



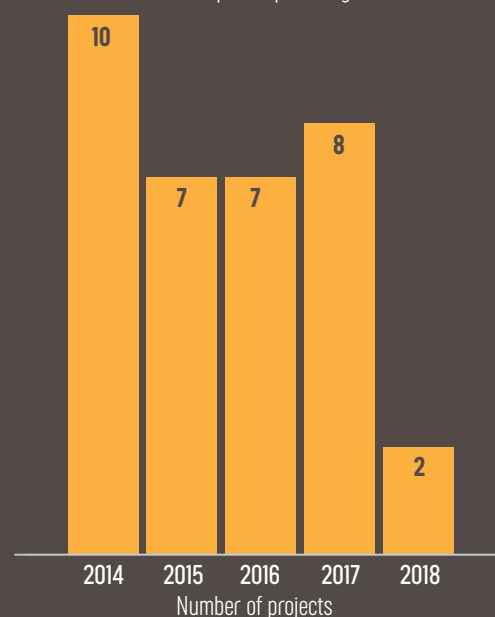
# Environment Clearances of Coal Fired Power Plants in India

2014 to 2018

## Introduction

Coal fired power plants are today recognized as one of the major causes of air pollution. The recent decision of the Government to shut down the Badarpur Thermal Power Station in Delhi is an acknowledgement of the contribution of coal fired power plants to the air pollution crisis (Goswami, 2018). The Ministry of Health has acknowledged in its report to Parliament about the adverse impact on health due to coal fired power plants (Parliamentary Standing Committee, 2018). Despite this scenario, many large and controversial coal fired power plants were granted approval by the Government. These include the 1320 MW Khurja Power Plant of Tehri Hydro Development Corporation (THDC) in Uttar Pradesh and the 1600 MW Adani Godda Power Station of Adani Group in Jharkhand. Many power plants are under construction and will be commissioned soon. The present paper analyses the coal fired power plants considered for environmental clearance by the Ministry of Environment, Forest and Climate Change in the last five years. The aim is to understand the trends with respect to environmental clearances.

Distribution of power plants by number



## The process

Coal fired power plants require prior Environmental Clearance (EC or Permit) from the Ministry of Environment, Forest and Climate Change under the provisions of the Environment Impact Assessment Notification, 2006 (EIA Notification) issued under the provisions of the Environment (Protection) Act, 1986. Environmental Clearance is required for both new projects as well as expansion of any existing projects.

In addition to approval under the EIA Notification, 2006, the projects also require Consent under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974. For projects which are in forest lands, prior approval under the Forest (Conservation) Act, 1980 is also mandatory. For purpose of estimating the number and capacity of coal fired power plant, the Environmental Clearance process is a better area to focus on since the other permissions are dependent on the grant or rejection of environmental clearance. Thereport provides this analysis for the total Coal fired power plants granted permission in a year, capacity, technology, and by linked coal mines/coal source categories. The present report analyses coal fired power plants of capacity  $\geq 500$  MW granted environmental clearanceby the Ministry of Environment, Forest and Climate Change in past from January, 2014 to December, 2018. The data provided in this report provide facts to inform and support decision making for the environmental action.

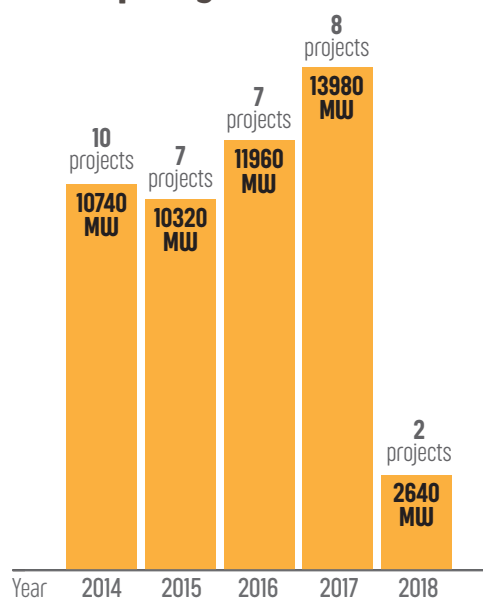
The paper provides data related to project locations (e.g., proximity to critically polluted areas) and attributes (e.g., plant capacity), which are important from the perspective of environmental sensitivity.

## Overview of Environment Clearance granted in terms of capacity of TPP

From January 2014 to December 2018 a total of 34 Environment Clearances have been granted to coal fired power plants having capacity  $\geq 500$  MW.

The combinedgenerating capacity of plants granted Environmental Clearance increased each year from 2015 until 2017. The trend suddenly reversed in 2018, when only two projects received Environmental Clearance.

It is interesting to note here that in 2014, 10 projects were granted Environment Clearance amounting to total capacity of 10740 MW, while in 2017, 8 projects were granted clearance for total capacity of 13980 MW; which reflects that with time the number of projects has decreased while the capacity has increased. It is important to point out that not all the above projects are new projects, in reality a substantial number of projects are expansion of existing projects. In fact in 2018, no new project was approved and only twoexpansion projects were granted environmental clearance by the Ministry of Environment, Forest and Climate Change.



