



Report of Working Group on

**Regulatory framework for
Determination of Input price
or Transfer Price of Coal or
Lignite from Integrated Mine**

February, 2020



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Foreword

The power sector is mostly a regulated sector including price of the electricity. The generating companies have been allotted coal or lignite mine integrated with their end use power project. Government of India, promulgated “The Coal Mines (Special Provisions) Act, 2015 (11 of 2015) (“the 2015 Coal Mine Act”) to allocate the coal mines. Subsequently, the generating companies have been allotted linked mines with end use projects whose tariff is determined by the Commission under Section 62 of the Electricity Act, 2003 (“the Act”).

The electricity generated from coal sourced from integrated mine will be supplied to the end consumer(s) through distribution licensees. The electricity tariff is to be determined by the Appropriate Commission taking into account all input price including the fuel price. In absence of the input price mechanism in respect of coal or lignite mine allocated to a generating station, it would be difficult for the Commission to determine the tariff in accordance with the provisions of Section 62 of the Act. The mechanism for determination of transfer price of the lignite is in vogue but there is no specific regulation notified for this purpose. Where the mine is integrated as part of the generation project whose tariff is regulated, the Commission needs to determine the input price of coal or lignite with a view to ensure that the ultimate cost of power charged to the consumer is fair and reasonable. This calls for need of regulatory framework for determination of input price of coal or lignite sourced from integrated mine and used in the generating station for supply of electricity to the distribution licensee under the power purchase agreements.

The tariff of the generating station includes the capacity charges (infrastructure cost) and energy charges (fuel cost). The tariff is determined by the Commission based on principles enshrined under the Act. Since fuel cost or input price is one of the components of the tariff, the regulatory framework for input price of coal needs to be consistent with the principles laid down under the Act.


The allotment of the coal mine to the generating companies provides opportunity to undertake backward integration to facilitate the growth in electricity sector. The backward integration of coal mine with the generating station is at nascent stage in India and not adopted by the generating companies except a few Case-2 projects. Practice of integrating mine or fuel source with the generating station is followed at international level. The group strongly believed that there are several benefits of sourcing coal from integrated mine with the generating station. It will not only mitigate the risk of fuel availability but provides the lesser volatility of tariff to the consumer and distribution licensee thereby reduces the impact of Fuel and Power Purchase Cost Adjustment (FPPA).

In this report, an attempt has been made by the working group to develop a regulatory framework by considering all activities of mine development and operation within the scope of such generating companies, who have been allotted coal mine or blocks on nomination basis. In the event of development of mine through the Mine Developer cum Operator (MDO) mode, need for suitable changes in the regulatory framework have also been discussed.

Each coal mine has its own unique characteristics. The cost of coal sourced from one mine is difficult to compare with another mine due to variation in mine parameters. The stripping ratio, geo-mining conditions, technology adopted and the mining process followed are different for every mine. However, mine specific requirements are not covered in the generic framework, if any, needs to be considered during determination of input price, after due prudence check.

The regulatory framework has been developed based on the current legal provisions, policy framework of coal mine or lignite mine, and current scenario of the electricity market. There may be a new challenge associated with penetration of renewable energy. These challenges may influence the use of coal or lignite fuel in thermal generating station and to be considered appropriately in regulatory framework of input price.

The working group deliberated considering legal framework, available documents, practice, models, process, utilization of coal and modalities for recovery of the cost, principles of tariff fixation and has arrived at its recommendations in this report. Efforts have been made to harmonize the framework of input price with the regulatory approaches as followed for electricity tariff with a view to achieve the objectives enshrined under the Act.


(Sutirtha Bhattacharya)
Chairman of the Working Group

18th February, 2020

Acknowledgement

The working group would like to thank the Hon'ble Commission for motivating and guiding us in developing regulatory framework of input price and compilation of this report. The working group would also like to acknowledge the contribution of each and every members of the committee in preparation of this report.

