

Largesse that wasn't: The story of coal shortages in India

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Largesse that wasn't: The story of coal shortages in India

March 2014

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Executive Summary

India has been beset with a huge coal shortage that is affecting its power production, necessitating coal imports and increasing its trade deficit. This report analyzes the causes that led to the shortage and what the Government's response to the shortage has been.

The unaccountable functioning of the linkage committee leading to abundant allocation of coal linkages for power generation without factoring in other issues such as realistic domestic coal production, allocation and pricing of imported coal and import infrastructure and logistics is the primary cause behind the coal shortage. All indications, including the relevant policy and contractual documents, clearly indicated that imports would be required to meet the linkage commitments. However, the Government did not take any policy measures to address this eventuality. Other stakeholders, particularly power plant developers and their financiers ignored the very realistic possibility of coal imports and based their business plans on abundant availability of domestic coal, which was never promised. Thus, it could be said that they contributed to the coal shortage unlike the popular perception that they are victims of it. Coal India Ltd. (CIL) could have ameliorated the shortage to some extent if it had been more efficient.

The Government's response to the unraveling shortage has been very ineffective and inadequate. Issuing presidential directives to CIL and forcing it to sign Fuel Supply Agreements (FSAs) did not help as CIL could not possibly supply domestic coal in the quantities expected and consumers were unwilling to take

imported coal at higher cost. The recent decision by the Cabinet Committee on Economic Affairs also does not help to address the situation, as it fundamentally does not change anything. It only reiterates existing policies such as the New Coal Distribution Policy in an attempt to address the problems faced by some power developers. More importantly, it does not address the important short-term questions of pricing and allocation of imported coal, diplomatic initiatives to ensure low-cost imports and import logistics, nor does it address long term questions of energy security and future of the coal and power sectors.

This report suggests some solutions to address the shortage in the short-term and to reform the sector in the long-term. For the short-term, it suggests that the increased costs of power generation due to imported coal should be shared equitably between the various parties responsible for this situation, namely power producers, their financiers and CIL. It also suggests that the coal sector is in urgent need of various systemic reforms to address many issues beginning with role, structure, functioning and accountability of the linkage committee and covering issues such as the coal distribution policy, productivity and efficiency of CIL, accountability for quality and quantity of coal delivered and the coal market structure and pricing. The proposed Coal Regulatory Authority could be a useful vehicle to implement and oversee some of the desired reforms, if it is structured and empowered appropriately.



1. Coal shortage in India

India's coal imports have been increasing dramatically over the last few years due to a combination of surging demand and relatively stagnant domestic production. The demand surge has been primarily driven by a rapid increase in installed coal-based power capacity, which went up from 76 Giga watts (GW) in March 2008 to about 130 GW in March 2013, an increase of 71% (CEA, 2008; CEA, 2013a). During the same period, production of steam coal which is mainly used for the power sector, went up from 423 million tons per annum (MTPA) to 508 MTPA, an increase of only 20% (CCO, 2009, p. 4.35; Reuters, 2013). As a result, imports of coal by the power sector have surged by about 510% between 2007-08 and 2012-13 – from 10.2 MT to 62.5 MT, as shown in Figure 1.

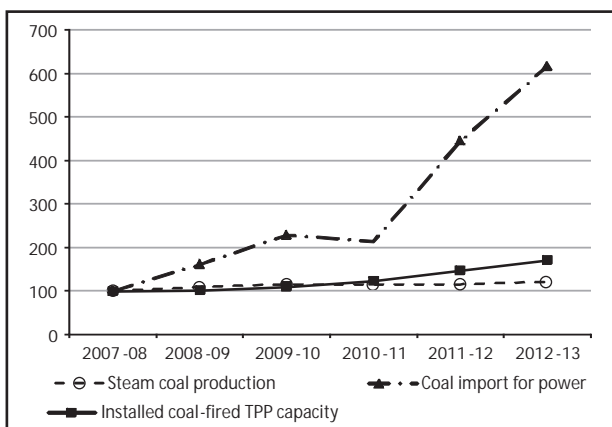


Figure 1: Steam coal production, coal based power capacity and power sector coal imports (2007-08 = 100)¹

This rapid increase in coal imports has led to various problems. Rising coal imports, along with a falling rupee and relatively high cost of imported coal, have exacerbated the problem of the country's high current account deficit with the value of total coal imports going up from Rs. 20,738 crores to Rs. 81,013 crores between 2007-08 and 2012-13, leading to its share of India's current account deficit increasing from 5.8% to 7.8% during this period (CCO, 2011, p. 7.6; Ministry of Commerce, India; PIB, 2013a).

Increasing imports have led to debates about who should bear the resultant higher cost of coal, as imported coal is costlier than domestic coal on an

equivalent calorific value basis. Power producers have been demanding that the increased cost of power generation due to increased coal imports should be 'passed through' to power purchasers as their plants would not be viable otherwise (Business Standard, 2013a). The situation gets more complicated because many of these power generators have won the right to supply power to distribution utilities at a certain tariff discovered through a competitive bidding process, and have signed legally binding power purchase agreements (PPAs) to sell power to them.

Since 2006-07, about 54.5 GW of power capacity has been competitively bid out in addition to other capacity that is being added (Prayas Energy Group, 2011, p. 6; CERC, 2013a, p. 80). As this newly added capacity is getting commissioned, fuel availability related concerns are getting increasingly critical.

The chief response of the Government to deal with this 'crisis' was a decision by the Cabinet Committee on Economic Affairs (CCEA) to ask Coal India Ltd. (CIL)² to sign Fuel Supply Agreements (FSAs) with power companies and to ask the Central Electricity Regulatory Commission (CERC) to develop modalities to allow pass-through of imported coal costs for power plants commissioned before March 31, 2015 (PIB, 2013b). The decision to consider passing through costs of imported coal has been welcomed by power producers (Business Today, 2013). On the other hand, some states and electricity distribution companies are worried about the likely increase in cost of power, and this may deter some of them from buying it (NDTV, 2013).

It would be instructive to understand the genesis of the current coal shortage and the Government's response to it. Is this shortage of domestic coal something really unexpected, or were there warning signs that were ignored? What was the role of various agencies involved? Was there sufficient coordination in planning and development of the coal sector and its primary consumer, the power sector? What is likely to be the downstream impact of these various decisions? What is likely to be the impact of the CCEA's decision and will it be enough to address the crisis? The coal shortage is here to stay for at least some time, and hence requires a well-thought out policy response. In this context, it is important to answer these questions and critically

1 Source: Various Central Electricity Authority (CEA) reports and coal directories such as (CEA, 2013b, p. 11; CCO, 2009).

2 CIL is the world's largest coal supplier which supplies over 80% of India's coal. It is largely (90%) owned by the Government of India.

analyze the Government response so that corrective actions can be initiated as required. In this report, we try to answer these questions and provide suggestions for a way forward.

2. Acquiring access to coal: the role of coal linkages

The Electricity Act of 2003 liberalized power generation allowing anybody to set up a power plant as long as they could raise the necessary finance, obtain the necessary permissions and get access to fuel, land and water. For a coal-fired thermal power plant, getting access to assured coal supply of a given quality and at a predictable price is one of the key steps in the process of setting up the plant, as fuel costs account for about 75% of power generation costs. Access to fuel for a coal-based power plant can be obtained in one of the following ways:

1. Coal linkage: The most common way to obtain access to coal is through obtaining a coal 'linkage'. The Standing Linkage Committee (Long-Term), or SLC (LT), is the agency responsible for recommending coal linkages to all major consumers. Based on the SLC (LT)'s recommendation, the coal supplier, typically a CIL subsidiary, issues a Letter of Assurance (LoA) to the consumer about supplying coal subject to achievement of certain milestones. This coal is usually supplied at CIL notified prices.
2. Captive coal blocks: The second way of obtaining access to coal is by having a captive coal block which can be mined by the power developer, as facilitated by amendments to the Coal Mines Nationalization Act. Hence, the cost of accessing this coal would just be the cost of mining the coal. The Comptroller and Auditor General (CAG) questioned the transparency and objectivity of allotting captive coal blocks (CAG, 2012), leading to the 'coal-gate' scandal. Since then, the Government has proposed to auction captive blocks in future rather than allocating them (MoC, 2012c).
3. Imports: The third source for coal is imports, with prices being negotiated between the buyer and

seller, based on prevailing market prices. Recognizing the likelihood of domestic coal production not being able to meet all domestic power demand, some coal based plants were encouraged to be designed to work with a blend of domestic and imported coal while a few others were to be wholly based on imported coal. These coal plants were expected to arrange for coal imports themselves.

