A/0.85)—as per CERC formula. (The calculations are simplified. Variations of peak and non-peak and seasons of low and high demand have not been considered in the analysis.) ^60 per cent availability could be assumed break-even even though it varies widely across plants

Source: Centre for Science and Environment, 2020

on full load. Restriction on number of days of operation would imply the plant availability in turn is restricted. The fixed costs to power stations are heavily based on declared plant availability. Only at a 55–60 per cent plant availability (varies widely) will a plant break-even, meaning the cost spent to generate power will be fully recovered with no profits and no loss. Any decrease in availability will pose significant hit to fixed cost recovery—which in a way is a penalty on the power station. Executing this penalty will not require any change/modification in the current legal system; CPCB is empowered to enforce such a measure according to experts.

Where is red category capacity supplying electricity?

CSE identified following 39 units from eight plants with 'No plan' for implementation. Of these, more than half are state-owned. Over 80 per cent units (32 units) are smaller capacity units of less than or equal to 250 MW. Also, more than half of the units are old with age greater than 25 years (see *Table 2: Plants with 'No plan' for implementation*).

Table 2: Units that have no plans for implementation

CSE has identified the following 38 units from eight plants with 'No plan' for implementation, of which more than half of the capacity is state-owned. About 90 per cent (32 units) are smaller capacity units of less than or equal to 250 MW. Also, more than half of the units are old, aged over 25 years

Unit-wise	State	Sector	Capacity (MW)	Year of commissioning
Bandel units 1–5	West Bengal	State	1,050	1982
Dr N Tata Rao unit 6	Andhra Pradesh	State	210	1994
RRVUNL Kota units 1–4	Rajasthan	State	640	2001–2004
Kothagudem TPS (TSGENCO) units 1, 2, 4, 5, 7–10	Telangana	State	1,040	1966–1997
Neyveli TPS 1 units 1–9	Tamil Nadu	Centre	600	1962–1970
North Chennai TPS (TANGEDCO) units 4–5	Tamil Nadu	State	1,200	2014
Panipat units 5–8	Haryana	State	920	2001
Raikheda TPP (GMR Energy) units 1–2	Chhattisgarh	Private	1,370	2015–2016
MPPGCL Satpura	Madhya Pradesh	State	420	1983–1984

Notes: Progress status as of July 2020

Source: Centre for Science and Environment, 2020

5. Conclusion

The time has come to look for power from cleaner sources. Power generation, pollution from burning coal, and related impacts on human health cannot be dealt with in isolation. Today, the possibility of affordable clean power would mean power from sources which do not create pollution in the local region/area. In this bracket, renewable power generation capacity of 86,400 MW, hydropower generation capacity of 45,399 MW, natural gas power stations of 24,937 MW, and the coal-based power stations of 57,624 MW can be included. These stations run with minimum level of pollution to the immediate surroundings.

Assuming a plant load factor of 20 per cent for hydro, 10 per cent for natural gas, 98 per cent for clean coal, and 20 per cent for renewable energy, up to 553 billion units of electricity can be generated. The peak load demand stood at 175,528 MW during FY 2018–19, and 182,533 MW in FY 2019–2020. CSE estimates this peak demand corresponds to 1,500–1,600 billion units (see *Figure 5: Generation of power from clean sources*).

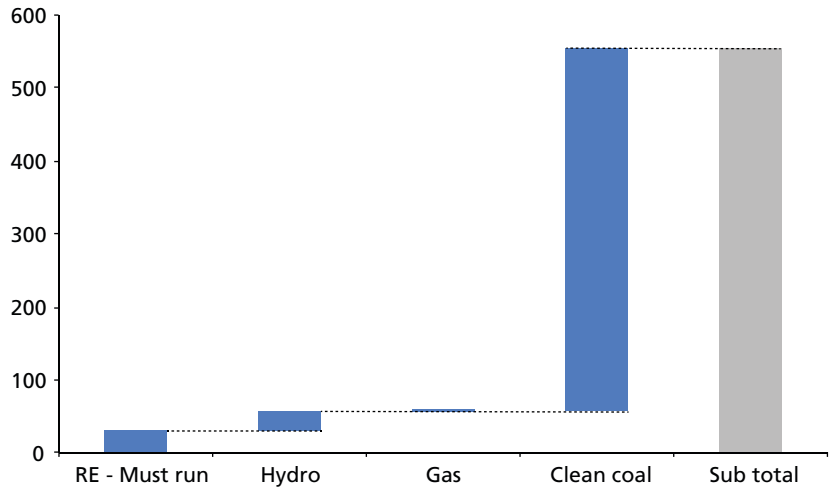
214,360 MW

Total clean power generation capacity in India

Implementing first-run concept can ensure two primary benefits—supply of green and cleaner power across states; and cleaner power at cheaper cost due to cutting down medical and other expenses.

Figure 5: Generation of power from clean sources (in billion units)

Peak demand corresponds to 1,500–1,600 billion units



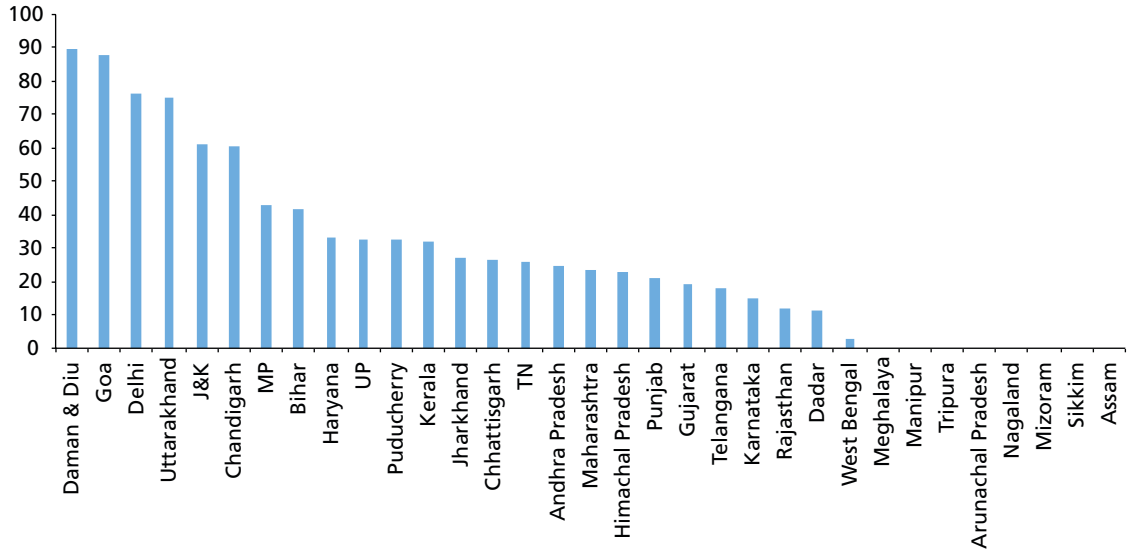
Source: Centre for Science and Environment, 2020

Green and cleaner power can be supplied across states

By pushing this concept, most states will have at least 30 per cent of the electricity supplied to the customers from clean power stations after including the current renewable purchase obligations. Far eastern states have lesser contracts with coal-based TPPs; they source most of their power from renewable and other cleaner sources of generation. Few states and union territories particularly—West Bengal, Rajasthan, and Dadar—will be the only regions which rely on unclean and polluting sources of energy generation on implementing the first-run concept.

Figure 6: Percentage of cleaner coal-based electricity in the total coal-power contracts of states

Six states have more than 50 per cent of their total agreements with cleaner plants



Source: Centre for Science and Environment, 2020

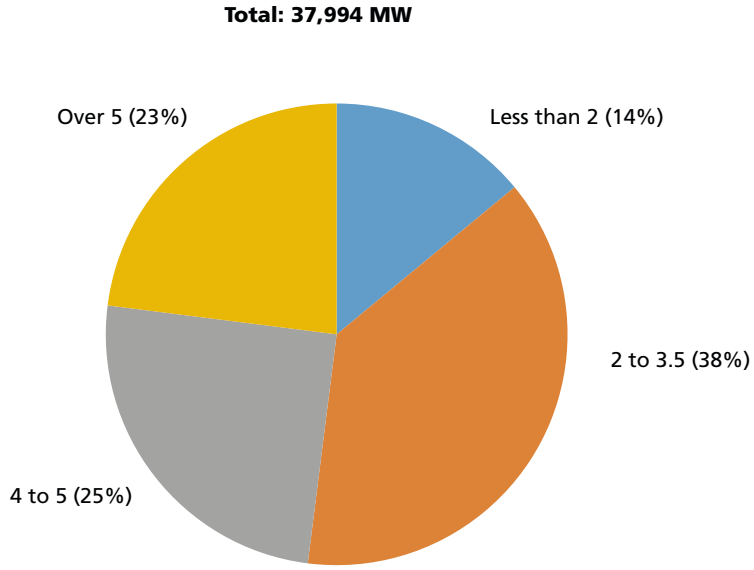
Clean power at cheaper cost

The average per unit cost of electricity generated today is Rs 3.5 a unit. One-half of the clean coal-based thermal power stations generate electricity at less than Rs 3.5 per unit (see *Figure 7: Electricity generation cost from the cleaner coal-based TPPs*). The other half could be more expensive by Rs 0.5–1.5 per unit—which is still significantly lesser than the health cost due to pollution suffered by people.