### BOX 1 | KHURJA THERMAL POWER PLANT

In March 2017 a 1,320 MW coal-based super critical Khurja Thermal Power Project proposed in Bulandshahar district, Uttar Pradesh was granted Environment Clearance despite the impracticality of the project regarding which the Environment Clearance is adjudication in National Green Tribunal. Some of the unwise claims made are:

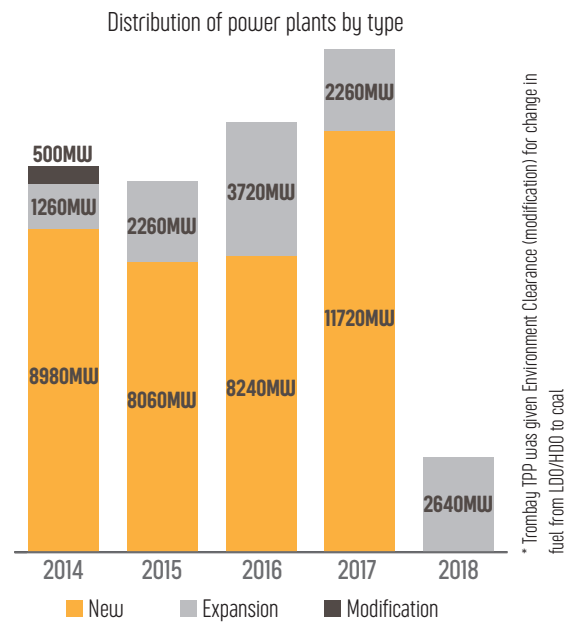
- It is built to address the electricity shortage being faced in northern India which according to CEA reports is power surplus.
- Estimated to be built at a cost of Rs 9,747.5 crore, it has been rendered financially unviable because of non-competitive power tariff and the rapid commercialisation of increasingly low cost renewable energy.
- It assumes a near impossible Plant Load Factor (PLF) of 90%, contrary to the average PLF of 60% for India's coal generators since 2016(Buckley, 2018).
- The coal (5.4 MTPA) will be sourced from approx. 900 kms away Madhya Pradesh State Mining Corporation.
- It is located adjacent to the National Capital Territory which already faces alarming levels of air pollution and will deteriorate further by the addition of 1.3 GW of new coal capacity.

Interestingly, the air quality data on emission from power plant presented before the National Green Tribunal had inconsistencies pertaining to which, the NGT directed the MoEF&CC to file an affidavit pertaining to the same(The Hindu, 2018).

To understand the drop in clearances granted in 2018, the minutes of Re-constituted Expert Appraisal Committee (EAC) on Environmental Impact Assessment (EIA) of thermal power projects were analysed from January to December and it was observed

that no new project was recommended for Environmental Clearance by the committee. The projects discussed were either deferred for want of more information or for site visit to certify the information submitted. Like for e.g., 3x800 MW Super-Critical TPP at Dhenkanal, Odisha was deferred by EAC for want of information on water sustainability studies, Wildlife Management Plan, Prediction of Air quality impacts for worst case scenario and status of Forest Clearance. Similarly in project of expansion from 2x600 MW to 2000 MW of Singareni TPP at Mancherla, Telangana site visit is suggested for assessing the requirement of additional ash pond, avenues for utilisation of ash and filling in abandoned mines, greenbelt development, water availability from Godavari and Pranahita rivers, issues pertaining to wildlife management, decision to arrive at stack height of 100 m/275 m, the need for shifting of Pegadapalli village due to pollution caused by the project, etc.

Besides, most of the projects listed in the EAC agenda were either for amendment or validity extension or reconsideration of Environment Clearance and ToR.



### BOX 2 | ADANI GODDA POWER STATION

1600 MW imported coal based TPP proposed in Godda district, Jharkhand was granted Environment Clearance on 31.08.2017.

As the host state, Jharkhand is legally entitled to buying 25% of this electricity but the company plans otherwise. The electricity generated will not be used locally but supplied across the border to Bangladesh.

Also, permission has been given to annually draw 36 million cubic metres of water from river Chir. This, after the proponent had failed to submit details on the river's flow pattern and catchment areas for four

times in a row before the Environment Ministry's expert panel.

The land acquisition is contentious under both state and central laws, and the company is facing stiff resistance from local residents with villagers questioning why they should lose land for Adani project supplying power to Bangladesh.

The Environment Clearance has been challenged in the National Green Tribunal.

## Overview of Environment Clearance in terms of projects located in Critically Polluted Area

Industries tend to grow in cluster due to certain favourable conditions, which provides them competitive advantage over the others, in future. Clusters of industries, no doubt provide competitive advantage to the industries and opportunities for waste utilisation, but at the hind side, the cumulative impact on environment tends to cross the threshold of environmental carrying capacity. Assessment of environmental impacts in a cluster is a complex multi-dimensional problem which is often difficult to measure and manage. In order to address such complex problem Central Pollution Control Board (CPCB) has developed a Comprehensive Environmental Pollution Index (CEPI). CEPI is a rational indicator to characterize the environmental quality of an industrial cluster following an algorithm of source-receptor-pathway framework. Industrial clusters having aggregated CEPI score of 70 and above is considered as a critically polluted cluster(CPCB, 2017).