The working group is extremely grateful to the subject matter experts Shri Gautam Dhar, former-ED, Shri T.K.Sinha, former General Manager, Shri Krishanunayan Mukhapadhyay, former Chief Manager (Sales &Marketing) and Shri Dipak Kumar Chatterjee, former Senior Manager (Finance) from Coal India Limited. The contribution of official of West Bengal Electricity Regulatory Commission and Central Electricity Regulatory Commission particularly Shri Mahesh Gupta, Asst. Chief, Central Electricity Regulatory Commission in preparation of this report is also greatly acknowledged.

The working group would like to thank NTPC Ltd, Damodar Valley Corporation and NLC India Ltd., Central Mine Planning and Design Institute Limited for providing information and inputs.

Lastly, the Committee would like to place on record the guidance and motivation provided by the Central Electricity Regulatory Commission on the key issues of input price determination.



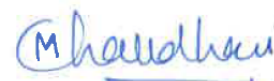
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1. Introduction

1.1 Background

1.1.1. Coal is still the most important indigenous energy resource and it remains the dominant fuel for power generation. Presently, about 60% of electricity is generated from coal. The electricity generation from lignite fuel is also significant in electricity generation. Coal or lignite price has a direct bearing on tariff of electricity supplied from generating station. In order to ensure the supply of coal or lignite to thermal power plants, mines were allocated to the generating companies. At present, coal or lignite extracted from captive or basket mine is utilized by generating companies whose tariff is determined by the Commission.

1.1.2. The Electricity Act, 2003 (“the Act”) bestowed statutory responsibility of tariff determination on the Commission. While determining the tariff, the Commission is required to consider the coal price used for generation and supply of power to distribution licensees.

1.1.3. The coal or lignite mine allotted to the generating company is for the purpose of electricity generation at specified generating station except in case of basket mine. The electricity tariff of such generation is determined by the Commission under Section 62 of the Act by considering all input cost incurred by the generating company including the fuel cost. The coal or lignite price of integrated mine is one of the input cost for generation and supply of electricity to the distribution licensee. Thus, cost of the coal or lignite sourced from integrated mine and used for generation and supply of electricity to the distribution licensee is to be determined being an input cost for electricity tariff.

1.1.4. Most of the generating stations are presently sourcing coal from Coal India Ltd. The energy charge for using such coal is worked out by considering notified price of coal. The pricing formula of the coal supplied by the Coal India Ltd is not on individual mine basis but on total Company cost basis and is not specifically targeted towards minimizing generation cost. However, the purpose behind mines allotted to generating companies is to optimally generate power and thus such mines are not to be treated as commercial mines.

1.1.5. Lignite is popularly known as ‘Brown Coal’. Lignite is characterized by its high moisture content, low ash content and low calorific value that ignites readily and burns quickly. Unlike Coal, Lignite is not traded in any significant extent in world markets, because of its relatively low heat content (which raises transportation costs on unit Energy content basis) and other problems related to transport and storage. Lignite is extensively used in pit head thermal power plants and industries nearby.

1.2 Consultation Paper¹

¹http://cercind.gov.in/2018/draft_reg/AP.pdf

1.2.1 The issue for determination of input price of coal sourced from mine integrated with the generating company or mines owned by the generating company was first time discussed in the consultation paper related to Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (“the 2019 Tariff Regulations”). Relevant portion is extracted under:

“5. Some Key Challenges

...

D. Integrated Power Project with Coal Mine

5.4.1 Coal Mines have been allocated to the NTPC Ltd. and Damodar Valley Corporation (DVC). The present regulatory framework allows pass through of the fuel (coal) cost as determined by the Coal India Ltd. However, in case of coal supplied from the integrated mine or mine owned by the generating company, the challenge will be the determination of the coal cost.”

1.2.2 In absence of the input price mechanism in respect of coal mine allocated to a generating station owned by a Government company, it would be difficult for the Commission to determine the electricity tariff in accordance with the provisions of Section 62 of the Act. Presently, there is no framework or mechanism in place for determination of input price of coal sourced from a mine allocated to the generating station through allotment except in case of lignite mines allotted to NLC India Ltd.