However, the question of fixed cost remains. By scheduling power from cleaner sources necessarily, the burden of fixed cost cannot be removed as long-term agreements have been signed with most coal-based thermal power stations. However, cost of power from cleaner coal generation sources is lower than from renewable energy sources, taking into account the plant load factor of renewable and cleaner coal.

Figure 7: Electricity generation cost from the cleaner coal-based TPPs

One-half of the coal-based TPPs cost less than Rs 3.5 a unit



*Data not available for the rest

Source: Centre for Science and Environment, 2020

6. Way forward

1. Need for concerted effort

Concerted efforts by stakeholders like the Electricity Regulatory Commission and State Power Departments of these 21 states and 4 union territories, in addition with the co-operation of 15 state pollution control boards where these thermal power stations are located, will be required to implement this concept. The SPCBs advise the Electricity Regulatory Commission on the progress of implementation in TPPs. They will need to designate the plants which qualify for first-run. Electricity regulatory commissions in 21 states and 4 union territories can take cognizance *suo-moto* under tariff orders, according to a senior official working at the State Electricity Regulatory Commission. Electricity regulatory commissions can also designate first-run plants through notes of recommendation from the state power departments. However, a few

National Electricity Policy mandate

The current National Electricity Policy via Section 1.8 stresses the need for supply of electricity. However, this goal has already been achieved. The need of today is to ensure sustainable growth and that can only be done by increasing supply of clean electricity which causes minimal pollution and does not threaten the health of the citizens. The Central Government which is empowered under Section 3 (3) of the Electricity Act, 2003 to review or revise the policy from time to time should modify the same (see *Annexure 1: What the section reads and modification required*).

Other legal modifications

a. Indian Electricity Grid Code—addition of first-run concept

The Central Electricity Regulatory Commission and State Electricity Regulatory Commissions define and periodically modify the electricity grid codes. The grid code specifies renewable energy power stations should be treated as must-run. This code should be further amended to include the concept of first-run (see *Annexure 1: What the section reads and modification required*).

b. The Electricity Act, 2003

Section 86 of the Electricity Act, 2003 outlines the principles by which the state electricity regulatory commissions should function. Under section 86 (e) state commissions are required to promote renewable energy. This should be modified to include cleaner coal-based thermal power stations (see Annexure 1: What the section reads and modification required).

Rs 30–50,000 per MW
Current penalty for non-compliance

of the electricity regulatory commissions say that any such preference will be challenged at the courts by distribution firms/consumers. State electricity regulatory commissions regulate the contracts signed between the distribution companies and power stations, govern the commercial aspects like electricity prices charged to customers, check the authenticity of power generation cost quoted by thermal power stations, make sure merit order despatch principles are adhered with, etc.

2. Penalty

Rs 20 lakh per MW
Suggested penalty for non-compliance

According to the current regulations, irrespective of whether the power station runs or not, the distribution companies are bound to pay the fixed charges as per the long-term contracts. The current penalty of Rs 30,000–50,000 per MW is not high enough to serve any purpose. To tackle this, CPCB will need to step-in and modify penalty provisions and also give a layout of how the penalty collected will be managed. At least a fine of Rs 20 lakh per MW will need to be imposed by the board.

3. Restrict days of operation

Restrict the number of days a station can operate and thereby reduce availability of plants which are not meeting the targets. This could be an effective measure to push compliance without modifying the current legal system. Reducing availability will impose restrictions in the recovery of fixed costs of the plant which can serve as deterrent to non-compliance.

Annexures

Annexure 1: What the section reads and modification required

1. National Electricity policy mandate

Reads

1.8 The National Electricity Policy aims at laying guidelines for accelerated development of the power sector, providing supply of electricity to all areas and protecting interests of consumers and other stakeholders keeping in view availability of energy resources, technology available to exploit these resources, economics of generation using different resources, and energy security issues.

Modification

1.8 The National Electricity Policy aims at laying guidelines for accelerated development of the power sector, providing supply of *cleaner electricity which has minimum pollution load* to all areas and protecting interests of consumers and other stakeholders keeping in view availability of energy resources, technology available to exploit these resources, economics of generation using different resources, and energy security issues.

2. Indian Electricity Grid Code

Current regulation

Section 6.5 Scheduling and Despatch procedure

11. All renewable energy power plants except for biomass power plants with installed capacity of 10 MW and above, and non-fossil fuel based cogeneration plants, whose tariff is determined by the CERC shall be treated as 'MUST RUN' power plants and shall not be subjected to 'merit order despatch' principles.

Modification

XX. All coal-based thermal power stations which are recommended by the state pollution control board shall be treated as 'FIRST RUN' power plants and shall be scheduled on priority subjected to 'merit order despatch' principles before the rest.

3. The Electricity Act, 2003

Current regulation

Section 86

(e) promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;

Modification required

Section 86

(e) promote co-generation and generation of electricity from renewable sources of energy *and from less polluting coal-based thermal power plants* by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;

Annexure 2: List of plants considered in the analysis based on CEA status update report, July 2020 and MERIT Portal, MoP

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/unit	Total cost, Rs/unit	State	Category
ADANI POWER LIMITED (APL - MUNDRA) STG-III	1,980	1,424	2.52	1.01	3.53	Punjab	Yellow
ADANI POWER LIMITED (APL - MUNDRA) STG-III	1,980	1,424	2.52	1.01	3.53	Haryana	Yellow
ADANI POWER LIMITED (MUNDRA) UNIT 1–4	1,320	1,000	3.25	1.21	4.46	Gujarat	Yellow
ANPARA - A	567	567	1.64	0.72	2.36	UP	Yellow
ANPARA - B	900	900	1.38	0.44	1.82	UP	Yellow
ANPARA - D	900	900	1.54	1.55	3.09	UP	Yellow
BARH STG-II	1,320	1,198	-	-	-	Bihar	Yellow
BARH STG-II	1,320	184	0	0	0	Dadar	Yellow
BARH STG-II	1,320	89	2.82	2.86	5.68	Jharkhand	Yellow
BARH STG-II	1,320	19	2.53	1.87	4.39	Sikkim	Yellow
BARH STPS	1,320	9	3.21	1.84	5.05	Telangana	Yellow
BARSINGSAR (NLC)	250	250	1.13	2.33	3.46	Rajasthan	Yellow
DADRI TPS	840	692	4.25	1.01	5.26	Delhi	Yellow
DAHANU THERMAL POWER STATION (DTPS UNIT 1 & 2)	500	500	3.39	0.87	4.26	Maharashtra	Yellow
DURGAPUR STEEL THERMAL POWER STATION (DSTPS)	1,000	100	-	-	0	MP	Yellow
GIRAL LTPS	250	250	1.34	1.86	3.2	Rajasthan	Yellow
IL&FS	540	540	2.99	2.12	5.11	TN	Yellow
ILF TNEB	558	330	4.23	0.01	4.24	TN	Yellow
JHAJJAR (CLP)	1,320	1,320	3.53	1	4.53	Punjab	Yellow
JHAJJAR (CLP)	1,320	1,320	3.53	1	4.53	Haryana	Yellow
JSW U1, JAIGAD	300	300	2.07	0.8	2.87	Maharashtra	Yellow
KHARGONE - I	660	16	2.92	-	2.92	Andhra Pradesh	Yellow
KHARGONE - I	660	60	2.97	-	2.97	Chhattisgarh	Yellow
KHARGONE - I	660	12	2.97	2.06	5.03	Goa	Yellow
KHARGONE - I	660	4	-	-	-	J&K	Yellow
KHARGONE - I	660	7	2.97	2.04	5.01	Telangana	Yellow
KHARGONE STPP	1,320	246	3.05	2.06	5.11	Gujarat	Yellow
KLTPS 4	75	75	2.43	1.95	4.38	Gujarat	Yellow

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
KODERMA (DVC)	1,000	250	2.54	1.67	4.21	Karnataka	Yellow
KODERMA (DVC)	1,000	100	2.64	1.7	4.34	Punjab	Yellow
KODERMA (DVC)	1,000	100	2.64	1.7	4.34	Haryana	Yellow
KORBA STPS STG (I&II)	2,100	11	1.44	0.68	2.12	Telangana	Yellow
KORBA STPS STG (III)	500	5	1.42	1.38	2.8	Telangana	Yellow
KORBA SUPER THERMAL PS 1	-	0	1.38	-	1.38	Andhra Pradesh	Yellow
KUDGI	2,400	323	3.86	1.66	5.52	TN	Yellow
KUDGI STPS	800	137	3.86	1.52	5.38	Andhra Pradesh	Yellow
KUDGI STPS	800	471	3.59	1.66	5.25	Karnataka	Yellow
KUDGI STPS	800	41	3.86	1.66	5.52	Kerala	Yellow
KUDGI STPS	800	272	3.86	1.66	5.52	Telangana	Yellow
MAUDA-I	1,000	174	3.21	1.89	5.1	MP	Yellow
MAUDA-I	1,000	61	3.12	4.91	8.03	Chhattisgarh	Yellow
MAUDA-I	1,000	44	2.87	1.91	4.78	Dadar	Yellow
MAUDA-I	1,000	12	2.93	1.9	4.83	Daman & Diu	Yellow
MAUDA-I	1,000	13	3.12	1.87	4.99	Goa	Yellow
MAUDA-I	1,000	226	3.21	1.79	5	Gujarat	Yellow
MAUDA-I	1,000	7	2.87	1.91	4.78	J&K	Yellow
MAUDA-I	1,000	401	2.96	1.89	4.85	Maharashtra	Yellow
MEJA	660	33	3.5	1.18	4.68	Rajasthan	Yellow
MEJA THERMAL POWER PLANT	660	545	3.39	2.26	5.65	UP	Yellow
MEJIA TPS	1,340	200	-	-	0	MP	Yellow
MEJIA TPS	1,340	200	2.71	1.44	4.15	Karnataka	Yellow
MEJIA TPS	1,340	95	2.84	1.6	4.44	Kerala	Yellow
MEJIA TPS	1,340	100	2.84	1.48	4.32	Punjab	Yellow
MEJIA TPS	1,340	46	-	-	-	West Bengal	Yellow
MEJIA TPS	1,340	219	3.05	1.25	4.3	Delhi	Yellow
MEJIA TPS	1,340	100	2.84	1.48	4.32	Haryana	Yellow
NABINAGAR POWER GENERATING COMPANY	660	515	-	-	-	Bihar	Yellow
NLC TPS II - EXPANSION	500	117	2.59	2.35	4.94	Karnataka	Yellow
NLC TPS II - EXPANSION	500	73	2.59	2.35	4.94	Kerala	Yellow
NLC TPS II - EXPANSION	500	20	2.48	2.35	4.83	Puducherry	Yellow
NLC TPS II - EXPANSION	500	270	2.35	2.59	4.94	TN	Yellow
PARALI UNIT - 06 & 07	500	500	3.5	1.33	4.83	Maharashtra	Yellow
PARALI UNIT - 08	250	250	3.02	1.63	4.65	Maharashtra	Yellow