Coal fired power plants cause significant air pollution from nearly all of its process and secondary activities, and plants in critically polluted areas have the potential to further aggravate the pollution. Hence, their siting in a critically polluted area was analysed and it was observed that several projects located in Critically Polluted Areas(CPCB, Industrial Pollution, 2016) were recently granted Environment Clearance. These are Neyveli TPS, Talcher TPP, Panki Extension and Ghatampur TPP.

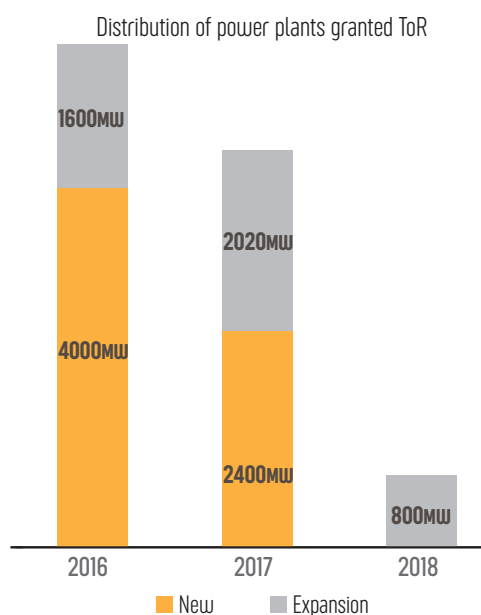
Project	Capacity (MW)	Critically Polluted Area	Coal type	Ash content
Neyveli TPS (Neyveli Lignite Corporation India Ltd.)	1320	Cuddalore, Tamil Nadu	Indigenous	4.83
Talcher TPP (National Thermal Power Corporation)	1320	Angul, Odisha	Indigenous	34
Panki Ext Power Project (Uttar Pradesh RajyaVidyutUtpadan Nigam Limited)	660	Kanpur, Uttar Pradesh	Indigenous	43.5 (max.)
Ghatampur TPP (Neyveli Uttar Pradesh Power Limited)	1980	Kanpur, Uttar Pradesh	Imported	43.5 max.)

The Neyveli TPS of 1320 MW (2X660) is an expansion project of Neyveli Lignite Corporation India Ltd. in Cuddalore district, Tamil Nadu. It will be capacity to adjacent (1.8 km) 7x210 MW (TPS-II) and 2x250 MW (TPS-II 1st Expansion) power plant units under operation. Similarly, Talcher TPP expansion project will add 1320 MW (2X660 MW) to the existing 460 MW plant in Angul District, Odisha. The six existing boilers (460 MW) will be retired in 2023. Likewise, in case of Panki Extension project in Kanpur, Uttar Pradesh, the present capacity of the plant has been expanded from 220 MW to 880 MW by addition of one unit of 660 MW and later on phasing out of 220 MW by 2018 (as mentioned in Environment Clearance). The Ghatampur TPP is a fresh new project of capacity 1980 MW (3X660) is also coming up in the Kanpur district.

While the Neyveli, Talcher and Panki project will burn indigenous coal from Neyveli Lignite mines, Mahanadi Coalfields and Rajmahal group of coal fields respectively, the Ghatampur project will use imported coal. Fly ash disposal is a particular concern with these projects in critically polluted areas. The Environment Clearance mention proper utilization or disposal of fly ash: (i) use by cement industries (Panki Ext with ACC Ltd. and Ghatampur TPP with JK Cement), and (ii) Disposal in mine voids – Talcher TPP in Jagannath coal mine, however the projects will create vast quantities of fly ash that may worsen conditions in these already critically polluted areas.

## Future Trends

From the trend observed, the drop observed in 2018 reflects a positive picture showing a fall in rate of coal fired power plants granted environment clearance which could be because of varied social, economic or political reasons. The cost competitiveness in the solar energy and reduced per unit cost is making funders to shy away from coal fired power plants as they are harder to finance. In addition to that the increasing awareness among masses regarding air pollution and its impact on health, worldwide gained criticism and bad publicity on air pollution, financial crisis of approved projects, resettlement and land compensation issues, and commitments made in UN Paris agreement, boom in solar energy sector could be the factors behind the decline. But this only one side of coin as there is 10820 MW capacity there in the pipeline that has been granted Terms of Reference (ToR) and yet to be granted Environment Clearance. The graph showing the capacity issued ToR is given below:



Given this capacity of projects that are yet to be considered for Environment Clearance it is difficult to say whether or not the decreasing trend of 2018 will continue in the future as the clearance which has not been granted till 2018 and is under appraisal may or may not be granted in 2019 which can entirely reverse the trend.

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