4. E-Auctions: Though e-auctions were originally introduced to make coal available to small consumers who could not access coal through formal institutional mechanisms, power producers also resorted to using e-auctions as a means of getting coal in view of the prevailing shortages (MoC, 2007a, p. 6). The price of coal in such cases is discovered at the auction, but the quantities procured through e-auctions are typically very small.
5. A combination of the above: Coal could also be obtained using a combination of the above approaches. For example, a power plant based on a captive mine could get a 'tapering linkage' which would enable it to access coal on a tapering basis even as it develops its captive mine. Similarly, a power plant whose coal linkage is less than its total requirement could import coal to make up for the shortfall.

In all the above cases, costs of transporting the fuel and applicable duties and taxes would also have to be borne by the power producer.

Of the 410 MT of domestic coal off-take to the power sector in 2011-12, 384 MT³ (93%) was supplied by CIL and Singareni Collieries Company Limited (SCCL) through coal linkages or Memorandum of Understanding (MoU) (CCO, 2012, p. 4.26). In contrast, coal from captive blocks only contributed about 26 MT to the power sector in 2011-12 and the coal imported for purely import-based power plants was estimated to be only around 20 MT (CCO, 2012, p. 9.7; CEA, 2012a). Of the 62.5 GW of coal-based capacity proposed to be added in the 12th five year plan, over 56.3 GW⁴ (90%) will depend on coal linkage (MoP, 2012, p. 1.15). Figure 2 summarizes these figures.

3 It is not clear whether this includes coal sold through e-auctions. But the quantity sold through e-auctions is likely to be very small – only about 10 MT or 2.5% of total dispatch.

4 This includes about 18 GW of captive coal based capacity which also gets "tapering linkage" most of which will last until the end of the 12th five year plan.

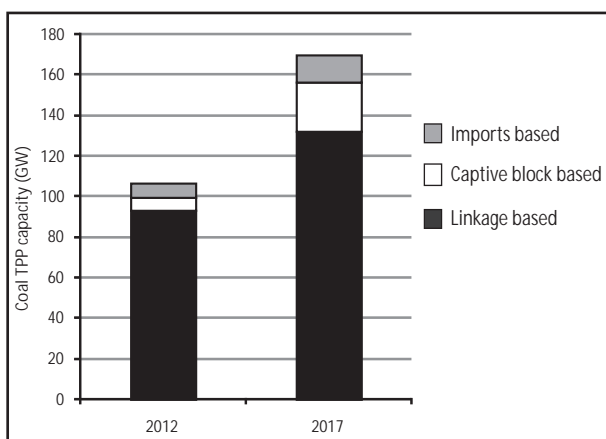


Figure 2: Importance of linkages for coal-based capacity⁵

The above discussion highlights the extremely important role of coal linkages in ensuring reliable fuel supply to coal-fired capacity in India. Therefore, a rational process of granting coal linkages, which balances likely capacity addition, domestic coal production and feasibility of coal imports is critical. As coal is a limited and national resource, there is also great need for transparency and objectivity in the process of granting linkages. This is particularly so given the very high demand for linkages. According to the Ministry of Coal (MoC), there are pending linkage applications from the power sector for about 600 GW of capacity (about 2700 MTPA) (MoC, 2013a). This is about 5 times India's current installed coal based power capacity and significantly more than the projected requirement of coal-based capacity even in 2031-32 under any supply scenario given in the Integrated Energy Policy (Planning Commission, 2006). Distributing a scarce resource among so many claimants clearly needs transparent and rational guidelines, particularly in view of the questions raised in the wake of the 'coal-gate' scandal.

3. Policy and legal framework governing coal linkages

The policy governing coal linkages is the New Coal Distribution Policy (NCDP) introduced by the MoC in 2007 (MoC, 2007a). According to the NCDP, the SLC (LT) for power would be responsible for recommending coal

linkage to all power⁶ sector consumers. The SLC (LT) consists of representatives from concerned ministries such as Coal, Power, Railways, Shipping and Industry, Planning Commission, CEA and coal producers such as CIL and SCCL (MoC). Once the SLC (LT) recommends LoA, the coal supplier, typically a CIL subsidiary, would issue a LoA to the consumer about supplying coal, conditional to the consumer achieving certain milestones within specified timeframes. Upon achieving the required milestones, the LoA is expected to get converted into an enforceable FSA, based on which the supplier would sell coal to the buyer. Thus, any consumer desirous of obtaining coal through the linkage route has to take the following steps:

- Apply to the SLC (LT) for linkage
- Obtain an LoA from a coal supplier after the SLC (LT) recommends issuance of LoA
- Develop its end-use facility, using the LoA as required to obtain clearances, financial closure etc.
- Convert its LoA to an FSA with the coal supplier after achieving its milestones.

NCDP, LoA, FSA and imports

One important point about the NCDP, LoA and FSA needs to be highlighted and understood. The NCDP, in clause 5.2, mentions that [emphasis added] "In order to meet the domestic requirement of coal, *CIL may have to import coal as may be required* from time to time, if feasible. CIL may adjust its overall price accordingly. Thus, it will be the *responsibility of CIL / coal companies to meet full requirement of coal under FSAs even by resorting to imports*, if necessary." (MoC, 2007a, p. 4).

Following the publication of NCDP, CIL issued a template LoA in March 2008. This states [emphasis added] in clause 1.1 that "It is *expressly clarified* that in the event of incremental coal supplies available with the Assurer ... being less than the incremental coal demand, ... *the balance quantity of coal requirement shall be made through imports of coal*" and further states in clause 1.2 that "the quantity of imported coal that may be supplied to the Assured ... *shall be charged at landed cost plus service charge*" (CIL, 2008a, pp. 1, 2).

The various model FSAs that have been put out by CIL

5 Source: CEA reports and 12th five year plan Working Group report from Ministry of Power (MoP). Note that there is a discrepancy between MoP's working group report and the final 12th five year plan document in the expected coal-based capacity addition in the 12th five year plan.

6 As this report focuses on coal shortage mainly from the power sector's perspective, henceforth SLC (LT) is intended to mean SLC (LT) for power.

further confirm the point about imports. Clause 3.3 of the model FSA from August 2008 for public sector power companies states that [emphasis added] “the seller shall have the option to *supply the balance quantity of coal from alternate source, including imported coal*” (CIL, 2008b, p. 9). Similarly, clause 4.3.1 of the modified model FSA for non-tapering linkage for private power utilities as well as clause 3.3.1 of FSA for public sector generating companies issued in 2013 state that part of the coal could be imported, with the extra cost of imports to be borne by the coal purchaser (CIL, 2013a; CIL, 2013b)⁷.

The point to be emphasized is that all the concerned policy and relevant contractual documents clearly state that part of the coal to be supplied to consumers may be imported, with the cost of imported coal to be borne by the coal consumers, i.e. the power producers.

4. Analysis of coal linkages granted

As of 30th September, 2013, CIL's total coal supply commitment to the power sector utilities, in the form of LoAs issued or FSAs signed, was about 426 MTPA⁸ (CIL, 2013c). All 176 units to whom LoAs have been issued have claimed to have met all the expected milestones such as achieving financial closure, obtaining various clearances and completing land acquisition. Of these 176, CIL has completed verification of 138 of these claims and signed FSAs with 120 of them. Given this significant progress in development of power plants and tying up of supply commitments, it is reasonable to expect that all these commitments would have to be met in another 30 months, i.e. by 2015-16.

This implies that CIL would have to supply 426 MTPA to power utilities by 2015-16. Given that the quantity of coal supplied to power utilities⁹ by CIL in 2012-13 was 345 MTPA (CIL, 2013d, p. 23), CIL needs to supply¹⁰ an

additional 81 MTPA of coal to power utilities over the next three years, or an increase of about 7% p.a. In contrast, the increase in supply to power utilities from CIL over the last three years has been just 46 MTPA, with an average annual increase of 4%¹¹ (CIL, 2013d, p. 23). In other words, CIL's supply to power utilities has to increase by about 75% over the next three years compared to the increase over the previous three years. This steep increase is rather unrealistic to expect from only domestic sources, and portends a large deficit of domestic coal for the power sector through the 12th five year plan, as anticipated in the plan document (Planning Commission, 2012, pp. 149, 166).

From the above, one can conclude that linkages were granted to power producers with the clear understanding that these can be met only with imports augmenting domestic supply. However, the prevalent coal shortage suggests that this understanding, which is also reflected in policy and contractual documents, has not translated into actions by the relevant stakeholders. It is revealing to look at the role played by the various agencies involved in bringing about this disconnect between intent and action.

5. Role of various agencies

5.1. SLC (LT), MoC and MoP

SLC (LT)

The SLC (LT) is the most important agency in the process of granting linkages. An analysis of the minutes of meetings of the SLC (LT) reveals a very mixed picture of its role regarding allocation of linkages far in excess of possible domestic production.

Representatives from CIL had stated in many meetings of the SLC (LT) that they were already over committed in terms of the coal they can supply and could not take up any further responsibility. However, it appears that the SLC (LT) took the position that all bona-fide

7 Interestingly, the LoA and FSA only promise that the seller will make ‘best endeavor’ to supply coal rather assure that the coal will be supplied, greatly diluting the coal suppliers obligation to supply the requisite quantity of coal.

