

# India Coal Stockpiles at Record High at Close of Financial Year 2020-2021

*Despite Lower Production and Draw-Down of Power Plant Stocks, India Has More Coal Than Ever*

## Executive Summary

Coal stocks in India have hit a new record high and should be able to supply increasing domestic electricity generation demand even if coal production remains static through the next financial year.

This briefing note reviews Indian coal stockpiles as of the end of financial year 2020-2021 (FY21), together with an analysis of recent trends.

The major findings are:

- Overall coal stocks hit a new record high of 132 million tonnes (Mt) at the end of FY21, exceeding the average of the previous five years in every month of the financial year, ranging from 86% higher in October 2020 to 28% higher in March 2021.
- Power plants drew down stocks by one-third over the year as demand recovered into the final quarter of FY21, with a year-end corresponding to about two weeks of supply.
- Offsetting this drawdown and despite lower production than FY20, the pithead stockpiles of Coal India (CIL) and Singareni Collieries Company Limited (SCCL) grew to a combined record of 103Mt by the end of FY21.
- Seasonally-adjusted data shows an increasing build-up of coal stockpiles ending the periodic shortages of recent years, though a greater proportion of the larger stockpile remains at coal-mine pitheads.
- There is a trend towards coal stockpiles growing disproportionately relative to thermal generation, falling from about 1Mt per terawatt-hour (TWh) of thermal generation in 2016 and 2017 to a low of 0.58Mt in 2018 and 2019, and rising sharply during 2020 to reach 1.25Mt per TWh at the end of FY21.

**Overall coal stocks  
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of 132 million tonnes.**

- Currently standing at roughly two month's supply, India's coal stockpiles should be able to meet any continuation of the current jump in electricity generation even if coal production remains static in FY22.
- Record coal stockpiles, combined with lower production and some initial levels of import substitution in FY21, are increasingly at odds with CIL and commercial mining expansion plans.

## **Introduction**

A host of economic indicators are picked apart at the conclusion of each financial year with the goal of understanding the current state and direction of an economy. Measures of economic growth, inflation and unemployment feature among the macroeconomic indicators that receive most attention. Similarly, headline data for the energy sector include oil consumption, electricity demand and a series of data points relating to imported versus domestic energy sources.

In this briefing note, we examine a quantity that receives less attention in end-of-year analyses - India's stockpiled coal. Because of its role as a buffer in stabilising supplies between the mining of coal and its consumption in power plants and elsewhere, stockpile quantities are a useful lens through which to view the more widely reported coal production, consumption and thermal power generation figures. Large or growing stockpiles may indicate an excess of coal supply over demand, and conversely, small or shrinking stockpiles characterise potential coal shortages.

**Large or growing  
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This briefing note reports the stockpile position at the end of FY21 as well as monthly changes relative to recent years. It also reviews longer-term data to shed a clearer light on underlying trends by removing the strong seasonal fluctuations characteristic in much of India's energy data.

The total stockpiled quantity examined in this report is the sum of three amounts:

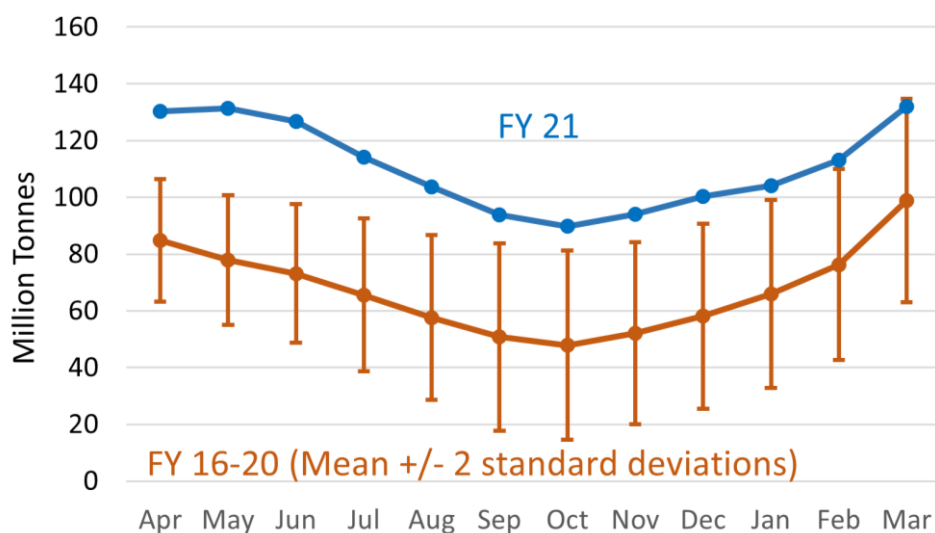
1. Coal kept at Coal India Limited's (CIL) multiple pitheads,
2. The much smaller amounts at the pitheads of Singareni Collieries Company Limited (SCCL), and
3. The stocks reported for India's thermal power plants by the Central Electricity Authority (CEA).