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
PARAS UNIT - 03 & 04	500	500	2.24	1.36	3.6	Maharashtra	Yellow
RAGHUNATHPUR (DVC)	1,200	47	3.01	2.04	5.05	Kerala	Yellow
RAGHUNATHPUR (DVC)	1,200	100	3.01	1.37	4.38	Punjab	Yellow
RAGHUNATHPUR (DVC)	1,200	100	3.01	1.37	4.38	Haryana	Yellow
RAJWEST LTPS (IPP)	1,080	1,080	2.5	1.7	4.2	Rajasthan	Yellow
RAMAGUNDAM STPS STG-1&2	-	289	2.6	0.7	3.3	Andhra Pradesh	Yellow
RAMAGUNDAM STPS STG-1&2	-	96	2.6	0.73	3.33	Goa	Yellow
RAMAGUNDAM STPS STG-1&2	-	445	2.56	0.77	3.33	Karnataka	Yellow
RAMAGUNDAM STPS STG-1&2	-	245	2.6	0.73	3.33	Kerala	Yellow
RAMAGUNDAM STPS STG-1&2	-	85	2.56	0.73	3.29	Puducherry	Yellow
RAMAGUNDAM STPS STG-1&2	-	345	2.6	0.73	3.33	Telangana	Yellow
RAMAGUNDAM STPS STG-1&2	-	499	2.6	0.73	3.33	TN	Yellow
RAMAGUNDAM STPS STG-3	500	73	2.56	0.76	3.32	Andhra Pradesh	Yellow
RAMAGUNDAM STPS STG-3	500	111	2.54	0.73	3.27	Karnataka	Yellow
RAMAGUNDAM STPS STG-3	500	57	2.56	0.77	3.33	Kerala	Yellow
RAMAGUNDAM STPS STG-3	500	21	2.52	0.78	3.3	Puducherry	Yellow
RAMAGUNDAM STPS STG-3	500	87	2.56	0.77	3.33	Telangana	Yellow
RAMAGUNDAM STPS STG-3	500	125	2.56	0.77	3.33	TN	Yellow
RAYALASEEMA TPS - I, II, & III	1,050	1,050	4	1.67	5.67	Andhra Pradesh	Yellow
RIHAND STPS	1,000	60	1.34	0.83	2.17	Haryana	Yellow
RIHAND STPS	1,000	92	1.42	0.88	2.3	Delhi	Yellow
RIHAND STPS	1,000	12	1.31	0.83	2.14	Chandigarh	Yellow
RIHAND STPS	1,000	34	1.46	0.88	2.34	Himachal Pradesh	Yellow
RIHAND STPS	1,000	77	1.31	0.83	2.14	J&K	Yellow
RIHAND STPS	1,000	60	1.34	0.83	2.17	Punjab	Yellow
RIHAND STPS	1,000	132	1.41	0.88	2.29	Rajasthan	Yellow
RIHAND STPS	1,000	42	1.35	0.85	2.2	Uttarakhand	Yellow
RIHAND-II STPS	1,000	119	1.42	0.73	2.15	Delhi	Yellow
RIHAND-II STPS	1,000	54	1.34	0.85	2.19	Haryana	Yellow
RIHAND-II STPS	1,000	11	1.32	0.85	2.17	Chandigarh	Yellow
RIHAND-II STPS	1,000	33	1.46	0.73	2.19	Himachal Pradesh	Yellow
RIHAND-II STPS	1,000	102	1.31	0.85	2.16	J&K	Yellow
RIHAND-II STPS	1,000	54	1.34	0.85	2.19	Punjab	Yellow
RIHAND-II STPS	1,000	144	1.4	0.74	2.14	Rajasthan	Yellow
RIHAND-II STPS	1,000	38	1.34	1	2.34	Uttarakhand	Yellow

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
RIHAND-III STPS	1,000	9	1.34	1.47	2.81	Chandigarh	Yellow
RIHAND-III STPS	1,000	34	1.44	1.51	2.95	Himachal Pradesh	Yellow
RIHAND-III STPS	1,000	74	1.32	1.47	2.79	J&K	Yellow
RIHAND-III STPS	1,000	53	1.32	1.47	2.79	Punjab	Yellow
RIHAND-III STPS	1,000	164	1.39	1.51	2.9	Rajasthan	Yellow
RIHAND-III STPS	1,000	44	1.36	1.75	3.11	Uttarakhand	Yellow
RIHAND-III STPS	1,000	53	1.32	1.47	2.79	Haryana	Yellow
RIHAND-III STPS	1,000	124	1.47	1.5	2.97	Delhi	Yellow
ROSA - I	570	570	2.88	1.56	4.44	UP	Yellow
ROSA - II	570	570	2.88	1.56	4.44	UP	Yellow
RTPS 1–7	1,470	1,470	3.51	1.39	4.9	Karnataka	Yellow
RTPS 8	250	250	3.58	1.35	4.93	Karnataka	Yellow
SASAN UMPP	3,960	419	1.18	0.13	1.31	Delhi	Yellow
SASAN UMPP	3,960	419	1.26	0.17	1.43	Haryana	Yellow
SASAN UMPP	3,960	1,396	1.46	0.17	1.63	MP	Yellow
SASAN UMPP	3,960	419	1.26	0.17	1.43	Punjab	Yellow
SASAN UMPP	3,960	372	1.32	0.18	1.5	Rajasthan	Yellow
SASAN UMPP	3,960	465	1.3	0.15	1.45	UP	Yellow
SASAN UMPP	3,960	93	1.2	0.2	1.4	Uttarakhand	Yellow
SIMHADRI STAGE I	1,000	461	3.1	0.93	4.03	Andhra Pradesh	Yellow
SIMHADRI STAGE I	1,000	539	3.1	0.94	4.04	Telangana	Yellow
SIMHADRI STPS 2	1,000	221	3.06	1.55	4.61	Andhra Pradesh	Yellow
SIMHADRI STPS 2	1,000	213	3.06	1.52	4.58	Karnataka	Yellow
SIMHADRI STPS 2	1,000	90	3.06	1.52	4.58	Kerala	Yellow
SIMHADRI STPS 2	1,000	16	3.19	1.54	4.73	Puducherry	Yellow
SIMHADRI STPS 2	1,000	231	3.06	1.52	4.58	Telangana	Yellow
SIMHADRI STPS 2	1,000	210	3.06	1.52	4.58	TN	Yellow
SIPAT 2	-	-	1.5	-	1.5	Andhra Pradesh	Yellow
SIPAT 2-WR	1,000	180	1.37	1.25	2.62	MP	Yellow
SIPAT 2-WR	1,000	151	1.4	1.46	2.86	Chhattisgarh	Yellow
SIPAT 2-WR	1,000	30	1.37	1.25	2.62	Dadar	Yellow
SIPAT 2-WR	1,000	9	1.6	1.25	2.85	Daman & Diu	Yellow
SIPAT 2-WR	1,000	11	1.4	1.23	2.63	Goa	Yellow
SIPAT 2-WR	1,000	257	1.44	1.54	2.98	Gujarat	Yellow
SIPAT 2-WR	1,000	4	1.37	1.25	2.62	J&K	Yellow