8 This is assuming that this quantity also covers all commitments already being supplied. Other sources suggest much higher commitments such as 665 MTPA by the end of the 12th five year plan (Infraline, 2014). This would make the argument for imports to meet CIL's commitments much stronger.

9 The annual report mentions this as total off-take to power sector. We conservatively assume that this is just the quantity supplied to power utilities, i.e. not captive power plants.

10 The supply may be from domestic production or from imports as indicated in NCDP and the LoA template.

11 CIL's supply to the power sector in the year 2012-13 did increase by an impressive 33 MT (11%) but this is not likely to be sustainable since it was achieved more by reducing pit-head stocks than increased production, which went up by only about 16 MTPA (4%).

applicants should get linkages, while other related issues such as how much of each linkage would be met from imported coal, pricing of imported coal and logistics for it remained neglected.

For example, CIL pointed out in the SLC (LT) meeting held on November 2007 that there was a gap of 163 MT between its then commitments and projected production during the 11th five year plan, and issues of logistics and pricing would have to be addressed if CIL were to import coal to meet the shortfall. However, the SLC (LT) felt that, according to the NCDP, all bona-fide applicants were to be granted linkages and it was the responsibility of CIL to supply coal to them as indicated in the NCDP¹², while issues of pricing etc. could not be discussed at the SLC (LT) (MoC, 2008b, p. 3).

CIL expressed similar fears during the meetings held in August and October/November 2008¹³ with a broadly similar response from SLC (LT) (MoC, 2008c, p. 5; MoC, 2008d, p. 3). Interestingly, the SLC (LT) recommended additional linkages for 117 MTPA over the same two meetings, and a further 104 MTPA of linkages in the next meetings held in 2010 (MoC, 2012a) with most of them having commissioning dates before 2014-15. CIL representatives again reiterated in the meeting of February 2012 that considering LOA commitments & CIL's production estimates by end of 2016-17, CIL would be able to supply only 50% of normative requirement through indigenous sources and the balance would have to be imported if feasible (MoC, 2012b, p. 2).

These records of the SLC (LT)'s minutes clearly show that there was a complete disconnect between SLC (LT) and CIL on several issues such as

- the basis for granting linkages,
- the role of CIL – whether it is a coal producer or a coal supplier
- which coal consumers would get how much domestic coal and
- associated issues such as pricing and import logistics to be resolved before CIL could import coal

This lack of clarity meant that it was not clear to individual power producers how much of their coal requirement would be met from domestic sources and how much from imported coal, making it difficult for

them to make their business plans. It is possible that it was this confusion, and consequent non-availability of firm commitments from power generators to accept imported coal and coal exporter's unwillingness to offer long term coal supply contracts, due to which CIL did not import 4 MT for coal for power utilities in spite of being asked to do so by MoC in 2007-08 (PIB, 2008; MoC, 2012b, p. 2).

To summarize, SLC (LT) seems to have interpreted the NCDP to mean that the SLC (LT) should recommend LoA to any genuine applicant, without holistically considering the supply-demand situation and considering the implications of these linkages on fuel costs (and hence power tariffs), allocation of imported coal among power producers and import logistics. Instead, after the impending shortage had turned into a reality, they proposed ad-hoc measures such as presidential directives to mandate CIL to import coal and sign FSAs, and pooling coal prices though CIL felt it was being forced into such FSAs (PIB, 2008; PIB, 2013d; Infrights, 2012; Mint, 2013; The Hindu Business Line, 2013a). Indeed, there are suggestions to indicate that the SLC (LT) did not anticipate the kind of power generation capacity addition that actually happened during the 11th five year plan which may have been partially responsible for their complacency (MoC, 2008a, p. 2). But the fact remains that no Government agency took responsibility to raise and resolve associated issues.

MoC and MoP

The two most important concerned ministries, namely MoC and MoP, also seemed to have focused only their sectors without taking a comprehensive view.

For example, the NCDP formulated by MoC seems to be independent of possible domestic supply, as though imports raised no additional issues, which was clearly not true. Instead, NCDP could have been more explicit about outlining a strategy to balance domestic supply with imports and how these imports could be allocated among various consumers. It could have provided clear guidelines to SLC (LT) on how to recommend linkages, how to resolve pricing issues and ensure that it took up issues such as import infrastructure development in tune with import requirements. For its part, MoP only

12 The source of coal mentioned in the linkage recommendations is always a CIL subsidiary. This is perhaps under the understanding that it was that subsidiary's responsibility to supply coal – either from its own production or through imports.

13 The meeting was conducted in two parts – one on 23rd October 2008 and 12th November 2008.

seemed to be pushing the case for power producers to get linkages without worrying about where the coal to satisfy those linkages would come from, and what impacts that would have on power sector stakeholders (MoC, 2008a, p. 2).

5.2. Power generators who won tariff-based bids

The general perception and media coverage has been that CIL's inability to produce enough coal to meet its commitments is the primary cause of the power sector's fuel shortage woes (Mint, 2012; Asian Power, 2013). While this is partially true, it paints power generators purely as victims of the coal shortage though some analysis shows that they, in particular those who won competitive tariff-based bids, were at least as culpable for the crisis.

As discussed earlier, *all* the policies and contractual documents since the introduction of NCDP in 2007 clearly state that imports can be used to meet the commitments made in the coal linkage. Therefore, it is not true to say that coal imports were unanticipated and it was expected that all coal would have been supplied from domestic sources.

It should have been evident from the minutes of the SLC (LT) meetings, CIL's annual coal production targets and achievements, and CIL's red herring prospectus (CIL, 2010, p. xxxi), all of which are publicly available, that domestic coal production would not be able to keep up with the coal demanded through linkages for the power sector. Therefore, power generators with linkages cannot legally or morally claim to be ignorant of the need for imports to meet their linkage commitments. However, in spite of this, many power producers who participated in competitive tariff based bidding for power bid aggressively low tariffs to win bids. Of the 8 Case-I domestic coal based power procurement bids during 2006 to 2010 won by power generators with linkages, only half the winners quoted any escalable fuel charge at all, though the bidding norms allowed quoting for such a component (Prayas Energy Group, 2011, p. 28). This is in spite of the fact that, between 2000 and 2006, Japanese steam coal

import prices had increased at the rate of 10.5% annually, and a similar trend was also observed for other coal prices (BP, 2013).

The total fuel related charges, i.e. sum of escalable and non-escalable fuel charges estimated for 2010-11 from the eight winning power procurement bids based on Case I bidding ranged from 0.46 Rs./kWh to 1.49 Rs./kWh (Prayas Energy Group, 2011, p. 36). This translates¹⁴ to total fuel charges in the range of 604 Rs./ton to 1977 Rs./ton, with five of the eight bids being close to, or less than, 1313.4 Rs./ton which was the average cost of domestic coal supplied to the power sector in 2010-11 (CCO, 2011, p. 6.10).

In dollar terms, the winning bids represented coal costs in the range of 13 US\$/ton to 44 US\$/ton¹⁵, with five bids representing costs below 40 US\$/ton. The Free on Board (FOB) price (that is without including land and sea freight, customs, insurance etc.) of comparable Indonesian eco-coal, used by many Indian power generators, in 2010 was about 48 US\$/ton in 2010¹⁶. The quoted fuel transport related charges (escalable and non-escalable) were also highly inadequate to meet the costs of international freight, customs etc.

This suggests that most winning bidders effectively assumed that coal linkages would be met through domestic sources in spite of all contracts and documents clearly stating otherwise. This is reinforced by other reports suggesting that power capacity was planned assuming domestic coal availability (FICCI & Metis Energy Consulting, 2013), petitions by power producers to regulators for tariff revision (MERC, 2013), and CIL's difficulty in getting firm commitments to accept imported coal from power utilities with LoAs, with only about half of them willing to sign the side-agreement to the FSA agreeing to accept imported coal (MoC, 2012b, p. 2; Economic Times, 2013a; Infra line, 2013).

Thus, power generators, particularly those who won competitive bids for power supply, bid aggressively without either understanding the risks involved, or with the intention of approaching regulators to reopen legally signed power-purchase contracts after winning the bid, though the power purchase agreements for

14 Throughout this report, we assume an average GCV of Indian steam coal of 3600 kcal / kg and that station heat rate of Indian power plants of 2717 kCal / kWh (CEA, 2012b, p. 116; CEA, 2012c)

15 Assuming an exchange rate of Rs. 45 / US\$

16 See, for example, <http://www.bloomberg.com/news/2010-10-11/indonesia-s-coal-prices-climb-for-first-month-in-four-update1-.html> and <http://media.argusmedia.com/-/media/Files/PDFs/Samples/Argus-Coalindo-ICI.pdf>, accessed January 21, 2014.

competitively won bids has no provision for passing through increased fuel costs. Therefore, in spite of the pressure to revisit tariffs in many of these projects (Business Standard, 2013a; Economic Times, 2012a; Economic Times, 2012b; MERC, 2013), it is perhaps fair to say that power generators are also as responsible for the coal shortage rather than just being victims of it.