This does not represent the sum total of all coal stockpiled as it excludes amounts held by various captive plants and private industry, and the roughly 5Mt of lignite stockpile. It does however represent just over 90% of the 620Mt<sup>1</sup> produced in India from all sources in FY21 up until the end of February<sup>2</sup>, and about 96% of total coal stocks<sup>3</sup> (private and captive entities tend to stock proportionately smaller quantities). Since CIL and SCCL largely supply thermal power stations, it also gives a good indication of coal movements in the power sector.

## Strong Electricity Demand in Early 2021 Makes Inroads Into Coal Stocks – But March Coal Production Produces Rebound

FY21 began with total coal stocks at a new record high sitting just above 130Mt compared to an average of slightly more than 80Mt for the preceding five years. Figure 1 shows each of FY21's months' total stockpile compared to the average of the corresponding months in the five preceding years.

**Figure 1: India Coal Stockpiles by Month, FY21 vs. FY16-20 (Mt)**



Source: IEEFA compilation of data from CEA, Coal Ministry Monthly Statements to Cabinet, the Office of the Coal Controller, Company and BSE reports. Data includes CIL and SCCL pithead stocks and Power Plant stocks.

The near doubling of coal stocks was due to lower-than-expected coal use and, in March 2020, a production push which saw CIL mine 84.4Mt in a month, 14% of their

<sup>1</sup> Government of India, Coal Ministry. [Coal Production and Offtake April-Feb 2020-2021](#).

<sup>2</sup> Government of India, Coal Ministry. [Coal Production and Offtake April-Feb 2020-2021](#).

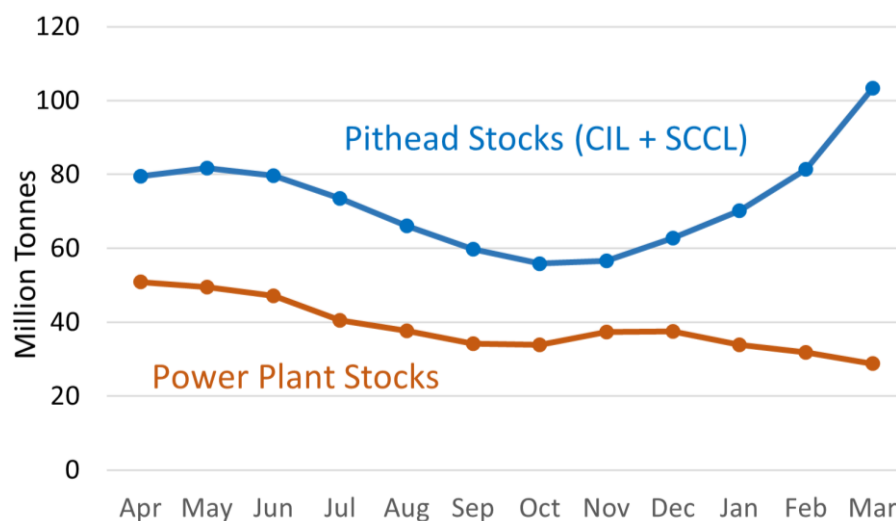
<sup>3</sup> Government of India, Office of the Coal Controller. [Provisional Coal Statistics 2019-20](#). Statement 11.

entire year's output. Of this, only 64Mt was shipped to customers, immediately adding 20Mt to their stocks.