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
SIPAT 2-WR	1,000	279	1.45	1.25	2.7	Maharashtra	Yellow
SIPAT THERMAL POWER STATION 1	-	-	1.45	-	1.45	Andhra Pradesh	Yellow
SIPAT TPS STG-I	1,980	21	1.36	1.32	2.68	Telangana	Yellow
SIPAT TPS STG-II	1,000	7	1.4	1.25	2.65	Telangana	Yellow
SIPAT 1	1,980	325	1.35	1.32	2.67	MP	Yellow
SIPAT 1	1,980	299	1.36	1.27	2.63	Chhattisgarh	Yellow
SIPAT 1	1,980	86	1.33	1.32	2.66	Dadar	Yellow
SIPAT 1	1,980	24	1.6	1.32	2.92	Daman & Diu	Yellow
SIPAT 1	1,980	24	1.36	1.3	2.66	Goa	Yellow
SIPAT 1	1,980	509	1.4	1.43	2.83	Gujarat	Yellow
SIPAT 1	1,980	13	1.33	1.32	2.65	J&K	Yellow
SIPAT 1	1,980	584	1.4	1.32	2.72	Maharashtra	Yellow
SOLAPUR	660	36	-	-	-	Dadar	Yellow
SOLAPUR	5	5	0	0	0	Gujarat	Yellow
SOLAPUR STAGE-1	-	-	3.2	1.72	4.92	Andhra Pradesh	Yellow
SOLAPUR SUPER THERMAL POWER PROJECT	660	14	3.13	1.72	4.85	Telangana	Yellow
TANDA-II	-	-	2.79	1.72	4.51	Himachal Pradesh	Yellow
TANDA-II	1,320	88	2.56	2.5	5.06	Rajasthan	Yellow
TROMBAY UNIT-5	500	500	4.11	1.38	5.49	Maharashtra	Yellow
TROMBAY UNIT-6	500	500	0	0	0	Maharashtra	Yellow
TROMBAY UNIT-8	250	250	4.42	1.56	5.98	Maharashtra	Yellow
VINDHYACHAL STPS-I	1,260	10	1.76	0.85	2.61	Telangana	Yellow
VINDHYACHAL STPS-III	1,000	8	1.69	1.04	2.73	Telangana	Yellow
VINDHYACHAL STPS-IV	1,000	11	1.66	1.56	3.22	Telangana	Yellow
VINDHYACHAL STPS-V	500	5	1.72	1.67	3.39	Telangana	Yellow
VINDYACHAL THERMAL PS	-	-	1.76	-	1.76	Andhra Pradesh	Yellow
VSTPS 3	1,000	235	1.66	1.05	2.71	MP	Yellow
VSTPS 3	1,000	101	1.69	1.11	2.8	Chhattisgarh	Yellow
VSTPS 3	1,000	34	1.41	1.06	2.47	Dadar	Yellow
VSTPS 3	1,000	11	1.74	1.06	2.8	Daman & Diu	Yellow
VSTPS 3	1,000	12	1.69	1.04	2.73	Goa	Yellow
VSTPS 3	1,000	251	1.74	1.23	2.97	Gujarat	Yellow
VSTPS 3	1,000	5	1.41	1.06	2.47	J&K	Yellow
VSTPS 3	1,000	281	1.34	1.06	2.4	Maharashtra	Yellow
VSTPS 4	1,000	271	1.66	1.58	3.24	MP	Yellow