5.3. Investors and lenders

While power generation companies may be blamed for bidding aggressively without taking due cognizance of potential shortage of coal, investors and lenders who financed these power plants were equally culpable. There was enough information available in the public domain through sources such as NCDP, template LoAs and FSAs, SLC (LT) meeting minutes, and red herring prospectuses from CIL and even some power producers (CIL, 2010, p. xxxi; Adani Power Ltd., 2009, p. xiii), to inform them of the legal provision for imports to meet linkages and the need for imports due to potential shortage of domestic coal. Therefore, it is surprising that the lenders appear to have done so little due diligence about the viability of the power plants that bid so aggressively, and blindly supported them in their ventures. It appears that they too were happy to believe the optimistic picture painted by power developers and financed them.

This points to a serious lapse on the part of the financial institutions, as it is their responsibility and duty to ensure that the projects they support have viable business plans. While individual project proponents may take undue risks in the hope of winning a bid, particularly given the lack of clarity about how the coal shortage would be distributed across coal consumers, it is indicative of a much more systematic failure that none of the financial institutions did their due diligence and supported many such projects.

As the reality of imports loomed closer and their investments began to look less rosy, many of the financial institutions themselves came under threat because of their large exposure to such power projects (Indian Express, 2012a; The Hindu, 2013). This is eerily similar to US banks providing 'sub-prime' housing loans that triggered the global financial crisis of 2008 though

one hopes that the situation in India will not become as bad. In any case, it is clear that financial institutions which supported power projects based on 100% domestic coal availability have only themselves to blame. It also points to the need to have systems to ensure that India does not fall victim to the 'too big to fail' syndrome because of the imprudence of some financial organizations.

5.4. CIL

CIL had regularly voiced its reservations at various SLC (LT) meetings about its ability to meet the quantity of linkages being granted from its production. It has also stated this as a risk in its draft red herring prospectus prior to its initial public offering (CIL, 2010, p. xxxi). Its model LoA and FSA also made it clear that it may have to resort to imports to meet its commitments. However, this does not absolve CIL completely from its responsibilities as the country's primary coal supplier.

Firstly, as has been highlighted elsewhere, there is significant room for improvement in the productivity and efficiency of CIL (CAG, 2012, pp. 9-20; Prayas Energy Group, 2013, pp. 19-20). A more efficient CIL could by itself have helped to at least partially mitigate the problems caused by the shortage. For example, as late as August 2007, the CIL representative at the SLC (LT) meeting stated that it could produce 520 MT of coal by 2011-12 (MoC, 2007b, p. 2). In reality, CIL produced only about 436 MT in 2011-12 (CIL, 2012a, p. 19)¹⁷. Instead of this shortfall of about 84 MT, if CIL had met its own production forecast for 2011-12, it could have reduced India's coal imports by about 55 MT out of 103 MT in 2011-12 (PIB, 2013a).

It could also have taken advantage of the provision in clause 5.2 of NCDP, which gave it the power to decide the price of coal including an import component, to propose a pricing strategy for such a mix of domestic and imported coal. This could have triggered a public discourse about coal imports and associated issues of pricing and logistics, much before the shortage became a crisis.

Instead, CIL's strategy to protect its interests seems to have been two-fold, as indicated in a recent order from the Competition Commission of India (CCI) concluding that CIL and its subsidiaries abused their dominant

17 Delays in obtaining various clearances and changes in forest clearance regime may have partially contributed to the shortfall in production, though CIL's own inefficiencies should also not be ignored.

market position:

- not enter into new FSAs that would commit it to legally supply a fixed quantity of coal to power companies (CCI, 2012, p. 4)
- use a unilaterally developed FSA that would give it significant flexibility in the quantity and quality of coal it needs to supply through clauses relating to sampling and testing procedures, compensation for supply of stones and penalty for under-supply (CCI, 2012, p. 94).

5.5. Other agencies

Government planning agencies

The Planning Commission, which may be seen as the nodal planning and coordination agency for inter-ministerial issues, is a member of the SLC (LT) and its representatives attended some of the SLC (LT) meetings held between 2006 and 2010. In the October 2008 meeting, its representative said that imports will continue to be a crucial component of overall coal availability in the country, and therefore there was a need to plan for such imports. However, to the best of our knowledge, they did not pursue the matter further by addressing associated issues highlighted earlier.

Most coal linkages were granted between 2007 and 2009. By 2009, there would have been a good idea of the likely coal shortage in 2012, as indicated in the mid-term assessment of the 11th five year plan which stated that India would require about 40.85 MT of steam coal imports in 2011-12¹⁸ (Planning Commission, 2009, p. 306). Therefore, steps could perhaps have been initiated in 2009 to secure the required imports through long term contracts by public agencies such as Metals and Minerals Trading Corporation of India (MMTC) or State Trading Corporation of India (STC) on behalf of the nation, along with developing a suitable policy of coal pricing with these imports. This would have provided supply security, and perhaps would have helped to moderate the higher cost of coal imports. However, this responsibility was not taken up by any Government agency, with every agency perhaps assuming that some other agency will deal with it.

Ministries of Railways and Shipping

The ministries of Railways and Shipping are also part of SLC (LT). Representatives from the Ministry of Railways

attended six of the nine meetings of SLC (LT) held between 2006 and 2010 when most of the linkages were granted¹⁹. During these meetings, they brought up the difficulties of planning for coal movement domestically without knowing the source of coal. However, it does not appear that they brought up the issues of potential imports and infrastructure required for the same, though such infrastructure would perhaps take longer to build.

Representatives of Ministry of Shipping attended five meetings out of nine SLC (LT) meetings between 2006 and 2010. But they did not raise any issues or concerns about infrastructure development for coal imports, though such infrastructure was clearly going to be crucial in view of the anticipated imports.

The 2010-11 strategic plan of MoC mentions that it would liaise with the railway and shipping ministries to develop railway and port infrastructure (MoC, 2011, p. 11). But it is doubtful that there has been any progress and there is a feeling that the infrastructure would be inadequate for the large amount of imports planned in the coming years (FICCI & Metis Energy Consulting, 2013, p. 12; Business Standard, 2013b). This is unfortunate because it should have been clear from the SLC (LT) meetings that significant coal imports would be required, and hence import and evacuation infrastructure had to be planned well in advance as developing such infrastructure takes a lot of time and capital investment.

Electricity regulatory commissions

Electricity regulatory commissions (ERCs) have a limited role to play in validating the prudence of competitively won bids as they are limited by Section 63 of the Electricity Act, 2003. Their role in this context should have been to hold the winning bidders accountable to their bids including any risks voluntarily taken, and protect consumers from such risks. But it appears that ERCs are open to considering requests for tariff revision due to increase in fuel costs.

CERC had an opportunity to take a firm position about not revisiting competitively won contracts when the Ministry of Power (MoP) sought its advice on the issue following the CCEA decision. However, CERC did not do so, and instead suggested individual state regulatory commissions could decide about the pass-through on a

18 Actual steam coal imports in 2011-12 were 71 MT (CCO, 2012).

19 Information procured from minutes of the various SLC (LT) meetings, available on Ministry of Coal's website.

case-to-case basis (CERC, 2013b). Following this, individual ERCs have begun to entertain petitions for tariff revisions due to increased coal costs (Business Standard, 2013c; MERC, 2013). This is unfortunate, as it shows willingness to consider reexamining bids and reopening contracts in order to mitigate the voluntary risks taken by a winning bidder and its financial backers at the cost of consumers.

6. Government response

The Government of India responded to the unfolding coal shortage crisis through a series of actions described below. It first issued a Presidential directive asking CIL to sign FSAs to meet its linkage requirements with all coal consumers but giving CIL the freedom to decide the quantity of penalty to be paid for under-supply (MoC, 2012c). In response, CIL proposed a draft FSA that practically absolved it of all commitment to supply the requisite coal by imposing extremely negligible penalties (CIL, 2012b). After intense pressure to address this issue CIL proposed a somewhat improved agreement (CIL, 2012c). However, this did not result in any change in the ground situation as power developers still had problems with the FSA structure and were unwilling to sign them (Business Standard, 2013d; The Hindu Business Line, 2013b). Proposals for price pooling were then proposed to distribute the increased costs of imported coal among all power producers (The Hindu Business Line, 2013c). However, this too did not lead anywhere as there were concerns expressed by some states, particularly coal producing states as they would stand to lose in the process (Mining Weekly, 2013; The Hindu Business Line, 2013d). As a result, there was no consensus on how imported coal should be distributed and priced.

