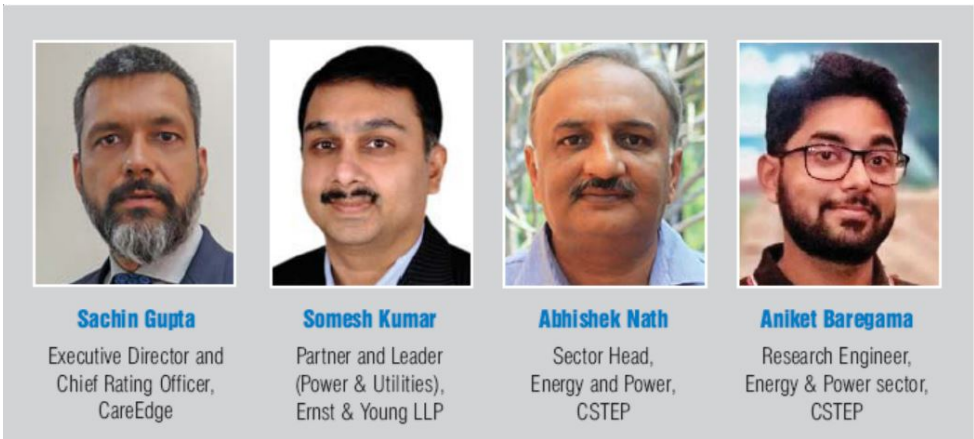
Need for Coal

Measures for ensuring adequate supply at TPPs

April 29, 2022

Thermal power plants (TPPs) in the country have reportedly been witnessing depleting coal stock in recent days, attributable in part to the increase in power demand and logistical constraints. Amid concerns of shortages, Coal India Limited (CIL) has increased its supplies to TPPs. Industry experts share their views on the current state of coal availability in the country and the steps needed to ensure adequate supply to power plants. Excerpts...



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What are your views on the current state of coal availability at TPPs in the country?

Sachin Gupta

The current level of coal availability across TPPs is low as compared to the levels during the same time last year. As per the national power portal, about 182 GW of the operational thermal capacity relies on domestic coal, as of April 10, 2022. Approximately half of this capacity is currently carrying critical stock (that is, less than 25 per cent of the normative stock or around six days of coal stock). Higher-than-anticipated demand with early onset of summer, tepid coal production and logistic bottlenecks are the primary reasons. The issues are more prominent in non-pithead plants (which account for about 80 per cent of installed thermal capacity) while the pithead plants (comprising 39 GW and about 20 per cent) continue to have reasonable coal availability.

Central generating companies (gencos) have clear advantage in terms of coal availability – on an average the actual stock available at such plants is around 60 per cent of the normative stock (which equals 26 days of coal stock). Independent power producers (IPPs) and state gencos have much lower availability at about 38 per cent and about 20 per cent, respectively. One of the dominant issues contributing to lower stock for these plants is limited availability of railway rakes. The central gencos are utilising the rake diversion and rationalisation approach for smoother operation. For IPPs with critical stock, it is generally observed that limited despatch adds to the rail transportation woes. An internal factor, which has also caused limited coal availability with state gencos and IPPs, is delayed payments to coal companies.

The availability of coal for plants operating with only imported coal is also relatively low. This is on account of continuing higher prices in the international market.

Somesh Kumar

The shortage of electricity as a percentage of demand has shot up to 1.4 per cent over the first week of April, higher than the 1 per cent deficit in October 2021, when India last faced a serious coal shortage and the 0.5 per cent shortfall in March 2022. Currently, the overall stock in 173 power plants stands at 23.5 million tonnes (mt), 36 per cent of the normative stock of 66.7 mt. In a country where 75 per cent of electricity is generated using coal, this is a major cause for concern as it threatens to derail India's economic recovery.

Industrial states such as Maharashtra, Gujarat, Andhra Pradesh and Karnataka are the worst hit as their state-owned units have an average of just four days worth of coal stock. Andhra Pradesh declared a power holiday bringing major and minor industries to a grinding halt.

There has been a sharp uptick in power demand as the economy recovers from the Covid-19 pandemic coupled with supply issues that have led to the current coal shortage. The electricity production was 1,234.98 billion

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units (during April 21-January 2022), a rise of 8.48 per cent compared to last year.

Also, coal import was reduced to 173.32 mt by January 2022, compared to 215.25 mt in 2020-21, 248.54 mt in 2019-20 and 235.35 mt in 2018-19. The government expects to close the imports to 180-190 million tonnes in financial year 2022, a reduction of 35-40 mt as compared to the previous year.

A shortage of rakes by Indian Railways (IR) to deliver coal to power plants is also exacerbating the supply crisis. The number of trains committed by IR per day is 415, 8.4 per cent less than the 453 required by utilities. The actual number of trains available during April 1-6, 2022, was 379 per day, 16 per cent less than the required number.

However, Coal India has 61 mt of stock available, power stations have 25 mt while sheds and washeries have another 5 mt, taking the total availability as of now to 91 mt. This is enough for 45 days, considering the peak demand of 1.9 mt of coal per day in October 2021.

Abhishek Nath and Aniket Baregama

Recently, TPPs across India experienced an acute coal shortage. The shortage was also felt throughout the Asian subcontinent. Many internal and external factors have contributed to the situation and are under investigation. Stakeholders have identified some of the most common causes of this situation.