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
VSTPS 4	1,000	61	1.66	1.92	3.58	Chhattisgarh	Yellow
VSTPS 4	1,000	44	1.41	1.58	3	Dadar	Yellow
VSTPS 4	1,000	12	1.72	1.58	3.3	Daman & Diu	Yellow
VSTPS 4	1,000	13	1.66	1.56	3.22	Goa	Yellow
VSTPS 4	1,000	226	1.72	1.5	3.22	Gujarat	Yellow
VSTPS 4	1,000	7	1.41	1.58	2.99	J&K	Yellow
VSTPS 4	1,000	307	1.35	1.58	2.93	Maharashtra	Yellow
VSTPS 5	500	135	1.7	1.67	3.37	MP	Yellow
VSTPS 5	500	39	1.72	2.2	3.92	Chhattisgarh	Yellow
VSTPS 5	500	25	1.42	1.64	3.06	Dadar	Yellow
VSTPS 5	500	8	1.77	1.68	3.45	Daman & Diu	Yellow
VSTPS 5	500	6	1.72	1.67	3.39	Goa	Yellow
VSTPS 5	500	88	1.77	1.37	3.14	Gujarat	Yellow
VSTPS 5	500	3	1.42	1.64	3.06	J&K	Yellow
VSTPS 5	500	166	1.38	1.69	3.07	Maharashtra	Yellow
VTPS 1	1,260	408	1.76	0.86	2.62	MP	Yellow
VTPS 1	1,260	2	1.76	0.86	2.62	Chhattisgarh	Yellow
VTPS 1	1,260	40	1.51	0.83	2.34	Dadar	Yellow
VTPS 1	1,260	12	1.82	0.86	2.68	Daman & Diu	Yellow
VTPS 1	1,260	37	1.76	0.85	2.61	Goa	Yellow
VTPS 1	1,260	209	1.82	0.92	2.74	Gujarat	Yellow
VTPS 1	1,260	6	1.51	0.83	2.34	J&K	Yellow
VTPS 1	1,260	421	1.43	0.86	2.29	Maharashtra	Yellow
VTPS 2	1,000	304	1.66	0.7	2.36	MP	Yellow
VTPS 2	1,000	2	1.7	0.7	2.4	Chhattisgarh	Yellow
VTPS 2	1,000	32	1.42	0.68	2.1	Dadar	Yellow
VTPS 2	1,000	9	1.75	0.71	2.46	Daman & Diu	Yellow
VTPS 2	1,000	14	1.7	0.7	2.4	Goa	Yellow
VTPS 2	1,000	225	1.75	0.72	2.47	Gujarat	Yellow
VTPS 2	1,000	5	1.42	0.68	2.1	J&K	Yellow
VTPS 2	1,000	338	1.34	0.7	2.04	Maharashtra	Yellow
ABCIL, GARHWA	-	-	0	3.47	3.47	Jharkhand	Orange
ACBIL	30	1	1.6	-	1.6	Chhattisgarh	Orange
ACBIL	270	200	0.74	1.46	2.2	Gujarat	Orange
ADANI POWER LIMITED(MUNDRA) UNIT 5–6	1,320	1,000	0	1	1	Gujarat	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
ADANI-TIRODA (UNIT- 1, 4, 5)	1,980	1,325	2.38	1.37	3.75	Maharashtra	Orange
ADANI-TIRODA (UNIT- 1, 4, 5)	1,980	440	2.44	1.41	3.85	Maharashtra	Orange
ADANI-TIRODA (UNIT- 2, 3)	1,320	1,320	1.82	1.11	2.93	Maharashtra	Orange
ADHUNIK POWER AND NATURAL GAS LIMITED (APNRL)	540	100	-	-	-	Dadar	Orange
APNRL	540	192	2.22	3.12	5.34	Jharkhand	Orange
APNRL	540	100	1.37	2.91	4.28	TN	Orange
AKRIMOTA THERMAL POWER STATION (ALTPS)	250	250	1.33	0.79	2.12	Gujarat	Orange
AMGEN C TORRENT	60	60	0	0	0	Gujarat	Orange
AMGEN DEF	362	362	3.5	0	3.5	Gujarat	Orange
APMUL-1 ADDITIONAL-200	200	200	3.3	1	4.3	Gujarat	Orange
APMUL-2 ADDITIONAL-234	234	234	0	1	1	Gujarat	Orange
ATPS (210 MW) CHACHAI	210	210	1.56	1.49	3.05	MP	Orange
BADARPUR THERMAL POWER STATION (BTPS)	750	-	3.86	0.83	4.69	Delhi	Orange
BAGLIHAR-I (PTC)	450	50	3.8	0	3.8	Haryana	Orange
BAGLIHAR-I (PTC)	450	100	-	-	-	Dadar	Orange
BAGLIHAR-I (PTC)	450	50	3.8	0	3.8	Punjab	Orange
BALCO	2,010	30	1.6	-	1.6	Chhattisgarh	Orange
BALCO	2,010	200	3.13	1.06	4.19	TN	Orange
BARA (PRAYAGRAJ POWER)	1,980	1,980	2.48	1.24	3.72	UP	Orange
BARAUNI THERMAL POWER STATION	110	-	-	-	-	Bihar	Orange
BARAUNI THERMAL POWER STATION	250	250	-	-	-	Bihar	Orange
BASIN BRIDGE GTPS	120	120	-	-	0	TN	Orange
BECL	500	500	2.8	2.63	5.43	Gujarat	Orange
BEPL, BARKHERA	82	82	3.44	1.83	5.27	UP	Orange
BEPL, KHAMBHARKHERA	80	80	3.44	1.84	5.28	UP	Orange
BEPL, KUNDARKHI	82	82	3.33	1.84	5.17	UP	Orange
BEPL, MAQSOODPUR	82	82	3.47	1.82	5.29	UP	Orange
BEPL, UTRAULA	82	82	3.39	1.89	5.28	UP	Orange
BHARAT ALUMINIUM COMPANY LTD	900	95	1.16	3.16	4.32	Kerala	Orange
BHARTIYA RAIL BIJALEE COMPANY LIMITED	750	75	-	-	-	Bihar	Orange
BHUSAWAL UNIT - 4 & 5	1,000	1,000	2.74	1.49	4.23	Maharashtra	Orange
BHUSAWAL UNIT - 2 & 3	420	420	3.07	0.84	3.91	Maharashtra	Orange
BTPS-1	500	500	3.51	1.67	5.18	Karnataka	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
BTPS-2	500	500	3.51	1.36	4.87	Karnataka	Orange
BTPS-3	700	-	3.98	2.24	6.22	Karnataka	Orange
BUDGEBUDGE TPS	750	750	-	-	-	West Bengal	Orange
CGPL MUNDRA UMPP	4,000	1,805	1.93	0.9	2.83	Gujarat	Orange
CGPL MUNDRA UMPP	4,000	760	1.6	0.9	2.5	Maharashtra	Orange
CGPL MUNDRA UMPP	4,000	380	1.91	0.9	2.81	Punjab	Orange
CGPL MUNDRA UMPP	4,000	380	1.97	0.94	2.91	Rajasthan	Orange
CGPL MUNDRA UMPP	4,000	380	1.91	0.9	2.81	Haryana	Orange
CHABRA TPS	1,000	1,000	2.57	1.48	4.05	Rajasthan	Orange
CHANDRAPUR UNIT - 03–07	1,920	1,920	2.31	0.57	2.88	Maharashtra	Orange
CHANDRAPUR UNIT - 08 & 09	1,000	1,000	2.24	2.9	5.14	Maharashtra	Orange
CHANDRAPURA THERMAL POWER STATION (CTPS)	760	-	-	-	0	MP	Orange
CTPS	760	300	2.49	1.45	3.94	Delhi	Orange
COASTAL ENERGEN	1,200	558	3.33	1.71	5.04	TN	Orange
CPP, BIOMASS, COGEN AND OPG	-	986	3.33	1.5	4.83	TN	Orange
CSTPP UNIT5	660	660	2.2	1.96	4.16	Rajasthan	Orange
CSTPP UNIT6	660	660	2.2	1.56	3.76	Rajasthan	Orange
DADRI-II TPS	980	3	2.97	1.47	4.44	Chandigarh	Orange
DADRI-II TPS	980	2	3.75	1.48	5.23	Himachal Pradesh	Orange
DADRI-II TPS	980	8	2.94	1.47	4.41	J&K	Orange
DADRI-II TPS	980	50	3.73	1.5	5.23	Rajasthan	Orange
DADRI-II TPS	980	6	3.23	1.16	4.39	Uttarakhand	Orange
DADRI-II TPS	980	692	3.84	1.48	5.32	Delhi	Orange
DB POWER	1,200	250	2.13	2.98	5.11	Rajasthan	Orange
DB POWER	1,200	208	2.34	2.17	4.51	TN	Orange
DHARIWAL	300	100	2.87	1.28	4.15	TN	Orange
DHARIWAL	300	161	1.88	1.87	3.75	UP	Orange
DPL TPS	550	550	2.72	-	2.72	West Bengal	Orange
DSPM, KORBA (EAST)	500	500	1.77	1.58	3.35	Chhattisgarh	Orange
EMCO	200	200	1.9	1.24	3.14	Maharashtra	Orange
EPGL	1,200	1,200	3.26	1.09	4.35	Gujarat	Orange
FARAKKA	-	3	-	-	-	Arunachal Pradesh	Orange
FARAKKA	-	38	2.84	0.85	3.7	Assam	Orange
FARAKKA	-	470	-	-	-	Bihar	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
FARAKKA	-	212	2.85	1.31	4.16	Dadar	Orange
FARAKKA	-	21	2.84	0.85	3.69	Delhi	Orange
FARAKKA	-	14	2.84	0.85	3.69	J&K	Orange
FARAKKA	-	128	3.17	0.91	4.08	Jharkhand	Orange
FARAKKA	-	2	2.84	0.85	3.7	Meghalaya	Orange
FARAKKA	-	6	2.84	0.85	3.69	Nagaland	Orange
FARAKKA	-	10	2.75	0.85	3.6	Punjab	Orange
FARAKKA	-	10	2.85	0.85	3.7	Rajasthan	Orange
FARAKKA	-	24	2.84	0.85	3.7	Sikkim	Orange
FARAKKA	-	19	2.75	0.7	3.45	TN	Orange
FARAKKA	-	471	-	-	-	West Bengal	Orange
FARAKKA	-	10	2.75	0.85	3.6	Haryana	Orange
FARAKKA III	500	0	-	-	-	Assam	Orange
FARAKKA III	500	101	-	-	-	Bihar	Orange
FARAKKA III	500	81	2.79	2.19	4.98	Dadar	Orange
FARAKKA III	500	33	3.19	1.88	5.07	Jharkhand	Orange
FARAKKA III	500	152	-	-	-	West Bengal	Orange
FARAKKA-I&II STPS	1,600	12	2.75	0.82	3.57	Telangana	Orange
FARAKKA-III STPS	500	4	2.7	1.49	4.19	Telangana	Orange
GADARWARA-I	1,600	800	-	-	-	MP	Orange
GADARWARA-I	1,600	8	3.04	-	3.04	Andhra Pradesh	Orange
GADARWARA-I	1,600	156	3.04	-	3.04	Chhattisgarh	Orange
GADARWARA-I	1,600	21	-	-	-	Dadar	Orange
GADARWARA-I	1,600	15	3.03	2.37	5.4	Daman & Diu	Orange
GADARWARA-I	1,600	15	3.04	1.98	5.02	Goa	Orange
GADARWARA-I	1,600	304	3.14	2.25	5.39	Gujarat	Orange
GADARWARA-I	1,600	5	-	-	-	J&K	Orange
GADARWARA-I	1,600	50	-	-	-	Maharashtra	Orange
GADARWARA-I	1,600	9	3.04	1.98	5.02	Telangana	Orange
GMR	262	262	1.63	1.71	3.34	Dadar	Orange
GMR (EMCO)	600	200	-	-	-	Dadar	Orange
GMR (EMCO)	600	150	2.29	2.04	4.33	TN	Orange
GOA ENERGY PVT. LTD	13	13	2.4	0	2.4	Goa	Orange
GOA SPONGE PVT. LTD	1	1	2.4	0	2.4	Goa	Orange
GTPS 5	210	210	3.88	0.63	4.51	Gujarat	Orange
GTPS URAN (UNIT 05–10)	672	672	1.61	0.39	2	Maharashtra	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
GTPS 34	420	420	3.99	1.08	5.07	Gujarat	Orange
HALDIA ENERGY LIMITED (HEL)	-	600	-	-	-	West Bengal	Orange
HARDUAGANJ	94	94	3.37	1.48	4.85	UP	Orange
HARDUAGANJ EXT.	405	405	2.95	1.57	4.52	UP	Orange
HINDUJA	1,040	1,040	2.76	1.06	3.82	Andhra Pradesh	Orange
HTPS, KORBA (WEST)	840	840	1.53	0.92	2.45	Chhattisgarh	Orange
IB VALLEY TPS	420	420	1.51	1	2.51	Dadar	Orange
INLAND POWER LTD (IPL)	-	-	2.09	2.29	4.38	Jharkhand	Orange
JHABUA POWER	600	109	1.96	2.05	4.01	Kerala	Orange
JHABUA POWER	600	180	2.38	2.18	4.56	MP	Orange
JHABUA POWER LTD	600	95	1.88	2.89	4.77	Kerala	Orange
JHAJJAR	1,500	6	3.22	1.65	4.87	Chandigarh	Orange
JHAJJAR	1,500	76	2.79	1.65	4.44	J&K	Orange
JHAJJAR	1,500	657	3.53	1.65	5.18	Punjab	Orange
JHAJJAR	1,500	12	3.22	3.32	6.54	Uttarakhand	Orange