This was followed by the decision by CCEA in June 2013 asking MoC to amend the NCDP, asking CIL to sign FSAs for power plants to be commissioned by 31st March 2015 and to supply coal to power plants with long-term PPAs, and asking CERC to consider and suggest modalities to allow pass through of coal import costs by power generators (PIB, 2013b). In response, MoC amended the NCDP through an office memorandum dated 26th July 2013 (MoC, 2013b). The only effective change brought about by this amendment was to specifically mention the percentage of coal that CIL

would supply from domestic sources for the 78 GW of thermal capacity to be commissioned during the 12th five year plan. In particular, it did not discuss the issues of allocating imported coal among power producers or coal and power pricing in the presence of imports, other than to reiterate what was said earlier, which was that coal purchasers would have to pay for the imported coal. It also limited its scope to the 12th five year plan though the situation is likely to persist in the next five year plan also. Finally, its view was limited to addressing the issues of power producers, and that too in the short term, without looking at the larger issues such as the impending thermal power generation capacity in the pipeline, sourcing fuel for this capacity and resultant impacts on power tariffs and energy security in general.

MoP's response to the CCEA decision was to issue a letter to all state Governments and regulators stating that the increased cost of coal through imports should be considered a pass-through as per modalities suggested by CERC, while CERC suggested that the decision to pass-through costs of imported coal should be taken by individual ERCs on a case-to-case basis (MoP, 2013; CERC, 2013b).

Thus, in effect, the "solutions" proposed by CCEA and effected through the modified NCDP and MoP's letter based on CERC's advice did not address or resolve any of the underlying short-term issues such as how the shortages and costs were to be shared and how one could ensure least cost coal imports or larger questions of national energy security, other than passing the buck to already overloaded state ERCs to decide issues on a case-to-case basis, rather than based on an overarching framework.

It should also be highlighted that the cost of coal (whether domestic or imported) is anyway a complete pass-through for all the regulated power plants (subject to some performance parameters). Therefore, the issue of passing through coal costs is really relevant only to about 28 GW of power contracted through case I bidding from private power producers and the CCEA decision asking CERC to consider the possibility of pass through of cost of imported coal, is only relevant to such developers. This shows that the Government did not respond to the looming coal shortage by taking, say, measures to improve the productivity and efficiency of CIL and/or diplomatic initiatives to tie up import deals at good prices, until the private power generators who

had won bids ran into serious financial difficulties thanks to their adventurous bids. Thus, it appears that the Government's actions were targeted more to address the crisis faced by some power generators and financiers in the short term rather than to address the country's power sector planning, energy security and energy costs in the long term.

7. Impacts of misperception of sufficient domestic coal availability

As discussed above, multiple agencies contributed to, and perpetuated, the perception that domestic coal would be able to meet the demands of the power sector, though there was no basis for believing so. Such a perception resulted in the current shortage crisis and is likely to have significant negative impacts as described below.

7.1. Impact on consumers

The CCEA asked CERC to develop modalities to allow the pass-through of imported coal costs, implying that power generators could charge power procurers (distribution utilities) for any increase in fuel cost (PIB, 2013b). As distribution utilities would like to pass these costs on to their consumers, this effectively means an increase in electricity tariff for everybody including households, commercial establishments and industries. In short, the entire nation would have to bear the costs of the acts of commission and omission by various stakeholders in the linkage allocation process. In spite of passing through their costs, the precarious financial situation of distribution utilities is also likely to be further threatened given their generally poor billing and collection efficiency.

Given the low levels of electricity access in India, industrial electricity tariffs in many Indian states are justifiably used to cross-subsidize domestic consumers. As a result, industrial electricity tariffs in India are typically high²⁰. Further increases in industrial electricity tariffs will render Indian industry less competitive. This is contradictory to stated Government objectives of increasing the share of manufacturing in the country's Gross Domestic Product (GDP) from 16% to 25% and

creating 100 million manufacturing jobs by 2022 (National Manufacturing Competitiveness Council, 2011, p. 3).

7.2. Impact on accountability

Allowing pass-through of imported coal costs raises serious questions of accountability for coal imports and performance of power generators since it does not include any checks and balances for due diligence in sourcing coal imports. Power generators and/or CIL would not have any incentive to ensure that the coal they import would be low cost as the costs can anyway be passed through to the power consumer. The situation becomes more complex and problematic as many power generators have procured coal mines overseas (FICCI & Metis Energy Consulting, 2013, p. 18) and such a policy directive can even provide perverse incentives.

Power sector regulators can, in principle, examine the imports on a case-by-case basis and judge their prudence. However, they are already hard pressed to deal with multiple issues they are expected to manage such as power purchase planning, performance of power generators, quality of power supply and infrastructure investments. Coal import is a complex issue as coal can be sourced from multiple locations with different quality and cost implications. In addition, prices would also be impacted by prevailing policies in different exporting countries and the various intermediate agencies involved. Therefore, it would not be practical to expect power sector regulators to be able to oversee the import process and ensure that importers have done the necessary due diligence.

The lack of proper planning for coal supply and resultant shortage leads to another kind of accountability problem. It becomes difficult to hold power generators accountable for their performance parameters such as heat rate, adherence to maintenance schedules etc. as they can pass the blame for under-performance to poor quantity and quality of coal supply²¹, as it is not easy to clearly separate out under-performance due to coal shortage from under-performance due to the power plant's own inefficiencies.

20 For example, industrial tariffs in the US, South Africa and China are about 6.82, 5.41 and 12.4 US cents/kWh on a PPP basis, while they range from 17.6 to 49 US cents/kWh in India (USEIA, 2013; Thopil & Pouris, 2013, p. 3; Watch China Times, 2013; Government of India, 2013a, p. A35).

21 That said, there are serious and genuine concerns about the quality of domestic coal supplied by CIL (CCI, 2012). These need to be addressed urgently but are beyond the scope of this report.

7.3. Other impacts

The coal shortage and subsequent decision to consider passing through the cost of imported coal will lead to increased cost of electricity. This will make it harder to provide electricity access to about 400 million (or 32.8% households) Indian citizens who currently do not have access to electricity (PIB, 2012). This is a matter of serious concern for a country that aspires to be a global power but has 31% of the world's un-electrified population (IEA, 2012, p. 529).

The current crisis is also likely to impact future development of the power sector. Continuing uncertainty and unreliability about domestic coal production and pricing of imported coal may lead to the pendulum swinging in the other direction and resulting in very high power tariffs being quoted, as seems to have happened in the case of Rajasthan and UP which recently discovered levelized tariffs in excess of 7 Rs./kWh (CERC, 2013a, p. 80). The increased costs and uncertain ability of utilities to pay the high costs could discourage future investment in the sector (Deloitte, 2013, p. 21). Revisiting tariffs discovered through a competitive bidding process and enabling pass-through of increased costs effectively amounts to changing the rules after the bidding process. This would send out a negative signal regarding the governance regime in the country and is likely to encourage speculative bidding and deter genuine investors.

8. Conclusions

Some important conclusions can be drawn from the analysis given above.

1. Ineffectiveness of linkage process: The current mechanism of coal allocation by SLC (LT) is ineffective and unaccountable. It has not assured consumers of coal supply, has not helped suppliers to plan their production and dispatch, and has not helped to support energy planning for the country. It also raises serious governance questions about the process of allocating linkages given that the demand for linkages is much higher than possible domestic production (Government of India, 2011, p. 17; Prayas Energy Group, 2013).
2. Lack of coordination and understanding of implications: Though the inability of CIL (and SCCL) to meet the linkages being granted was discussed in

the SLC (LT) meetings and it was suggested that CIL could import coal to honor the linkages, none of the concerned actors took any steps to address related issues such as allocation of imported coal, its pricing, import logistics and infrastructure, or mechanisms to ensure least cost imports. Until the coal shortage became critical, the overt signals from all the concerned actors, such as MoC, MoP and others suggested that all the coal linkages would be met through domestic production, though there was sufficient evidence to suggest otherwise.

3. Speculation and lack of due diligence: The other stakeholders, particularly power plant developers and financiers, were culpable of not being prudent about the possibility of shortage of domestic coal though there were sufficient pointers towards it. The role of this category of stakeholders in the coal shortage crisis has not been recognized properly, with many of them being perceived as victims rather than also as contributors to the crisis.
4. Ineffectiveness of proposed 'solutions': The 'solutions' proposed by the Government to the prevalent coal shortage do not address any of the fundamental questions and only try to paper over the cracks. Not surprisingly, they have proved highly ineffective. They do not clarify or address the fundamental issues of pricing and allocation of imported coal, infrastructure development and poor coordination across ministries. Instead, it leaves the onus on individual ERCs to deal with the issues on a case-by-case basis without providing any overarching framework. It also focused only on the short term problems faced by a few power developers rather than broader issues of sectoral planning and energy security.
5. Need for planning even after deregulation: There is a need for planning and coordination among multiple arms of the Government, even if some aspects of the power sector, such as power generation have been deregulated. Thus, while any firm with the necessary capital and expertise can put up a thermal power plant, the fact that it requires a finite and depletable resource such as coal (not to mention other resources such as land and water), means that the development of the sector has to happen in a planned manner considering how the nation can access such

resources, the costs for doing so and sharing of such costs.