1.3 Draft CERC(Terms and Conditions of Tariff) Regulations,2019

1.3.1. The Commission, in exercise of the power under Section 178 of the Act, issued a draft CERC(Terms and Conditions of Tariff) Regulations, 2019² wherein ‘regulatory framework for determining input price from integrated coal mine’ was proposed and suggestions of all stakeholders were invited. After considering suggestions of the stakeholders, the Commission felt a need for further study before notifying detailed regulatory framework. Relevant Para of the Statement of Reasons³ issued by the Commission is extracted below:

“2.1After detailed deliberation during finalization of the regulations, the Commission noticed that the regulatory framework for determination of input price of coal or lignite, particularly the financial and operational parameters requires further study and analysis which will require some more time. The Commission has decided to notify relevant provisions for determination of input price of coal or lignite from integrated mine separately. Accordingly, the provisions pertaining to determination of input price of coal or lignite from integrated mine has not been included at present.”

1.3.2 The Commission initiated discussion with expert bodies such as Central Mine Planning and Design Institute Limited (“CMPDIL”) and constituted a working group to undertake detailed study in respect of various aspects for determination of input price.

1.4 Constitution of Working Group

1.4.1 On 22th April, 2019, the Commission constituted a working group under the Chairperson of West Bengal Electricity Regulatory Commission (WBERC) to examine

²http://cercind.gov.in/2018/draft_reg/Draft%20Notification_Tariff%20Regulations,%202019.pdf

³ http://cercind.gov.in/2018/draft_reg/comment_Reg_01-04-19/EM.pdf

various aspects and to suggest regulatory framework for determination of input price or transfer Price from Integrated Coal Mines of generating station whose tariff is determined by the Commission under Section 62 of the Act. Details of working group are given in **Annex-1**. The Terms of Reference (TOR) of the Group are:

- (a) Identify issues associated with the practices of coal price fixation and factors to be considered for determination of input price of coal to the generating station;
- (b) Suggest suitable regulatory framework for fixation of input price of coal for the generating companies in India and provide inputs for developing formats for seeking information of coal mine;
- (c) Any other matter related to the above.

Subsequently, it has been decided to consider the regulatory framework for input price of lignite.

1.4.2 The group deliberated on various issues during meetings held on 21st May, 2019, 9th July, 2019 at West Bengal Electricity Regulatory Commission, Kolkata, 30th July, 2019 at Central Electricity Regulatory Commission, on 13th Sept 2019 at Banga Bhavan, New Delhi and 5-7th November, 2019 at West Bengal Electricity Regulatory Commission, Kolkata. The regulatory framework involves the study of the followings:

- a) Legal framework including objective of the Coal Mines (Special Provisions) Act, 2015 ("the 2015 Coal Mine Act), compliance of relevant legislation and rules applicable to mine industry;
- b) Agreements executed by the electricity generating companies relating to allotment of coal mines;
- c) Existing practice followed by the Coal India Limited for costing/pricing;
- d) Different business models for development of coal mine including and excluding engagement of MDO;
- e) Mining process adopted or proposed to be adopted by the allottee of the coal mine;
- f) Utilization of coal and modalities for recovery of the cost of coal supplied from integrated mine;
- g) Principles of tariff of electricity stipulated under the Act and methodology for determination of tariff for generating station.

1.4.3 On 9th July, 2019, the working group consulted with generating companies developing coal mines, sought inputs and suggestions based on their experience. During the meetings, the developers were requested to submit their suggestions on specific issues.⁴

1.4.4 NTPC Ltd., submitted inputs and suggestions on following aspects:

⁴The minutes of the meeting is available on www.cercind.gov.in

- Approach for Recovery of tariff for coal generated from integrated mines;
- Treatment of Mine Project, Date of Commercial Operation (COD) and treatment of coal price prior to COD;
- Principle of Input price, Depreciation Method for recovery in tariff for integrated mines, Factors Affecting the Depreciation Method;
- Treatment of Mining plan for the purpose of capital cost, Fixed reserve price & upfront payment and mine closure expenses;
- Capital Structure of Coal Mine (Debt-Equity Ratio) and Return on Equity;
- Consideration of Gross Calorific Value for determination of input price of coal.