Then in April 2020, the COVID-19-related slowdown made it clear that power demand would drop significantly – a trend which had already begun before the pandemic struck.

Due to oversupply, power plants spent much of the financial year trying to reduce their stocks, with the knowledge there would be no shortages and no difficulty with rail shipments given the absence of passenger traffic. Figure 2 shows the power plant and combined CIL and SCCL pithead stocks separately over the course of the year.

**Figure 2: Power Plant vs CIL and SCCL Pithead Stocks, FY21 (Mt)**



Source: IEEFA compilation of data from CEA, Coal Ministry Monthly Statements to Cabinet, the Office of the Coal Controller, Company and BSE reports.

Power plants would normally replenish stocks between November and March. Instead, a combination of oversupply and a significant surge in Indian electricity demand between January - March 2021 of 9.2% year-on-year in aggregate (+14.3% year-on-year for coal power generation) saw power plants continue to run down stocks in the latter part of the financial year, leaving them with an average of 15 days' supply, less than their mandated 22 days.

**Coal accumulation at mine pitheads more than offsets the recent decline at power plants.**

The accumulation of coal at mine pitheads more than offsets the recent decline at power plants, as shown in Figure 2. And then in March 2021 there was another

substantial coal production accomplishment by CIL and SCCL of 87.6Mt (about 3Mt less than March 2020) and a more modest combined offtake of 65.6Mt, lifting the overall amount of coal on hand to a new record high of 132Mt.

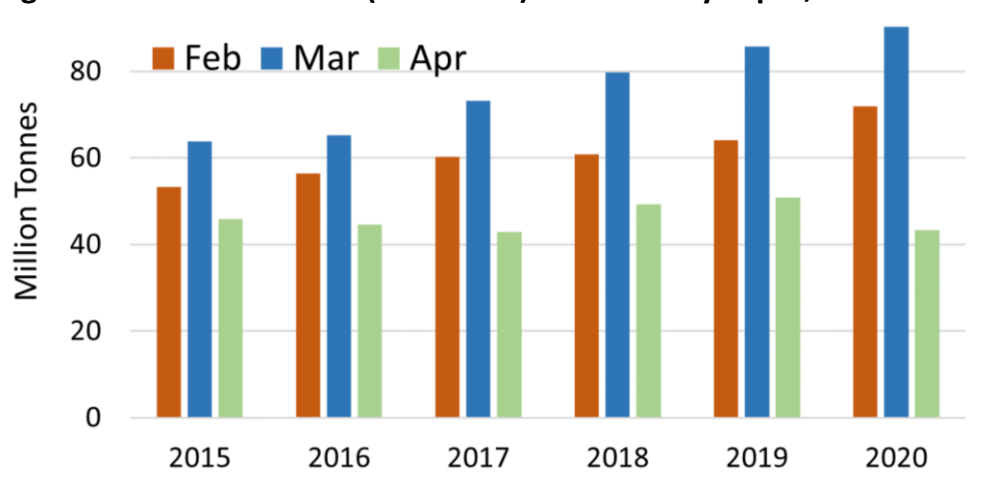
The exceptionally high quantities of coal stockpiled at power plants early in the year - above 50Mt, in addition to factors necessitated by the pandemic lockdown and reduced demand, gave operators the opportunity to run at a lower capacity without having to purchase as much coal.

## Important Trends Emerge When Seasonal Effects Are Removed

Coal mining in India is unusually influenced by seasonal factors. That includes monsoon conditions weighing heavily on output and the more favourable conditions that follow allowing for greater levels of production. However, weather and environmental factors are clearly not the only forces at play.

In the coal-fields of Chhattisgarh, Jharkhand and Odisha, rainfall is low and barely changes between February - April. Yet each March, coal production jumps over 25% from February, only to slump by about 40% each April (see Figure 3). This trend has grown in recent years, reaching an extreme in April 2020 when production was not even half of that of March. It is unclear how much the desire to meet annual targets at the end of March explains this burst of production and consequent drop-off.