9. Way forward

The analysis of the genesis of the current coal shortage and the way it has been dealt with identifies many serious shortcomings with the current coal allocation mechanism and overall sectoral planning. The current system has clearly been ineffective and needs urgent corrective actions. Below, we provide some suggestions for this.

9.1. Suggestions for the short-term

Accountability of SLC (LT)

One of the key problems is the accountability of the SLC (LT) mechanism (Government of India, 2011, pp. 17, 18; Prayas Energy Group, 2013, p. 17). Its responsibility and role for the current shortage should be thoroughly and transparently investigated, and appropriate strictures passed. To further improve the accountability of the linkage mechanism, a unified and publicly available repository should be set up containing all the relevant information. The information should be made available in an easily accessible manner on a regular basis (say, quarterly) and should include at least the following:

- existing and proposed coal-based power capacity, with likely commissioning dates
- quantity and quality of coal linkages granted, with details of coal source (not just the CIL subsidiary but also portions that would be domestically supplied and that would be imported), destination power plant(s) with its capacities etc.
- details of FSAs signed such as coal source, quantity, price, and destination power plant
- publicly secured coal import contracts with details such as quality, quantity, price, source and term of contracts
- plant-wise, source-wise quantity, quality, and cost of domestic and imported coal used, and electricity generated.

In addition to improving accountability for coal linkages, such a repository would have other advantages. It

would make it easy for all planning agencies concerned to track, plan and oversee the sector to ensure that capacity addition plans, coal production plans, coal import plans and coal evacuation infrastructure plans are consistent with each other. Power regulators can use such information to ensure that inefficiencies of power producers are not passed on to consumers but only genuine cost increases. It will also help to resolve some data inconsistencies between multiple Government sources²².

Functioning of SLC (LT)

There is a need to revisit the role and structure of SLC (LT). Until then, the following steps could help in improving its functioning:

1. Greater clarity in the terms of reference of the SLC (LT) and its responsibility will help to ensure that its role is not limited to granting linkages without worrying about how they would be met.
2. The SLC (LT) should publish and follow clear guidelines regarding linkage allocation, which factor in possible increase in domestic production and principles to distribute available domestic coal among the various applicants.
3. The minutes of SLC (LT) meetings should record details of linkages granted and not granted (if any), along with clear reasons for its decision. For the linkages granted, it should publish all relevant information in a public repository as mentioned above.

Fulfilling current linkages through imports

In the short to medium term, given the prevalent gap between domestic coal production and coal-based capacity, the country has no alternative but to depend on imports as existing demand needs to be met. The resultant increased cost of power from regulated plants is anyway a pass-through and hence, there is no decision to be made in regard to such plants, though it should be ensured that these plants perform efficiently and imports are secured prudently. With regard to power from plants that have won competitive bids, our analysis shows that it would be patently unfair to load the incremental costs of coal imports on to electricity consumers as currently being considered, since they

22 For example, the CEA status as of August 2013 gives the coal source for the 1200 MW Kalisindh power plant as 'imported coal' but MoC and the power generator mention the plant's coal source as Paras east, Kanta basin captive coal block and tapering linkage of 2.5 MTPA (CEA, 2013c, p. 30; MoC, 2012c, p. 9; RVUNL). Similarly, coal import for thermal power plants (utility+ captive) for the year 2011-12 is given as 27.3 MT in the coal directory, but CEA gives it as 45.1 MT – a significant difference of 65% (CCO, 2012, p. 4.37; CEA, 2012a, p. pdf 18).

had no role whatsoever to play in precipitating this crisis and are merely the victims of others' ineffectiveness or adventurousness. Therefore, the incremental cost of power from such plants due to increased coal imports should be shared by the various parties responsible for the shortage, such as power plants that have won bids, their financiers and CIL. Perhaps a protocol for transparently and fairly sharing the increased costs among such stakeholders could be developed, similar in spirit to the load shedding protocol developed for Maharashtra (MERC, 2008).

Imports of coal itself could be handled by a public agency with sufficient expertise such as MMTC or STCs. Such imports should be done in a completely transparent manner, to reassure citizens that sufficient efforts have been made to ensure least cost coal procurement.

Linkages that have currently been given to power plants should be optimized to the extent possible (Indian Express, 2012b). Linkages, captive coal blocks and imported coal supply to power plants can be rationalized to minimize the distance over which coal is transported. This will reduce the transportation cost of coal and partially mitigate the increased costs of power generation.

Further linkages and FSAs

Linkages have already been granted to sufficient coal-fired capacity for the 12th five year plan and perhaps somewhat beyond. Hence, it would be prudent to not grant any more linkages until there is greater clarity and public consensus on issues such as domestic coal availability, responsibility for imports and impact on prices of coal and electricity. In this context, the recent proposal by MoC before the SLC (LT) to convert tapering linkages of power producers whose captive blocks could not be developed in time due to clearance issues, into long-term linkages seems ill-advised (MoC, 2013c, p. 2). Linkages for plants proposed in the 13th five year plan should be decided only after clarity on all such issues is achieved, though it is good to note that the power sector is already keen to plan for the capacity to be added in the 13th five year plan (Economic Times, 2013b).

FSAs should be drafted to cater to the various possibilities of different sources of coal with their

differing qualities, quantities and prices, and they should be structured so that they are more balanced, particularly regarding accountability of quantity and quality of coal delivered (CCI, 2012).

9.2. Suggestions for the medium to long term

NCDP and SLC (LT)

In the context of coal linkages, an important question that needs to be addressed is about NCDP and SLC (LT). Currently, NCDP states that CIL will satisfy all linkage requirements and empowers SLC (LT) to recommend linkages. This is a mismatch of rights and responsibilities, particularly when SLC (LT) is not mandated to consider issues such as allocation and pricing of imports. Given that this arrangement has been a comprehensive failure, both NCDP and SLC (LT) need to be revisited, and alternatives considered²³.

Efficiency and accountability

Two critical issues plaguing the coal sector are the poor productivity of CIL and serious concerns about the quality of coal supplied by it. As stated in the Competition Commission's report, this derives at least partly from CIL's monopolistic position in the country. These issues need to be addressed urgently through a set of suitable measures that include adoption of modern technological solutions as well as regulatory and market reforms targeted at improving competition, efficiency, transparency and accountability of the entire sector. The proposed Coal Regulatory Authority (Government of India, 2013b), if properly structured, designed and empowered, could play a key role in this process, though some other legislative changes may also be required. All such policy and regulatory measures should be arrived at after a transparent and participatory process.

Other issues

The coal sector in India is beset by a multitude of problems in addition to those listed above, such as weak processes for rehabilitation and resettlement and environmental systems management, inefficiencies in granting clearances, law and order problems and a dysfunctional Coal Controller's Organization, which may be superseded by the proposed Coal Regulatory Authority (Prayas Energy Group, 2013). MoC should take the lead in charting a comprehensive reforms

23 For example, one alternative of a coal trading platform was proposed in (Government of India, 2011).

road-map to address these issues and revitalize this critical sector, with a well-structured and empowered coal regulator potentially playing a significant role in this process.

Coal is a national resource, and is likely to be the most important energy source for the country for at least a decade or two. It needs much more attention and

careful management than it has received thus far, if the country's energy sector has to have a healthy future. The current shortage crisis should be used as a wake-up call to the country and it should embark on a series of fundamental reforms of the sector to improve it.