1.4.5 Damodar Valley Corporation (DVC) submitted inputs on following aspects:

- Factors to be considered for determination of Input or Transfer Price;
- Conditions for Commercial Operation Date, Benchmarking cost or Reference price of coal;
- Depreciation or Amortisation of Capital Cost, Debt: Equity ratio and Return on Equity;
- Approach for Operation & Maintenance expenses, GCV measurement;
- Recovery of Interest and Return on Equity in case of force majeure.

1.4.6 West Bengal Power Development Corporation Ltd (WBPDC) submitted inputs on following aspects:

- Treatment of mine closure expenses considering IndAS;
- Methodology of depreciation i.e. unit linked or straight line substantiating with scenario analysis.

1.4.7 NLC India Ltd, submitted as under:

- Water Management Expenses, Security expenses may be recognized separately in line with the 2019 Tariff Regulations;
- Employee expenses may be considered in two separate categories: PAP (Project affected People) and Cadre Plan approved. Both expenses are to be borne by the generating company;
- Capital expenditure and O&M expenses related with R&R are with the generating company. The expenditure related with R&R Policy is to be recognized separately.

1.4.8 Suggestions of the developers have been considered and discussed in detail during the meeting on 30th July, 2019 at 3rd Floor, Conference Room, Central Electricity Regulatory Commission, New Delhi.

1.5 Legal and Policy Framework: Integrated Coal Mine

The Coal Mines (Special Provisions) Act, 2015

1.5.1 Section 5 of the Coal Mines (Special Provisions) Act, 2015 (“the 2015 Coal Mine Act”) provides allocation of mine through allotment order and is limited to Government company and Case-2 projects as under:

“5.(1) Notwithstanding the provisions contained in sub-sections (1) and (3) of section 4, the Central Government may allot a Schedule I coal mine to a Government company or corporation or to a joint venture between two or more Government companies or corporations or to a company which has been awarded a power project on the basis of competitive bids for tariff (including Ultra Mega Power Projects) from specified Schedule I coal mines by making an allotment order in accordance with such rules as may be prescribed and the State Government shall grant a reconnaissance permit, prospecting license or mining lease in respect of any area containing coal to such company or corporation:

Provided that the Government company or corporation may carry on Coal Mining in any form either for its own consumption, sale or for any other purpose in accordance with the permit, prospecting license or mining lease, as the case may be:

Provided further that no company other than a Government company or corporation shall hold more than twenty-six per cent of the paid-up share capital in the Government company or corporation or in the joint venture between a Government company or corporation, either directly or through any of its subsidiary company or associate company:

Provided also that a joint venture of any two or more Government companies or corporations shall be prohibited from alienating or transferring any interest, except the taking of loans or advances from a bank or financial institution, in the joint venture of whatsoever nature including ownership in favor of a third party.(Emphasis supplied).”

1.5.2 The Government of India allotted 38 mines to central and state public sector units including power firm NTPC Ltd., DVC and steel firm SAIL. The Coal mines have been allotted to the various Central Government Companies such as NTPC Ltd.(NTPC) and Damodar Valley Corporation (DVC) for specified end use projects whose tariff is determined by the Central Commission. The total capacity of the mines allotted to the central generating companies whose tariff is regulated by the Central Electricity Regulatory Commission is summarized as under:

Number of generating Companies	:	02	Nos.
Number of coal mines allotted	:	10 ⁵ +2 ⁶	Nos
Production Capacity	:	116.80 ⁷	MTPA

1.5.3 Ministry of Coal, vide order dated 26th December, 2014⁸, has specified methodology for recovery of reserve price and other charges admissible in case of allotment or auction of coal mine to the generating station whose tariff is determined under Section 62 of the Act. This methodology provides the applicable charges for the coal mine allotted to government companies as under:

- A fixed Reserve Price⁹ of `100/- per tonne of coal shall be payable, as per actual production by the successful allottee;