**Figure 3: Coal Production (CIL + SCCL) for February- April, 2015-2020 (Mt)**

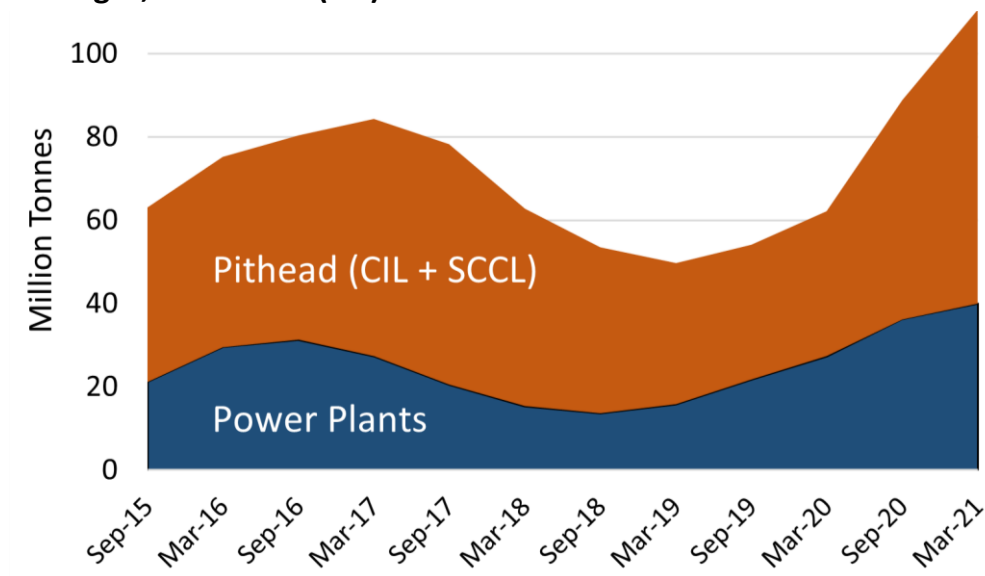


Source: IEEFA compilation of Coal Ministry Monthly Reports to Cabinet.

One problem with such large monthly swings is that it is difficult to discern underlying trends from highly variable monthly data. Short-term and seasonal effects can be removed by plotting twelve-month moving averages.

One long-term trend that does emerge however (Figure 4) is the rise, fall, and more recent steep rise in coal stocks over the past six years (pithead and power plant stocks shown separately).

**Figure 4: Power Plant vs. CIL and SCCL Pithead Stocks - 12 Month Moving Averages, 2015-2021 (Mt)**



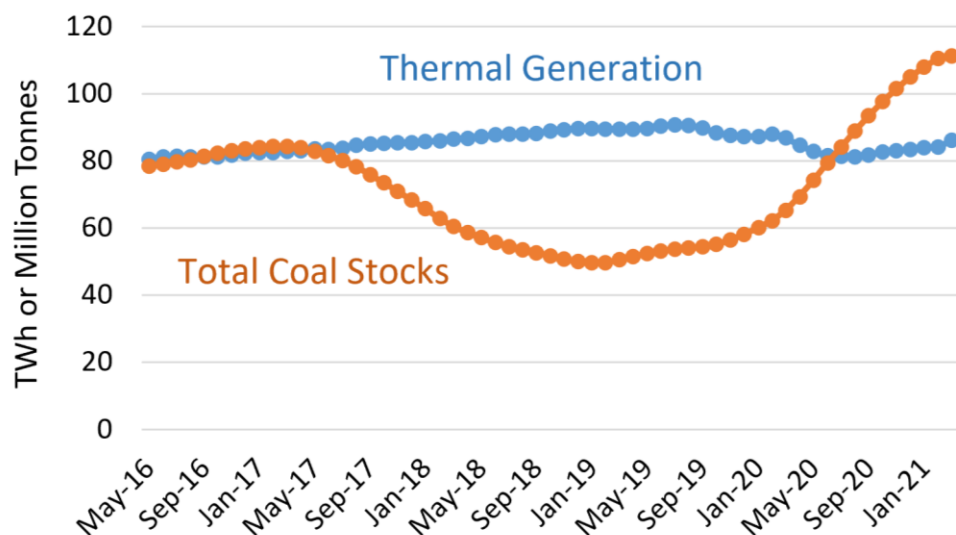
Source: IEEFA compilation of data from CEA, Coal Ministry Monthly Statements to Cabinet, the Office of the Coal Controller, Company and BSE reports.