References

- Adani Power Ltd. (2009). *Draft Red Herring Prospectus*.
- Asian Power. (2013, April 11). *India's Power Sector Reeling under Fuel Resource Crunch*. Retrieved Oct 14, 2013, from <http://asian-power.com>: <http://asian-power.com/power-utility/commentary/india%E2%80%99s-power-sector-reeling-under-fuel-resource-crunch>
- BP. (2013). *Statistical Review of World Energy 2013*. Retrieved November 15, 2013, from http://www.bp.com/content/dam/bp/excel/Statistical-Review/statistical_review_of_world_energy_2013_workbook.xlsx
- Business Standard. (2013a, Aug 7). *Consider power producers' demand for rate hike: Power ministry tells CERC*. Retrieved Oct 8, 2013, from http://www.business-standard.com/article/economy-policy/consider-power-producers-demand-for-rate-hike-power-ministry-tells-cerc-113080500480_1.html
- Business Standard. (2013b, September 5). *New power capacity might hit logistics hump*. Retrieved November 15, 2013, from http://www.business-standard.com/article/economy-policy/new-power-capacity-might-hit-logistics-hump-113090400135_1.html
- Business Standard. (2013c, October 31). *CERC to hear Adani Power compensatory tariff matter on Nov 13*. Retrieved November 19, 2013, from http://www.business-standard.com/article/companies/cerc-to-hear-adani-power-compensatory-tariff-matter-on-nov-13-113103100681_1.html
- Business Standard. (2013d, Mar 19). *NTPC, Coal India headed for showdown on fuel pacts*. Retrieved Jan 6, 2014, from http://www.business-standard.com/article/companies/ntpc-coal-india-headed-for-showdown-on-fuel-pacts-113031800446_1.html
- Business Today. (2013, June 22). *India Inc welcomes CCEA decision to allow pass-through of coal import costs*. Retrieved January 20, 2014, from <http://businesstoday.intoday.in/story/india-inc-welcomes-ccca-decision-pass-on-coal-import-costs/1/196074.html>
- CAG. (2012, August 19). *Performance Audit of Allocation of Coal Blocks and Augmentation of Coal Production (Ministry of Coal)*. Comptroller and Auditor General of India.
- CCI. (2012). *Order in cases no 03, 11 and 59 of 2012*. Competition Commission of India.
- CCO. (2009). *Coal Directory of India 2008-09, Part 1: Coal Statistics*. Kolkata: Coal Controller's Organization.
- CCO. (2011). *Coal Directory of India 2010-11, Part 1: Coal Statistics*. Coal Controller's Organization.
- CCO. (2012). *Coal Directory of India, 2011-12, Part 1: Coal Statistics*. Coal Controller's Organization.
- CEA. (2008). *Highlights of Power Sector*. Retrieved Oct 8, 2013, from Central Electricity Authority: http://www.cea.nic.in/archives/exec_summary/mar08.pdf
- CEA. (2012a, March). *Electricity Generation during the month of March'12 and during the period April'11- March'12*. Retrieved October 29, 2013, from Central Electricity Authority: http://cea.nic.in/reports/monthly/elec_review/mar12.pdf
- CEA. (2012b). *All India Electricity Statistics- General Review*. New Delhi: Central Electricity Authority.
- CEA. (2012c). *Baseline CO2 emissions from Power Sector- Version 8*. Retrieved November 15, 2013, from Central Electricity Authority: http://cea.nic.in/reports/planning/cdm_co2/database_8.zip
- CEA. (2013a, July). *Growth of Electricity Sector in India from 1947-2013*. Retrieved November 27, 2013, from Central Electricity Authority: <http://cea.nic.in/reports/planning/dmlf/growth.pdf>
- CEA. (2013b, April). *Electricity Generation during the month of March'13 and during the period April'12- March'13*. Retrieved October 25, 2013, from Central Electricity Authority: http://cea.nic.in/reports/monthly/elec_review/mar13.pdf

- CEA. (2013c). *Monthly Report on Broad Status of Thermal Power Projects in the Country*. Retrieved October 21, 2013, from Central Electricity Authority: http://www.cea.nic.in/reports/proj_mon/broad_status.pdf
- CERC. (2013a, August). *Committee report for CERC for determination of compensatory tariff- in the matter of Coastal Gujarat Power Ltd*. Central Electricity Regulatory Commission.
- CERC. (2013b, May 20). D.O. No.: 10/5/2013-Statutory Advice/CERC. Central Electricity Regulatory Commission.
- CIL. (2008a, March 20). *Letter of Assurance*. Coal India Limited.
- CIL. (2008b, May 31). *Model Fuel Supply Agreement between CIL subsidiary and Private Power Utility*. Coal India Limited.
- CIL. (2010, August 2010). *Draft Red Herring Prospectus*. Coal India Limited.
- CIL. (2012a). *Annual report 2011-12*. Coal India Limited.
- CIL. (2012b). *Model Fuel Supply Agreement for power plants/IPPs Dated 29-05-2012*. Coal India Limited.
- CIL. (2012c). *Model Fuel Supply Agreement for power plants/IPPs Dated 2/11/2012*. Coal India Limited.
- CIL. (2013a, September). *Model FSA for Private Power Plants/IPPs through LOA route*. Coal India Limited.
- CIL. (2013b). *Model FSA for SEB/State Gencos through LOA route (Non-tapering)*. Retrieved December 18, 2013, from Coal India Limited.
- CIL. (2013c). *Sector-wise, Coal Company-wise status of LOA's as on 30.09.2013*. Coal India Limited
- CIL. (2013d). *CIL Annual Report and Accounts 2012-13*. Coal India Limited.
- Deloitte. (2013, February). *Securing tomorrow's energy today: Policy & Regulations- Access for the Poor*. Retrieved October 21, 2013, from http://www.deloitte.com/assets/Dcom-India/Local%20Assets/Documents/IEC%202013/Energy_Access_for_the_Poor.pdf
- Economic Times. (2012a, June 11). *Power companies may get to raise tariffs*. Retrieved November 15, 2013, from <http://economictimes.indiatimes.com/news/news-by-industry/energy/power/power-companies-may-get-to-raise-tariffs/articleshow/14009458.cms>
- Economic Times. (2012b, August 28). *Private power tariffs can be raised: AG*. Retrieved November 15, 2013, from http://articles.economictimes.indiatimes.com/2012-08-28/news/33450581_1_coal-prices-power-tariffs-reliance-power-s-krishnapatnam
- Economic Times. (2013a, November 22). *Coal India to appoint agency to import coal*. Retrieved November 25, 2013, from http://articles.economictimes.indiatimes.com/2013-11-22/news/44366020_1_coal-imports-power-producers-power-firms
- Economic Times. (2013b, Dec 3). *Talks on for coal linkage for power plants of 33,000 MW*.
- FICCI & Metis Energy Consulting. (2013). *Knowledge Paper: National Conference on Re-energising Indian Coal Sector: interventions through Policy, Competition and Technology*. New Delhi: FICCI.
- Gol. (2011). *Report of the Committee on Allocation of Natural Resources*. New Delhi: Government of India.
- Gol. (2013a). *Economic Survey 2012-13: Statistical Appendix*. Government of India.
- Gol. (2013b). *The Coal Regulatory Authority Bill (Bill No. 149)*. Government of India.
- IEA. (2012). *World Energy Outlook 2012*. Paris: International Energy Agency.
- Indian Express. (2012a, September 15). *Power cos' coal exposure may hurt banks: SBI MD*. Retrieved November 8, 2013, from <http://www.indianexpress.com/news/power-cos--coal-exposure-may-hurt-banks-sbi-md/1002683/>
- Indian Express. (2012b, July 4). *Coal linkage swap on cards; power companies to be major beneficiaries*. Retrieved October 25, 2013, from <http://www.indianexpress.com/news/coal-linkage-swap-on-cards--power-companies-to-be-major-beneficiaries/969946/0>

- Infraline. (2013, November). Status of Execution of FSA as per Ministry of Power (As on September 30, 2013) (Provisional). *Infraline Plus*, 38-39.
- Infraline. (2014, January). Requirement of Coal for Power Sector from CIL by the end of the XIII Plan. *Infraline Plus*, p. 42.
- Infrasights. (2012). *Pooling price of coal: for whom and why??*. Retrieved November 7, 2013, from http://infrainsights.com/home/index.php?option=com_content&view=article&id=124:pooling-price-of-coal-for-whom-and-why&catid=44:featured-articles
- MERC. (2008). *Order in the matter of revision of principles and protocols for load shedding hours in the state of Maharashtra (case nos. 77 and 78 of 2008)*. Maharashtra Electricity Regulatory Commission.
- MERC. (2013, November 13). *Petition of Indiabulls Power Ltd. for compensation in tariff on account of increase in fuel and other incidental costs and dispute between a Generating Company and the Distribution Licensee, relating to the provisions of the Power Purchase Agreements*. Maharashtra Electricity Regulatory Commission.
- Mining Weekly. (2013, Jan 30). *Pool pricing of imported, domestic coal in India to be delayed*. Retrieved Jan 6, 2014, from <http://www.miningweekly.com/article/pool-pricing-of-imported-domestic-coal-in-india-to-be-delayed-2013-01-30>
- Ministry of Commerce, India. (n.d.). *Export Import Data Bank*. Retrieved Oct 8, 2013, from <http://commerce.nic.in/eidb/ecomq.asp>
- Mint. (2012, October 24). *Coal shortages, once again*. Retrieved November 7, 2013, from <http://www.livemint.com/Opinion/BJPxz8IHRr1OGIOZvPAWqJ/Coal-shortages-once-again.html>
- Mint. (2013, March 26). Government admits to hurdles in coal price pooling. Retrieved November 7, 2013, from <http://www.livemint.com/Industry/VJmhlMjV4zkNTGzDMzLzL/Govt-admits-to-hurdles-in-coal-price-pooling.html>
- MoC. (2007a). *New Coal Distribution Policy*. Ministry of Coal.
- MoC. (2007b, August 29). *Minutes of the meeting of the standing linkage committee (long term) on power plants held on 2-8-2007*. Retrieved March 1, 2013, from Ministry of Coal: <http://www.coal.nic.in/min310807.pdf>
- MoC. (2008a, October 23). *Minutes of meeting of the SLC (LT) held on 22-10-2008 and 23-10-2008*. Retrieved January 17, 2014, from Ministry of Coal: <http://www.coal.nic.in/cpd281108.pdf>
- MoC. (2008b, January 14). *Minutes of Standing Linkage Committee (Long Term) on Captive Power Plants held on 6th November 2007*. Retrieved March 15, 2013, from Ministry of Coal: <http://www.coal.nic.in/captive160108.pdf>
- MoC. (2008c, October 7). *Minutes of the Meeting of the Standing Linkage Committee (Long term) held on 5-8-2008 at New Delhi*. Retrieved March 21, 2013, from Ministry of Coal: <http://www.coal.nic.in/cpd071008a.pdf>
- MoC. (2008d, December 17). *Minutes of SLC (LT) of Power held on 12th November 2008*. Retrieved Oct 14, 2013, from Ministry of Coal: <http://www.coal.nic.in/cpd181208.pdf>
- MoC. (2011, February 11). *Strategic Plan of Ministry of Coal*.
- MoC. (2012a, December 26). *Agenda for Meeting of Standing Linkage Committee (LT) for Power to review the status of existing linkages/LOAs in power sector and other related issues*. Retrieved October 25, 2013, from Ministry of Coal: <http://www.coal.nic.in/let261212.pdf>
- MoC. (2012b, May 2). *Minutes of Standing Linkage Committee (Long Term) for Power held on 14 February 2012 to review the status of existing coal linkages/LOAs in power sector*. Retrieved Oct 15, 2013, from Ministry of Coal: <http://www.coal.nic.in/min02052012.pdf>
- MoC. (2012c, February 2). *Coal Block Auction Methodology approved*. Retrieved Oct 11, 2013, from Ministry of Coal: <http://www.coal.nic.in/100212.pdf>
- MoC. (2013a, March). *List of pending applications for coal linkage*. Retrieved from Ministry of Coal: <http://www.coal.nic.in/cpd010313.pdf>