Power demand in India started reducing during the lockdowns imposed to manage the Covid-19 pandemic, especially the demand from commercial consumers. As the lockdowns continued, the load on TPPs remained low and resulted in low coal consumption rates. However, from July 2021, most of the Covid-19 restrictions were revoked across India, and commercial and industrial activities started recovering rapidly. The overall power demand recovered to the pre-Covid levels and even crossed it. TPPs were not expecting this sudden increase in power demand. The low coal inventory available at plant locations aggravated the problem.

The Central Electricity Authority (CEA) norms mandate that there should be at least 15-30 days of coal available in the inventories of TPPs based on their distance from allocated coal mines. These coal inventories should be utilised in high demand or low coal supply situations. However, many of the TPPs were not maintaining even the minimum quantity of coal required in their inventories. Many stakeholders suggest that distribution companies (discoms) are still operating under high debt, and revival schemes, such as the Ujwal Discom Assurance Yojana (UDAY), have failed on the ground. Therefore, discoms are not making payments to gencos on time. In turn, the gencos are not able to buy large coal stock for their inventories.

India is also facing problems with coal transportation. The majority of domestic coal is mined from the eastern states of Jharkhand, Chhattisgarh and Odisha, and transported to other states via Indian Railways – the

foremost mode of coal transportation in the country. The Indian monsoon, from June to September, slows down coal transportation and mining.

Also, high calorific value coal is imported from Indonesia and Australia. These countries are already facing challenges with high coal demand from many dependent countries. Due to this high demand, the cost of coal has increased across the world. Additionally, coal transportation through sea routes takes days to reach India. This situation has led to a 12 per cent decrease in coal imports.

What are the steps required to ensure adequate coal at TPPs?

Sachin Gupta

Some of the steps that should be taken are:

- First, there is a need to accelerate award of mining lease and speed up the development of mines for already auctioned mines. The auction of commercial coal blocks had commenced in June 2020 and has been conducted in several phases. Over 40 coal mines have been auctioned with a cumulative peak rate capacity exceeding 80 million tonnes per annum (which corresponds to about 12 per cent of coal requirement). However, the the award of the licensing-cum-mining lease has not kept pace with the auctions.
- Second, a more flexible and accommodative policy with respect to the sale of coal on the payment of additional amount by the lessee of a captive mine may ease the paucity of coal in the interim. After all, an efficient mining process along with higher revenue sharing with the government is a win-win for all stakeholders.
- Third, the availability of linkage coal should be rationalised across the country. Swapping the tie-up arrangements within the subsidiaries of CIL can minimise transportation costs and logistical challenges. This will ensure better fuel availability as well as reduce the overall power cost in the country.
- Additionally, for efficient logistics, prioritisation of rail rakes can be explored for the more cost-efficient plants that have the potential for a sustained healthy utilisation factor. In other words, plants at relative proximity to the fuel source should be prioritised for rake allocation.
- Last but not least, delayed payment by discoms has a bearing on the financials of IPPs and state gencos. This affects the payment to coal companies, leading to lower despatch or poor quality despatch. While the central government had made sales to discoms to be backed by LC, in real sense, this is not followed in spirit. Gencos generally do not invoke the LC leading to elongated receivables. A prompt payment mechanism will help address the financial woes in the power value chain to some extent.

Somesh Kumar

Short term

As per data, the daily production of CIL was 2.9 mt while daily offtake by consumers was 2 mt in the month of March. An increase in wagons for coal evacuation would improve the situation.

The power ministry has advised states to import coal for 10 per cent blending with domestic coal at their power stations. This would again help in increasing the supply of coal.

Long term

- Coal supply: According to the Coal Vision 2030, published by CIL in 2017, the total coal demand in India in 2020 is expected to be 900-1,000 mtpa and 1,300-1,900 mtpa by 2030. In order to meet the requirement, coal production should be increased to 1 billion tonnes per annum. Also, commercial coal mining would increase the supply of domestic coal. In the last three rounds of commercial coal mine auctions, a total of 42 mines have been awarded.

To maintain product the quality at the loading end, minimum human interference is desired and a more mechanised loading process should be adopted. Coal needs to be stored in silos/ bunkers and should be loaded on to wagons directly through belt conveyors/rapid loading system. The plan should be to improve first mile connectivity so that more coal can be moved in a shorter time from large mines.

- Railway infrastructure: In financial year 2021, 589 mt of coal (inclusive of imports) was transported through the railways. A fully operational and dedicated freight corridor, especially the eastern DFC, would help in better supply of coal. The eastern DFC was planned with coal as the dominant form of freight. It has the potential to relieve other lines from transporting almost the entire thermal coal requirements for Punjab, Delhi, Haryana, Rajasthan, and Uttar Pradesh. These states accounted for 119 mt of coal requirement during 2018-19.

Also, the locos and wagons belonging to Indian Railways should be upgraded. New designs such as the electric freight locomotive WAG-12 can help manage more material, and reduce the transit losses as well as unloading time for better optimisation of infrastructure. These designs are already in use in other countries.

Abhishek Nath and Aniket Baregama

Power plants need to maintain their coal inventories responsibly based on the CEA norms, and regulators need to monitor the inventory status of power plants and provide the required support. In case there is a coal shortage, gencos need to facilitate dialogue with discoms and other utilities for clarity on power offtake in a timely manner. This will create better synchronisation among stakeholders to manage the scheduling more reliably.

A high renewable energy mix is also expected in the long term. Therefore, the spinning reserve needs to be increased in the country.