⁵ Pakri-Barwadih coal mine was allotted to NTPC prior to promulgation of the Coal Mine Act and remaining coal blocks have been allotted to NTPC after promulgation of the Coal Mine Act namely, Chatti-Bariatu&Chatti-Bariatu (south), Kerandari, Dulanaga, Talaipalli, Benai, Bhalumuda and Mandakini-B, by the Government of India through Government dispensation route. Kudanali- Luburi coal block has been allotted to NTPC-SAIL Power Company Ltd. and J&K SPDCL, Banharadih Coal block, allotted to Jharkhand Government, is assigned to the joint venture company formed between NTPC and Government of Jharkhand for Patratu TPP. These mines have been allotted by the Government of India through Allotment Order followed by Coal Block Development and Production Agreement Development and Production Agreement (CMDPA).

⁶ Ministry of Coal allocated two coal blocks i.e. KhagraJaydev and Tubed to Damodar Valley Corporation to meet coal requirement for generation projects.

⁷ Production capacity is worked out based on the information received as per mine plan (which may undergo change on finalization of mine plan).

⁸ https://coal.nic.in/sites/upload_files/coal/files/coalupload/policies_26-12-14.pdf

⁹ The Reserve Price as specified in clause (a) above is to be escalated using a pre-determined formula is prescribed in now prevailing Standard Bidding Documents for Case-I bidding as formulated by Ministry of Power for escalation of fuel cost from captive mines.

- The statutory royalty payable on Coal will continue to be governed as per extant rules;
- An upfront payment, as may be prescribed in the tender/allotment document;
- In case of un-contracted capacity available with the generating station, the merchant capacity is capped at 15 % of the generating capacity for sale of power outside medium and long term PPAs contracted under Section 62 or Section 63 of the Act. For merchant capacity, the generating company shall have to pay an additional reserve price based on intrinsic value of the coal block annuitized over the yearly production in Rs/tonne terms.

1.5.4 On 16th April, 2015, the Ministry of Power, exercising the provisions of Clause 4(e)(IV) of the Order dated 26th December, 2014, directed Central Electricity Regulatory Commission (CERC) to review and determine energy charges for supply of electricity by generating companies to a distribution licensee under already concluded power purchase agreement (PPA) under Section 62 or tariff bid base PPA under Section 63 of the Act where the coal is being sourced from the mines auctioned or allotted under Coal Mines (Special Provision) Act, 2015 and rules framed there-under¹⁰.

1.5.5 The 2015 Coal Mine Act provides two different methods for allocation of coal mine for the projects: Auction or Allotment. In case of auction, the successful bidder is discovered through competitive bidding prices. In case of allotment, the mine allocation is through allotment order on the basis of decision of Government. Price is not discovered or specified in case of allotment method.

1.5.6 In case of allocation of coal mine through auction method, methodology specified by the Ministry of Coal, vide order dated 26th December, 2014 provides that the transfer price (input price) would be considered based on the bid price along with escalation. Relevant portion is extracted below:

“4. For fixing the ceiling price for coal mines/blocks to be auctioned for generation capacity having cost plus PPAs or for generation capacity having tariff bid based PPAs (Case-1)/generation capacity to be contracted through cost plus PPAs or through tariff bid based PPAs (Case-1) in future:

a.....

....

e. To ensure that, the benefit of coal is passed on to the consumers, the following conditions has been prescribed:

l. For generation capacity having cost plus PPAs or generation capacity to be contracted through cost plus PPAs in future-For the purpose of determining the fuel cost for cost plus PPAs, the Appropriate Commission will allow bid price of coal along with subsequent escalation as provided in

¹⁰<http://www.cercind.gov.in/2015/whatsnew/Final.pdf>

https://powermin.nic.in/sites/default/files/webform/notices/Direction_to_the_CERC_under_section_107.pdf

coal block bid document as being equivalent to the Run of Mine (ROM) cost of coal together with other allowable and levies, provided that it shall not lead to higher energy charges throughout the tenure of PPA than that which would have been obtained as per the terms and conditions of the existing PPA.

...”