JHAJJAR	1,500	657	3.6	1.67	5.27	Delhi	Orange
JHAJJAR	1,500	657	3.53	1.65	5.18	Haryana	Orange
JIINDAL POWER LIMITED STAGE-1	1,000	0	-	-	0	Kerala	Orange
JINDAL INDIA THERMAL POWER LIMITED (JITPL)	1,200	123	-	-	0	MP	Orange
JINDAL POWER LIMITED	660	143	1.31	3.33	4.64	Kerala	Orange
JINDAL POWER LIMITED STAGE-2	2,400	20	1.6	-	1.6	Chhattisgarh	Orange
JINDAL POWER LIMITED STAGE-2	2,400	190	1.31	2.61	3.92	Kerala	Orange
JINDAL POWER LIMITED STAGE-2	2,400	400	2.17	2.31	4.48	TN	Orange
JINDAL THERMAL INDIA LTD	600	95	1.14	3.44	4.58	Kerala	Orange
JP BINA	500	350	-	-	0	MP	Orange
JP NIGRIE	1,320	495	0.59	2.31	2.9	MP	Orange
KAHALGAON - I	840	1	-	-	-	Arunachal Pradesh	Orange
KAHALGAON - I	840	17	2.52	1.03	3.55	Assam	Orange
KAHALGAON - I	840	320	-	-	-	Bihar	Orange
KAHALGAON - I	840	121	2.34	1.29	3.63	Dadar	Orange
KAHALGAON - I	840	31	2.52	1.03	3.55	J&K	Orange
KAHALGAON - I	840	24	2.82	0.92	3.74	Jharkhand	Orange
KAHALGAON - I	840	1	2.52	1.03	3.55	Meghalaya	Orange
KAHALGAON - I	840	3	2.52	1.03	3.55	Nagaland	Orange
KAHALGAON - I	840	23	2.26	1.03	3.29	Punjab	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
KAHALGAON - I	840	23	2.34	1.08	3.42	Rajasthan	Orange
KAHALGAON - I	840	12	2.52	1.03	3.55	Sikkim	Orange
KAHALGAON - I	840	5	2.26	0.9	3.16	TN	Orange
KAHALGAON - I	840	7	-	-	-	West Bengal	Orange
KAHALGAON - I	840	46	2.33	1.09	3.42	Delhi	Orange
KAHALGAON - I	840	23	2.26	1.03	3.29	Haryana	Orange
KAHALGAON - I STPS	840	6	2.26	1.05	3.31	Telangana	Orange
KAHALGAON - II	1,500	73	2.41	1.1	3.51	Assam	Orange
KAHALGAON - II	1,500	70	-	-	-	Bihar	Orange
KAHALGAON - II	1,500	3	2.28	1.1	3.38	Chandigarh	Orange
KAHALGAON - II	1,500	28	2.15	3.25	5.4	Chhattisgarh	Orange
KAHALGAON - II	1,500	3	2.41	1.1	3.51	Dadar	Orange
KAHALGAON - II	1,500	37	2.22	1.34	3.56	Dadar	Orange
KAHALGAON - II	1,500	2	-	-	-	Daman & Diu	Orange
KAHALGAON - II	1,500	133	2.19	1.07	3.26	Gujarat	Orange
KAHALGAON - II	1,500	22	2.21	1.12	3.33	Himachal Pradesh	Orange
KAHALGAON - II	1,500	83	2.41	1.1	3.51	J&K	Orange
KAHALGAON - II	1,500	18	2.71	1.05	3.76	Jharkhand	Orange
KAHALGAON - II	1,500	140	2.43	1.1	3.53	Maharashtra	Orange
KAHALGAON - II	1,500	65	2.15	1.1	3.25	Punjab	Orange
KAHALGAON - II	1,500	101	2.22	1.12	3.34	Rajasthan	Orange
KAHALGAON - II	1,500	5	2.41	1.1	3.51	Sikkim	Orange
KAHALGAON - II	1,500	26	2.44	1.9	4.34	Uttarakhand	Orange
KAHALGAON - II	1,500	13	-	-	-	West Bengal	Orange
KAHALGAON - II	1,500	148	2.21	1.12	3.33	Delhi	Orange
KAHALGAON - II	1,500	65	2.15	1.1	3.25	Haryana	Orange
KAHALGAON - II	1,500	70	2.37	1.1	3.47	MP	Orange
KAHALGAON - II STPS	1,500	11	2.15	1.09	3.24	Telangana	Orange
KAKTIYA TPP-I	500	500	3.04	1.63	4.67	Telangana	Orange
KAKTIYA TPP-II	600	600	2.88	1.93	4.81	Telangana	Orange
KALISINDH TPP-I	600	600	2.7	1.93	4.63	Rajasthan	Orange
KALISINDH TPP-II	600	600	2.7	1.81	4.51	Rajasthan	Orange
KANTI BIJLEE UTPADAN NIGAM LTD STAGE-I	220	220	-	-	-	Bihar	Orange
KANTI BIJLEE UTPADAN NIGAM LTD STAGE-II	390	292	-	-	-	Bihar	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
KAWAI (ADANI)	1,320	1,200	2.62	1.33	3.95	Rajasthan	Orange
KHAPERKHEDA UNIT - 01–04	840	840	2.73	0.69	3.42	Maharashtra	Orange
KHAPERKHEDA UNIT - 05	500	500	2.35	1.38	3.73	Maharashtra	Orange
KLTPS 1-3	215	215	2.58	1.5	4.08	Gujarat	Orange
KOLAGHAT (KTPS)	1,260	1,260	3.85	-	3.85	West Bengal	Orange
KORADI UNIT - 05–07	620	620	2.26	0.95	3.21	Maharashtra	Orange
KORADI UNIT - 08–10	1,980	1,980	2.17	2.43	4.6	Maharashtra	Orange
KORBA (WEST) EXT.	500	500	1.3	1.73	3.03	Chhattisgarh	Orange
KORBA ST 3	-	-	1.36	-	1.36	Andhra Pradesh	Orange
KOTA TPS	1,240	1,240	3.3	0.61	3.91	Rajasthan	Orange
KOTHAGUDEM - VI	500	500	3.07	1.58	4.65	Telangana	Orange
KRISHNAPATNAM (DSTPP) - I	1,600	1,600	3.01	0.89	3.9	Andhra Pradesh	Orange
KSK MAHANADI	1,200	400	2.77	1.37	4.14	Andhra Pradesh	Orange
KSK MAHANADI	1,200	400	-	-	0	Andhra Pradesh	Orange
KSK MAHANADI	1,200	75	1.6	-	1.6	Chhattisgarh	Orange
KSK MAHANADI	1,200	500	2.43	2	4.43	TN	Orange
KSK MAHANADI	1,200	949	2.84	2	4.84	UP	Orange
KSTPS 3-WR	425	72	1.42	1.28	2.7	Chhattisgarh	Orange
KSTPS 3-WR	425	22	-	-	-	Dadar	Orange
KSTPS 3-WR	425	6	1.43	1.4	2.83	Daman & Diu	Orange
KSTPS 3-WR	425	6	1.42	1.38	2.8	Goa	Orange
KSTPS 3-WR	425	90	1.46	1.44	2.9	Gujarat	Orange
KSTPS 3-WR	425	3	0.8	0.79	1.59	J&K	Orange
KSTPS 3-WR	425	128	1.18	1.48	2.66	Maharashtra	Orange
KSTPS 3-WR	425	74	1.31	1.4	2.71	MP	Orange
KSTPS-WR	2,100	200	1.44	0.62	2.06	Chhattisgarh	Orange
KSTPS-WR	2,100	51	1.3	0.66	1.96	Dadar	Orange
KSTPS-WR	2,100	46	1.45	0.69	2.14	Daman & Diu	Orange
KSTPS-WR	2,100	212	1.44	0.68	2.12	Goa	Orange
KSTPS-WR	2,100	336	1.49	0.84	2.33	Gujarat	Orange
KSTPS-WR	2,100	7	1.3	0.66	1.96	J&K	Orange
KSTPS-WR	2,100	626	1.2	0.69	1.89	Maharashtra	Orange
KSTPS-WR	2,100	457	1.34	0.69	2.03	MP	Orange
KTPS, KORBA (EAST)	440	440	1.97	1.49	3.46	Chhattisgarh	Orange
KTS-VII	800	800	2.74	1.1	3.84	Telangana	Orange
LAKWA TPS	157	157	-	-	-	Assam	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
LALITPUR POWER	1,875	1,875	3.04	2.25	5.29	UP	Orange
LANCO (ANPARA-C)	1,080	1,080	1.75	1.49	3.24	UP	Orange
LANCO AMARKANTAK POWER LIMITED (LAMKPL)	600	285	1.78	1.2	2.98	Punjab	Orange
LAMKPL	600	285	1.78	1.2	2.98	Haryana	Orange
LAMKPL	600	300	2.16	1.35	3.51	MP	Orange
LARA SUPER THERMAL POWER PLANT	800	9	2.47	1.96	4.43	Telangana	Orange
LARA-1	800	9	2.39	-	2.39	Andhra Pradesh	Orange
LARA-1	800	400	2.47	-	2.47	Chhattisgarh	Orange
LARA-1	800	5	-	-	-	Dadar	Orange
LARA-1	800	4	2.43	1.95	4.38	Daman & Diu	Orange
LARA-1	800	4	2.47	1.96	4.43	Goa	Orange
LARA-1	800	78	2.54	0	2.54	Gujarat	Orange
LARA-1	800	5	-	-	-	J&K	Orange
LARA-1	800	115	-	-	-	Maharashtra	Orange
LARA-1	800	74	-	-	-	MP	Orange
LSTPP-WR	800	157	2.54	0.5	3.04	Gujarat	Orange
MAITHON POWER LIMITED (MPL)	1,050	281	2.63	1.52	4.15	Kerala	Orange
MPL	1,050	241	-	-	-	West Bengal	Orange
MPL	1,050	281	2.7	1.5	4.2	Delhi	Orange
MARUTI CLEAN COAL AND POWER LIMITED (MCCPL)	300	14	1.6	-	1.6	Chhattisgarh	Orange
MCCPL	300	250	1.93	1.89	3.82	Rajasthan	Orange
MARWA THERMAL POWER STATION	1,000	1,000	1.86	-	1.86	Chhattisgarh	Orange
MARWA TPP	1,000	1,000	1.7	2.7	4.4	Telangana	Orange
MAUDA-II	660	43	3.14	7.54	10.68	Chhattisgarh	Orange
MAUDA-II	660	30	3	1.35	4.35	Dadar	Orange
MAUDA-II	660	8	2.95	1.5	4.45	Daman & Diu	Orange
MAUDA-II	660	17	3.14	1.48	4.62	Goa	Orange
MAUDA-II	660	138	3.23	1.73	4.96	Gujarat	Orange
MAUDA-II	660	9	3	1.35	4.35	J&K	Orange
MAUDA-II	660	270	2.92	1.42	4.34	Maharashtra	Orange
MAUDA-II	660	119	2.87	1.42	4.29	MP	Orange
MB POWER	600	343	2.82	2.49	5.31	UP	Orange
MB POWER	600	210	2.42	2.05	4.47	MP	Orange
MEJA THERMAL POWER PLANT	660	52	-	-	-	J&K	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
MOUDA STG2	-	16	3.11	1.48	4.59	Andhra Pradesh	Orange
MOUDA STPP STAGE-I	1,000	11	3.12	1.87	4.99	Telangana	Orange
MOUDA STPP STAGE-II	1,320	14	3.14	1.48	4.62	Telangana	Orange
MOUDA SUPER THERMAL POWER STATION 1	1,000	-	3.14	1.87	5.01	Andhra Pradesh	Orange
MTPS STAGE 1&2	840	840	3.4	0.75	4.15	TN	Orange
MTPS STAGE 3	600	600	3.51	0.6	4.11	TN	Orange
MTPS-II, KBUNL	390	1	2.66	2.73	5.39	Telangana	Orange
NASIK UNIT - 03–05	630	630	3.27	0.95	4.22	Maharashtra	Orange
NEW NEYVELI THERMAL POWER PLANT	500	15	2.31	1.73	4.04	Kerala	Orange
NLC TPS II - STG I	630	48	2.77	0.73	3.5	Andhra Pradesh	Orange
NLC TPS II - STG I	630	133	2.76	0.81	3.57	Karnataka	Orange
NLC TPS II - STG I	630	73	2.76	0.81	3.57	Kerala	Orange
NLC TPS II - STG I	630	74	2.64	0.81	3.45	Puducherry	Orange
NLC TPS II - STG I	630	60	2.76	0.81	3.57	Telangana	Orange
NLC TPS II - STG I	630	189	2.76	0.81	3.57	TN	Orange
NLC TPS II - STG II	840	87	2.77	0.76	3.53	Andhra Pradesh	Orange
NLC TPS II - STG II	840	187	2.76	0.83	3.59	Karnataka	Orange
NLC TPS II - STG II	840	92	2.76	0.83	3.59	Kerala	Orange
NLC TPS II - STG II	840	27	2.64	0.83	3.47	Puducherry	Orange
NLC TPS II - STG II	840	107	2.76	0.83	3.59	Telangana	Orange
NLC TPS II - STG II	840	283	2.76	0.83	3.59	TN	Orange
NNTPS	500	31	2.31	1.73	4.04	Telangana	Orange