A second trend can be identified from a comparison of stockpile moving averages over recent years with those for thermal electricity generation. Figure 5 plots these, revealing very different ratios in each of roughly three two-year periods.

In 2016 and 2017, for every terawatt-hour (TWh) of thermal power generation in India, there was approximately one million tonnes of coal stockpiled. In the following two years (2018 and 2019) this ratio fell substantially, reaching a low of about 580,000Mt per TWh. During this period, there were periodic coal shortages at some power plants, a phenomenon covered by media reports in crisis terms.<sup>4</sup> In 2020, starting a few months before the pandemic, this ratio started to climb rapidly. Now, at the end of FY21, it stands at 1.25Mt of coal stockpiled for each terawatt-hour of generation, twice as much as the preceding low value.

<sup>4</sup> Financial Express. [Crisis in making: Coal shortage shuts 10,500 MW power plants amid rising demand](#). October 2018.

**Figure 5: Total Coal Stocks vs. Thermal Electricity Generation - 12 Month Moving Averages, 2016-2021**



Source: IEEFA compilation of data from CEA, Coal Ministry Monthly Statements to Cabinet, the Office of the Coal Controller, Company and BSE reports. Thermal generation from CEA, with March 2021 value estimated from POSOCO daily reports.

## Outlook for FY22 and Beyond

The short-term outlook for FY22 is not yet clear. On the one hand, the strong rise in electricity demand in the final quarter of FY21 may continue, especially if high temperatures before the monsoon create new records in power consumption for cooling. On the other hand, March 2021 also saw a sharp increase in COVID-19 cases in India. A second wave could require measures that depress this surge.

If the recent spike in power demand is maintained, the total quantity of coal at pitheads and power plants, which corresponds to about two months' supply, would allow CIL and SCCL to meet power plant demand from stocks even if coal production remains static. The degradation of coal quality with prolonged storage and the heightened risk of spontaneous combustion also favours quickly utilising these stocks even if it depresses coal production.

In addition, the build-up in coal stocks occurred despite the claim that 90Mt of import substitution was achieved during FY21<sup>5</sup>, with no increase in domestic coal production. How much of this is true substitution is not yet clear. Certainly, up to the end of February, year-on-year imported coal consumption by power plants had fallen by 34.4 % or 22Mt<sup>6</sup>, while domestic coal consumption by power plants showed a much smaller relative decline (4.9% or 25.4Mt). This is much less than the 90Mt drop in imported coal and much of it could simply represent the partial

<sup>5</sup> Outlook: The News Scroll. [CIL's additional supply reduces coal imports by 90 MT in FY21](#). 1 April 2021.

<sup>6</sup> Government of India, Central Electricity Authority. [CEA Monthly Fuel Statement](#), February 2021

displacement of generation by plants using imported coal by domestic coal-using plants as opposed to true import substitution.

Nevertheless, it does call into question the need for an increased coal supply, such as the recent announcement of a second tranche of coal block auctions representing some 67 potential new mines, which rests heavily on import substitution as its rationale.<sup>7</sup> If current production levels can absorb import substitution and produce a surplus, such expansion plans become harder to justify. As one commentator has noted:

*“The successive [production] fall undermines its [CIL’s] ambition to steadily increase output to 1bn t by 2023-24, while also weighing on India’s overall plans to boost domestic output.”<sup>8</sup>*

The current record stock levels will put downward pressure on coal production growth, if not on absolute levels of coal production. This situation puts both CIL’s 1bn tonne production plans and the expansion of commercial domestic coal-mining increasingly at odds with the reality of a record quantity of stockpiled coal.

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<sup>7</sup> Commercial use auction: Govt offers 67 coal blocks in 2nd tranche, Indian Express, 26 March 2021

<sup>8</sup> Saurabh Chaturvedi, Coal India’s output, supplies drop again in February, Argus Media, February 2021.



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