1.5.7 In case of allotment method, the discovered price is not available. Standard Coal Mine Development and Production Agreement (“CMDPA”) issued by the Ministry of Coal, Government of India addresses the taxes and duties etc. Thus, in case of the allotment method where the bid price of coal is not available, the price of coal to be used for generation of electricity needs to be addressed by the Appropriate Commission for the purpose of tariff determination for generation of specified end use generating station project.

1.6 Legal and Policy Framework: Lignite Mine

1.6.1 If the lignite mine is an integrated mine with generating station as its operation is closely dependent on operation of generating station due to specific characteristics of lignite. Lignite cannot be transported or stored as it is susceptible to spontaneous combustion. Prior to constitution of the Commission, Ministry of Coal was issuing guidelines for fixation of lignite price. The Commission, vide order dated 21.12.2000 in petition 4/2000, felt need to review the transfer price mechanism on the premise that the ultimate cost of power charged to the consumer is fair and reasonable. Till the review is undertaken, the Commission also held that the present system of transfer price mechanism would continue to be followed and the Commission intends to examine the same in future¹¹. The Commission, vide order dated 21.4.2005 in petition 5/2002, sought the information of the transfer price and its computation for the purpose of examination and admitting the same for tariff purpose.¹²

1.6.2 The mining process followed in case of lignite mine is different from coal. Lignite mining follows continuous mining by combination of Bucket Wheel Excavator (BWE) – belt conveyor – spreader combination for excavation of overburden and extraction of lignite.

1.6.3 Lignite mine and coal mine allocated to the generating company is integrated with generating station. But commercial arrangement of lignite mine is different from the coal mine. As per the CMDPA agreement, any coal extracted from the Coal Mine which is in excess of the requirements is to be transferred to Coal India Ltd. In case of lignite mine, the lignite extracted in excess of the requirements is to be taken into account while fixation of input price and utilization level thereof.

1.6.4 The Ministry of Coal issued guidelines for fixation of transfer price of lignite from time to time after consultations with the stakeholders. Lastly, the Ministry of Coal had issued the guidelines vide order dated 28012/1/2014-CA-II dated 2.1.2015 for fixation of transfer price of lignite for NLC India Ltd. As per these guidelines, the NLC India Ltd computed the transfer price and submitted to the Commission for the approval along with tariff of electricity. However, as per letter No. 28012/1/2014-CA II dated

¹¹ Para 5.2 of the order dated 21.12.2000 in petition 4/2000

¹² Para 4 of the order dated 21.4.2005 in petition 5/2002

24.6.2019, the Ministry of Coal has decided that NLC India Ltd, in consultation with the Stakeholders can now decide the Lignite Pricing.

1.6.5 The legal and policy framework deals with the various aspects of fixation of transfer price of lignite at the time of determination of electricity tariff under Section 62 of the Act.

1.7 International and Domestic Practices

1.7.1 The Coal Price is completely deregulated in India from 1st January, 2000. The Coal India Ltd (CIL) and SCCL are empowered to fix and notify the coal price. Integrated Energy Policy (IEP 2006) recommended sale of high quality coal at around 15% discount on the import parity price. Accordingly, prices of higher grade(s) coal¹³ (G-5 & above) are linked to international Price Indices with appropriate discount. For lower grades coal¹⁴ (G-6 & below), dual pricing mechanism is exercised with lower tariff for consumers in regulated sector such as Power including IPP, Fertilizer and Defense, and higher tariff for consumers in non-regulated sector as the price of their finished products are market driven and are not covered under ambit of any regulator.

1.7.2 Pricing of coal, is deregulated in major coal producing countries. In some countries, the control mechanism is to ensure that market operates in ethical manner and scope of loss of revenue for the exchequer is minimized.

1.7.3 In South Africa, Escom, a Government Enterprise operating the entire value chain from generation to distribution of power, enjoys 90% market share accounting for more than 70% of the domestic coal consumption. While determining the electricity tariff, single regulator is successfully approving the tariff considering all input cost which includes the coal cost also. It may be pertinent to note that considering coal as input cost while determining the electricity tariff is already in practice and successfully operated in South Africa.