NNTPS	500	327	2.31	1.73	4.04	TN	Orange
NNTPS (NEW NEYVELI)	-	-	2.27	2.22	4.49	Andhra Pradesh	Orange
NSPCL	500	45	3.02	2.21	5.23	Chhattisgarh	Orange
NSPCL	500	91	-	-	-	Dadar	Orange
NSPCL	500	70	2.64	1.72	4.36	Daman & Diu	Orange
NTPC BONGAIGAON	250	12	-	-	-	Arunachal Pradesh	Orange
NTPC BONGAIGAON	250	131	2.97	3.95	6.92	Assam	Orange
NTPC BONGAIGAON	250	17	3.5	2.7	6.2	Manipur	Orange
NTPC BONGAIGAON	250	12	2.97	3.95	6.92	Meghalaya	Orange
NTPC BONGAIGAON	250	25	-	-	-	Mizoram	Orange
NTPC BONGAIGAON	250	11	2.97	3.95	6.92	Nagaland	Orange
NTPC BONGAIGAON	250	17	2.97	3.95	6.92	Tripura	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
NTPC DARIPALI	1,600	190	-	-	-	Bihar	Orange
NTPC DARIPALI	1,600	941	1.12	2.07	3.19	Dadar	Orange
NTPC DARIPALI	1,600	148	-	-	-	Jharkhand	Orange
NTPC DARIPALI	1,600	28	-	-	-	Sikkim	Orange
NTPC DARIPALI	1,600	294	-	-	-	West Bengal	Orange
NTPC SOLAPUR	660	79	3.13	-	3.13	Chhattisgarh	Orange
NTPC SOLAPUR	660	15	3.13	1.72	4.85	Goa	Orange
NTPC SOLAPUR	660	9	-	-	-	J&K	Orange
NTPL (NLC TAMIL NADU POWER LIMITED)	1,000	123	3.79	1.68	5.47	Andhra Pradesh	Orange
NTPL (NLC TAMIL NADU POWER LIMITED)	1,000	201	2.79	1.55	4.34	Karnataka	Orange
NTPL (NLC TAMIL NADU POWER LIMITED)	1,000	72	2.79	1.55	4.34	Kerala	Orange
NTPL (NLC TAMIL NADU POWER LIMITED)	1,000	26	3.41	1.55	4.96	Puducherry	Orange
NTPL (NLC TAMIL NADU POWER LIMITED)	1,000	152	2.79	1.55	4.34	Telangana	Orange
NTPL (NLC TAMIL NADU POWER LIMITED)	1,000	414	2.79	1.55	4.34	TN	Orange
NTPS	120	120	-	-	-	Assam	Orange
OBRA - B	900	900	2.55	0.67	3.22	UP	Orange
OBRA - A	175	175	0	0	0	UP	Orange
OPGC STAGE -2 (UNIT 3 & 4)	1,320	990	-	2.75	2.75	Dadar	Orange
PANKI	189	189	0	0	0	UP	Orange
PARICHHA	198	198	0	1	1	UP	Orange
PARICHHA - EXT.	378	378	3.17	1.25	4.42	UP	Orange
PARICHHA - EXT. STAGE - II	405	405	2.93	1.47	4.4	UP	Orange
PPN	331	331	7.25	0.79	8.04	TN	Orange
PTC ORISSA GMRKEL HRY	-	300	1.58	1.48	3.06	Punjab	Orange
PTC ORISSA GMRKEL HRY	-	300	1.58	1.48	3.06	Haryana	Orange
PTPS UNIT-5	210	210	3.89	1.23	5.12	Haryana	Orange
PTPS UNIT-6	210	210	3.89	1.47	5.36	Punjab	Orange
PTPS UNIT-6	210	210	3.89	1.47	5.36	Haryana	Orange
PTPS UNIT-7	250	250	3.49	0.95	4.44	Haryana	Orange
PTPS UNIT-7	250	250	3.49	0.95	4.44	Punjab	Orange
PTPS UNIT-8	250	250	3.49	1.47	4.96	Punjab	Orange
PTPS UNIT-8	250	250	3.49	1.47	4.96	Haryana	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
RAIGARH ENERGY GENERATION LTD	-	27	1.6	-	1.6	Chhattisgarh	Orange
RAJGHAT POWER HOUSE	135	-	-	-	0	Delhi	Orange
RAMAGUNDAN B	63	63	3.15	1.47	4.62	Telangana	Orange
RATAN INDIA UNIT 01–05	1,350	1,200	3.03	1.1	4.13	Maharashtra	Orange
RAYALASEEMA(RTPP) STAGE IV	600	600	3.14	-	3.14	Andhra Pradesh	Orange
RGTPP (KHEDAR) (IPP)	1,200	1,200	3.57	0.96	4.53	Haryana	Orange
RGTPP (KHEDAR) (IPP)	1,200	1,200	3.57	0.96	4.53	Punjab	Orange
RKM ENERGY PVT. LTD	720	190	1.93	2.42	4.35	UP	Orange
RUNGTA MINES	-	-	0	3.47	3.47	Jharkhand	Orange
SAGARDIGHI (SGTPP)-I	600	600	3.43	-	3.43	West Bengal	Orange
SAGARDIGHI (SGTPP)-II	1,000	1,000	3.26	-	3.26	West Bengal	Orange
SANTALDIH (STPS)	500	500	2.62	-	2.62	West Bengal	Orange
SESA STERLITE LTD	13	13	2.4	0	2.4	Goa	Orange
SHREE SINGAJI SUPER THERMAL POWER PROJECT	1,200	-	-	-	0	Andhra Pradesh	Orange
SINGARENI TPP	1,200	1,200	2.89	1.8	4.69	Telangana	Orange
SINGRAULI STPS	2,000	186	1.39	0.63	2.02	Haryana	Orange
SINGRAULI STPS	2,000	140	1.43	0.67	2.1	Delhi	Orange
SINGRAULI STPS	2,000	6	1.31	0.63	1.94	Chandigarh	Orange
SINGRAULI STPS	2,000	4	1.45	0.69	2.14	Himachal Pradesh	Orange
SINGRAULI STPS	2,000	14	1.43	0.63	2.06	J&K	Orange
SINGRAULI STPS	2,000	186	1.39	0.63	2.02	Punjab	Orange
SINGRAULI STPS	2,000	370	1.41	0.69	2.1	Rajasthan	Orange
SINGRAULI STPS	2,000	101	1.41	1.01	2.42	Uttarakhand	Orange
SLPP I	250	250	1.38	0.73	2.11	Gujarat	Orange
SLPP II	250	250	1.36	1.53	2.89	Gujarat	Orange
SOUTHERN TPS	135	135	-	-	-	West Bengal	Orange
SPECTRUM_ACBIL	50	4	1.6	-	1.6	Chhattisgarh	Orange
SSTPS KHANDWA (SINGAJI)	1,200	1,200	2.74	1.54	4.28	MP	Orange
SSTPS KHANDWA (SINGAJI)_II	1,320	660	-	-	-	MP	Orange
STPS 1 & 2	240	240	0	0	0	Gujarat	Orange
STPS 3 & 4	500	500	3.36	1.58	4.94	Gujarat	Orange
STPS SARNI	830	830	2.53	0.83	3.36	MP	Orange
STPS SARNI 10 & 11	500	500	2.09	2.04	4.13	MP	Orange
SURATGARH TPS	1,500	1,500	4	0.82	4.82	Rajasthan	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
TALCHER	1,000	2	-	-	-	Arunachal Pradesh	Orange
TALCHER	1,000	21	1.87	0.93	2.8	Assam	Orange
TALCHER	1,000	389	-	-	-	Bihar	Orange
TALCHER	1,000	305	2.12	1.3	3.42	Dadar	Orange
TALCHER	1,000	72	1.79	1.33	3.12	Jharkhand	Orange
TALCHER	1,000	1	1.87	0.93	2.8	Meghalaya	Orange
TALCHER	1,000	4	1.87	0.93	2.8	Nagaland	Orange
TALCHER	1,000	23	1.87	0.93	2.8	Sikkim	Orange
TALCHER	1,000	8	2.09	0.95	3.04	TN	Orange
TALCHER	1,000	94	-	-	-	West Bengal	Orange
TALCHER STPS-2	2,000	183	2.08	0.69	2.77	Andhra Pradesh	Orange
TALCHER STPS-2	2,000	189	2.12	0.85	2.97	Dadar	Orange
TALCHER STPS-2	2,000	375	2	0.71	2.71	Karnataka	Orange
TALCHER STPS-2	2,000	406	2.08	0.71	2.79	Kerala	Orange
TALCHER STPS-2	2,000	64	1.91	0.72	2.63	Puducherry	Orange
TALCHER STPS-2	2,000	214	2.08	0.71	2.79	Telangana	Orange
TALCHER STPS-2	2,000	487	2.08	0.71	2.79	TN	Orange
TALCHER STPS-1	1,000	7	2.09	0.96	3.05	Telangana	Orange
TALCHER TPS	460	460	1.81	1.42	3.23	Dadar	Orange
TANDA	396	396	3.14	1.28	4.42	UP	Orange
TAQA (STCMS)	250	250	3.75	1.64	5.39	TN	Orange
TATA POWER HALDIA	15	15	-	-	-	West Bengal	Orange
TENUGHAT TPS	-	-	1.93	1.69	3.62	Jharkhand	Orange
THERMAL POWERTECH CORPORATION INDIA LIMITED-I	1,000	570	2.17	2.49	4.66	Telangana	Orange
THERMAL POWERTECH CORPORATION INDIA LIMITED-II	269	269	2.29	1.68	3.97	Telangana	Orange
THERMAL POWERTECH CORPORATION OF INDIA LIMITED -1	1,000	231	2.29	1.78	4.07	Andhra Pradesh	Orange
TITAGARH	-	240	-	-	-	West Bengal	Orange
TRN ENERGY PVT. LTD	600	370	2.35	1.71	4.06	UP	Orange
TRN ENERGY PVT. LTD	600	390	-	-	0	Uttarakhand	Orange
TTPS	1,050	1,050	3.09	0.65	3.74	TN	Orange
UNCHAHAR IV	500	56	-	-	-	J&K	Orange
UNCHAHAR IV	500	40	3.35	1.59	4.94	Punjab	Orange
UNCHAHAR IV	500	-	3.5	1.62	5.12	Rajasthan	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
UNCHAHAR-IV	500	40	3.35	1.59	4.94	Haryana	Orange
UNCHAHAR-I TPS	420	10	3.55	1.06	4.61	Haryana	Orange
UNCHAHAR-I TPS	420	22	3.53	1.12	4.65	Delhi	Orange
UNCHAHAR-I TPS	420	2	2.51	1.06	3.57	Chandigarh	Orange
UNCHAHAR-I TPS	420	7	3.78	1.12	4.9	Himachal Pradesh	Orange
UNCHAHAR-I TPS	420	4	2.98	1.06	4.04	J&K	Orange
UNCHAHAR-I TPS	420	10	3.55	1.06	4.61	Punjab	Orange
UNCHAHAR-I TPS	420	25	3.71	1.13	4.84	Rajasthan	Orange
UNCHAHAR-I TPS	420	34	3.1	1.37	4.47	Uttarakhand	Orange
UNCHAHAR-II TPS	420	43	3.56	1.04	4.6	Delhi	Orange
UNCHAHAR-II TPS	420	21	3.58	0.98	4.56	Haryana	Orange
UNCHAHAR-II TPS	420	4	2.51	0.98	3.49	Chandigarh	Orange
UNCHAHAR-II TPS	420	12	3.82	1.05	4.87	Himachal Pradesh	Orange
UNCHAHAR-II TPS	420	34	2.98	0.98	3.96	J&K	Orange
UNCHAHAR-II TPS	420	21	3.58	0.98	4.56	Punjab	Orange
UNCHAHAR-II TPS	420	57	3.75	1.05	4.8	Rajasthan	Orange
UNCHAHAR-II TPS	420	17	3.1	1.52	4.62	Uttarakhand	Orange
UNCHAHAR-III TPS	210	11	3.55	1.36	4.91	Haryana	Orange
UNCHAHAR-III TPS	210	26	3.53	1.4	4.93	Delhi	Orange
UNCHAHAR-III TPS	210	2	2.51	1.36	3.87	Chandigarh	Orange
UNCHAHAR-III TPS	210	8	3.78	1.4	5.18	Himachal Pradesh	Orange
UNCHAHAR-III TPS	210	15	2.98	1.36	4.34	J&K	Orange
UNCHAHAR-III TPS	210	11	3.55	1.36	4.91	Punjab	Orange
UNCHAHAR-III TPS	210	32	3.71	1.41	5.12	Rajasthan	Orange
UNCHAHAR-III TPS	210	13	3.1	1.67	4.77	Uttarakhand	Orange
UNCHAHAR-IV	-	-	3.48	1.62	5.1	Himachal Pradesh	Orange
UPCL	1,200	1,010	3.52	1.6	5.12	Karnataka	Orange
UTPS	850	850	3.78	0.38	4.16	Gujarat	Orange
UTPS 4	200	200	3.18	0.38	3.56	Gujarat	Orange
UTPS 6	500	500	3.16	1.7	4.86	Gujarat	Orange
VALLUR (NTECL) STPS	1,500	95	3.65	1.8	5.45	Andhra Pradesh	Orange
VALLUR (NTECL) STPS	1,500	150	3.55	1.78	5.33	Karnataka	Orange
VALLUR (NTECL) STPS	1,500	47	3.65	1.78	5.43	Kerala	Orange