- MoC. (2013b, July 26). Office memorandum F. No. 23011/90/2013-CPD. Ministry of Coal.
- MoC. (2013c, October 3). *Agenda of Meeting of Standing Linkage Committee (LT) for Power to discuss issues relating to projects granted tapering linkages as per MoP revised list on 4th October 2013*. Ministry of Coal.
- MoC. (n.d.). *Present Policy regarding Coal Linkage*. Retrieved Oct 14, 2013, from Ministry of Coal: <http://coal.nic.in/linkage.html>
- MoP. (2012). *Report of The Working Group on Power for Twelfth Plan (2012-17)*. New Delhi: Ministry of Power.
- MoP. (2013, July 31). *Letter No. FU-12/2011-IPC (Vol. III): Impact on Tariff in the concluded PPAs due to shortage in domestic coal availability*. Retrieved from Ministry of Power.
- National Manufacturing Competitiveness Council. (2011, October 25). *National Manufacturing Policy*.
- NDTV. (2013, July 7). *High fuel cost deters buyers, affects 10 per cent of NTPC's output*. Retrieved November 7, 2013, from <http://profit.ndtv.com/news/industries/article-high-fuel-cost-deters-buyers-affects-10-per-cent-of-ntpcs-output-report-324159>
- PIB. (2008, December 11). *Coal Shortage*. Retrieved Oct 15, 2013, from Press Information Bureau: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=45497>
- PIB. (2012a, May 7). *Coal Supply Agreement with Power Companies*. Retrieved January 3, 2014, from Press Information Bureau: <http://pib.nic.in/newsite/erelease.aspx?relid=83200>
- PIB. (2012b, March 13). *Final Figures of Houselisting & Housing Census, 2011 Released*. Retrieved October 21, 2013, from Press Information Bureau: <http://pib.nic.in/newsite/erelease.aspx?relid=80811>
- PIB. (2013a, August 6). *Export of Coal*. Retrieved October 15, 2013, from Press Information Bureau: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=97715>
- PIB. (2013b, June 2013). *CCEA approves mechanism for coal supply to power producers*. Retrieved Oct 11, 2013, from Press Information Bureau: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=96682>
- PIB. (2013c, August 26). *CIL to Sign FSA With Power Producers for a Total Capacity of 78,000 MW*. Retrieved November 7, 2013, from Press Information Bureau: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=98643>
- Planning Commission. (2006). *Integrated Energy Policy*.
- Planning Commission. (2009). *Mid-term Appraisal of the 11th five year plan*.
- Planning Commission. (2012). *Twelfth Five Year Plan: 2012-17: Economic Sectors (vol II)*.
- Prayas Energy Group. (2011, March). *Transition from MoU to Competitive Bidding- Good Take Off but Turbulence Ahead*.
- Prayas Energy Group. (2013). *Black and Dirty: the real challenges facing Indian coal sector*. Pune: Prayas Energy Group.
- Reuters. (2013, April 22). *Thermal coal output up 3.3 pct y/y in 2012/13*. Retrieved December 2, 2013, from <http://in.reuters.com/article/2013/04/22/india-coal-output-idINDEE93L0AX20130422>
- RVUNL. (n.d.). *Kalisindh Thermal Power Project, Jhalawar*. Retrieved October 28, 2013, from Rajasthan Rajya Vidyut Utpadan Nigam Ltd: <http://www.rvunl.com/Kalisindh%20Thermal%20Power%20Project.php>
- The Hindu. (2013, April 17). *Fate hangs in balance for power projects sans price pooling tag*. Retrieved November 8, 2013, from www.thehindu.com/todays-paper/tp-business/fate-hangs-in-balance-for-power-projects-sans-price-pooling-tag/article4625363.ece
- The Hindu Business Line. (2013a, December 21). *Coal India forced to sacrifice commercial interests, says Narsing Rao*. Retrieved from <http://www.thehindubusinessline.com/companies/coal-india-forced-to-sacrifice-commercial-interests-says-narsing-rao/article5487368.ece>
- The Hindu Business Line. (2013b, Jan 22). *Only 48 power companies sign fuel supply pacts with Coal India*. Retrieved

- Jan 6, 2014, from http://www.thehindubusinessline.com/industry-and-economy/only-48-power-companies-sign-fuel-supply-pacts-with-coal-india/article4332595.ece?homepage=true&ref=wl_home
- The Hindu Business Line. (2013c, Feb 5). *Govt gives 'in-principle' nod for coal pool pricing*. Retrieved Jan 6, 2014, from http://www.thehindubusinessline.com/industry-and-economy/economy/govt-gives-inprinciple-nod-for-coal-pool-pricing/article4382798.ece?homepage=true&ref=wl_home
- The Hindu Business Line. (2013d, Apr 22). *Coal pool pricing 'out of window'*. Retrieved Jan 6, 2014, from http://www.thehindubusinessline.com/industry-and-economy/coal-pool-pricing-out-of-window/article4643155.ece?homepage=true&ref=wl_home
- Thopil, G., & Pouris, A. (2013, March 11). *International positioning of South African electricity prices and commodity differentiated pricing*. Retrieved November 15, 2013, from http://www.sajs.co.za/sites/default/files/publications/pdf/Thopil_Review%20Article.pdf
- USEIA. (2013, July). *Average Retail Price of Electricity to Ultimate Customers*. Retrieved November 15, 2013, from United States Energy Information Administration: http://www.eia.gov/electricity/monthly/xls/table_5_03.xlsx
- Watch China Times. (2013, May 15). *The price of power: China's confusing electricity rates*. Retrieved November 15, 2013, from www.wantchinatimes.com/news-subclass-cnt.aspx?id=20130515000080&cid=1102

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India is beset with a huge coal shortage that is affecting its power production, necessitating coal imports and increasing its trade deficit. This report analyzes the causes leading to the shortage and the Government's response to it. It concludes that the primary causes for the shortage are four-fold: one, the standing linkage committee granted coal linkages indiscriminately without considering and clarifying issues such as likely domestic coal production, allocation and pricing of imported coal, and infrastructure for importing coal; two, private power producers bid aggressively low tariffs assuming sufficient domestic coal availability though various policy and legal documents clearly indicated the possibility of imported coal; three, financiers and lenders to such power producers chose to ignore the obvious risks of assuming domestic coal availability; and four, CIL could have ameliorated the problem somewhat if only it were more efficient. In this light, ad-hoc solutions such as forcing CIL to sign FSAs and permitting power producers to pass through increased fuel costs are not likely to solve the problem. Instead, the increased costs of power due to imported coal should be shared by all those responsible for the shortage, rather than power consumers who are just victims of the shortage. A serious reform of the entire coal sector is also required to fix many systemic problems with the sector.

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THE ECONOMIC TIMES
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Debjoy Sengupta, ET Bureau Feb 19, 2013, 04:05PM IST

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Date: 20 June 2012

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