¹³Quality of coal covered under grades G1-G5

¹⁴Quality of coal corresponding to Grade G6 and below

2. Regulatory Framework

2.1 Integrated Operation of Mine

2.1.1 The power sector is the major consumer of coal, using about 80% of domestically produced coal. In India, estimated cumulative coal reserves up to a depth of 1200 meters, as on 1.4.2018, is around 319.02 billion tonnes, located mainly in Jharkhand, Odisha, Chhattisgarh, West Bengal, Madhya Pradesh, Andhra Pradesh and Maharashtra. Currently, the sector is regulated by the Coal Controller appointed by Ministry of Coal. The Coal Mines (Nationalization) Act, 1973 (“the 1973 CMN Act”) is the primary legislation determining the eligibility for coal mining in India. Captive mining for coal was allowed in 1993 by amendments to the 1973 CMN Act and for government companies, allocations for captive mining were made directly by the ministry. Between the year 1993 and 2011, 218 coal blocks were allocated to both public and private companies under the 1973 CMN Act which were cancelled by the Supreme Court in the year 2014. The Government introduced the 2015 Bill to enable private companies to mine coal in the future, in order to improve the supply of coal in the market. This Bill provided the allotment of the captive coal block to the generating companies whose tariff is determined by the Appropriate Electricity Regulatory Commission which *inter-alia* includes the generating companies whose tariff is covered with the jurisdiction of Central Electricity Regulation Commission. The Government enacted the 2015 Coal Mine Act for allotment of coal block or mine.

2.1.2 The provision for allotment of the coal mine to the generating companies provides opportunity to the generating company to undertake backward integration. The objective of the Commission is to promote the investment in the Electricity Sector and to serve the interest of the consumers supplying adequate electricity to their requirement. This objective could not be fully accomplished as the fuel (mainly coal) is not regulated by the Commission. It has been envisaged that if the mine is integrated with the generation project, it will provide additional advantage for certainty of fuel. The backward integration of coal mine in generating station is also at nascent stage. Similar practice of backward integration is being followed in case of lignite mine. There are several benefits of having integrated mine in generating station. It will reduce the risk of uncertainty of tariff to the consumer and distribution licensee. In fact the fuel risk is one of the major risks in case of generating station. The integrated mine operation with the generating station will mitigate the entire risk of fuel.

2.1.3 The Government of India has allowed the linkage of lignite mine with the pit head generating stations through separate policy framework already in vogue prior to coal mine allocation. The integration of Coal or lignite mine with the generating station will be beneficial to the distribution licensee in terms of predictability of the tariff, efficient utilization of generating capacity, adequate supply of electricity to the consumers, reduces dependence on imported coal and addresses uncertainty of quality related issues. Further, the efficient mine operations and reduction in transportation cost will lead to optimizing the electricity tariff during life cycle of mine. Apart from above, the obligations of Coal India Ltd to supply the coal under existing Fuel Supply Agreement will be reduced and responsibility to supply coal will be

shared. Thus, it will be beneficial in achieving the objective of optimizing natural resources in the country.