Station	Plant capacity, MW	Capacity allotted to state, MW	Fixed cost, Rs/unit	Variable cost, Rs/ unit	Total cost, Rs/unit	State	Category
VALLUR (NTECL) STPS	1,500	23	4.07	1.79	5.86	Puducherry	Orange
VALLUR (NTECL) STPS	1,500	111	3.65	1.78	5.43	Telangana	Orange
VALLUR (NTECL) STPS	1,500	1,066	3.65	1.78	5.43	TN	Orange
VALUTHUR GTPS STAGE 1 & 2	187	187	2.36	0.51	2.87	TN	Orange
VEDANTA LTD	600	600	1.6	0.95	2.55	Dadar	Orange
VIDARBHA INDUSTRIES POWER LTD (VIPL UNIT 1 & 2)	600	600	2.45	2.22	4.67	Maharashtra	Orange
VIDHYACHAL STPS-II	1,000	8	1.7	0.7	2.4	Telangana	Orange
WTPS 3	210	210	3.68	0.47	4.15	Gujarat	Orange
WTPS 8	800	800	3.24	0.75	3.99	Gujarat	Orange
WTPS 1–6	1,260	1,260	4.1	0.47	4.57	Gujarat	Orange
WTPS 7	210	210	3.93	0.61	4.54	Gujarat	Orange
YERAMARUS TPS	1,600	1,600	3.49	2.52	6.01	Karnataka	Orange
YTPP - 1 & 2 (YAMUNANAGAR)	600	600	3.48	1.11	4.59	Haryana	Orange
YTPP - 1 & 2 (YAMUNANAGAR)	600	600	3.48	1.11	4.59	Punjab	Orange
BAKRESWAR (BKTPP)-I	630	630	2.52	-	2.52	West Bengal	Red
BAKRESWAR (BKTPP)-II	420	420	2.52	-	2.52	West Bengal	Red
BANDEL (BTPS)	-	450	3.98	-	3.98	West Bengal	Red
KTPS-V	500	500	2.77	0.9	3.67	Telangana	Red
NCTPS STAGE 1	630	630	3.7	1.02	4.72	TN	Red
NCTPS STAGE 2	1,200	1,200	3.57	1.53	5.1	TN	Red
PTPS UNIT-5	210	210	3.89	1.23	5.12	Punjab	Red
VIJAYAWADA TPS (DR NARLA TATA RAO TPS (DR NTTPS)) - I, II & III	1,260	1,260	3.47	0.79	4.26	Andhra Pradesh	Red
VIJAYAWADA TPS (DR NARLA TATA RAO TPS (DR NTTPS)) - IV	500	500	3.12	1.31	4.43	Andhra Pradesh	Red
NLC TPS I- EXPANSION	420	101	2.54	1.03	3.57	Karnataka	Red
NLC TPS I- EXPANSION	420	61	2.54	1.03	3.57	Kerala	Red
NLC TPS I- EXPANSION	420	17	2.41	1.03	3.44	Puducherry	Red
NLC TPS I- EXPANSION	420	226	2.54	1.03	3.57	TN	Red

Coal-based power is one of the most resource-intensive and polluting industries. On 07 December 2015, the Ministry of Environment, Forestry and Climate Change introduced stricter environmental standards for coal-based thermal power plants under the Environment Protection Act, 1986. Five years after these norms were announced, most plants have neither taken adequate action nor made significant progress towards meeting them.

This paper aims to elaborate the concept of 'first-run' which incentivizes cleaner power stations to run on priority. This could serve as a spur and bring in urgency in the coal-based power sector to abide by the 2015 emission standard deadlines. The paper also discusses the efficacy of the current deterrence system and the need to strengthen it.

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