2.2 Benefits of Integrated Operation of Mine

2.2.1 Integrated operation of mine with generation project will offer several benefits discussed below:-

- a) Integrated Operation of Mine will offer adequate coal or lignite from fixed source location with a fixed distance. The input price will be fixed by the Commissions on multi-year tariff principle. The distribution licensee will get certainty in input cost of fuel. A certainty in input cost will facilitate distribution licensee to bring more accurate projection. At present, the distribution licensee is unable to predict the fuel purchase cost and regulator has addressed the issue of unpredictability by evolving mechanism of fuel power purchase adjustment cost. The regulatory mechanism of input price on multi-year principle basis will provide predictability of the fuel cost to the distribution licensee;
- b) As per allotment document of coal, integrated mine is linked with the end use generation project and hence the generating station will, therefore, get required coal to provide adequate capacity to the concerned distribution licensee. This rationale is also applicable in case of lignite mine. Consequently, the distribution licensee will avoid purchasing costlier electricity from spot and short term market.
- c) The integrated mine operation will reduce dependence on imported coal or other costlier coal. Average fuel cost of such generating station will be decreased to some extent and therefore, the energy charges payable by the distribution licensee will be reduced. The reduction of use of imported coal or costlier coal will facilitate distribution licensee to have the tariff at reasonable level;
- d) The integrated mine operation is nothing but forward integration of mine with the generating station controlled by the generating company. The production line of the coal or lignite may be scheduled based on the requirement of the generating station. In case of lignite, the production is to be necessarily synchronized with requirement of generating station. The generating company can vary the coal production with the requirement of generation, *albeit* under the permissible limit as per mine plan to reduce inventory cost. The generating company can achieve efficient utilization of coal, reduced inventory cost and working capital requirement at the generating station.
- e) There are several issues of quality of coal during transportation between the coal mine and the power plant.¹⁵ The integrated operation of coal mine may provide opportunity to address the issue of quality. Since the operation of mine and generating station is integrated and controlled by the same company, the issue of variation in quality can be addressed effectively.

¹⁵Para 8.5.1 to 8.5.3 of the Consultation Paper dated 24.5.2018 to the CERC (Terms and Conditions of Tariff) Regulations for the 2019-24 period.

2.2.2 The above stated benefits of the integrated mine operation to the generating projects, facilitates achieving the objectives enshrined under the Electricity Act, 2003. The mine integration with generating station will be complimentary to promote investment. Therefore, there is a case for encouraging development of coal mine integrated with generating stations and to promote investment in integrated mine. Following options may be thought of for principle of input price:

- (a) Approach may be developed by considering principles of cost of production as followed in generating company and best practices followed in Coal Industry. In this model, the cost of extraction and its delivery (supply cost) will be recognized for the purpose of input price during useful life of the project; or
- (b) Approach may be developed by determining cost of coal mine based on market parameters - such as competitive rate, international trend and market price index. In this option, the initial price may be determined either based on competitive market rate or cost of mine and subsequently, price may be linked with indexation.

2.2.3 The next step is to decide the appropriate principle to attain this objective. Presently, investment by the generating company in captive mine for integrated operation is at nascent stage. In Indian context, considering the paying capability of the domestic market, the linking of the cost to international price is not even practiced by the commercial coal miners in the Country. Here the allocation had been made with the specific intention of optimizing the cost of electricity to be generated by the allottee (Direction u/s 107 of MoP dated 16th April, 2016 is clear in that perspective). Therefore, any approach linked with market parameters would not be appropriate under the given circumstances. The working group has observed that Coal Industry follows the trend to award mine operation, to Mine Developer *cum* Operator (MDO), where in extraction of coal or overburden or both is awarded through competitive bidding. Wherever mine development is undertaken through department, all costs need to be examined for its admissibility. Thus, the principle of cost of extraction will be an appropriate option to work out the input price of coal or lignite wherein all costs including cost of extraction of coal, either departmental or through outsourced agency, may be admitted after prudence check.

2.3 Specific Issues with Lignite Mine

2.3.1 As of now any coal extracted from the integrated coal mine in excess of the requirements for generation is to be transferred to Coal India Ltd. However, in case of lignite mine, in absence of same Government guideline, excess extraction, if any, will impact the Tariff structure

2.3.2 In some of the existing lignite mines, Special Purpose Vehicle (SPV) is created. SPV enters into an agreement with the generating company to supply fixed quantity of lignite at a specified rate and may also sell the remaining quantity of lignite in the market. The word and expression “transfer price” is in vogue and is being determined in existing lignite mines. These mines might have completed major part of their useful life. Such cases may not be considered in the generic regulatory framework.

2.3.3 The Ministry of Coal had issued guidelines dated 2.1.2015 for fixation of transfer price of lignite for NLC India Ltd. The Ministry of Coal as per letter No.

28012/1/2014-CA-II dated 24.6.2019 has decided that, henceforth, NLC India Ltd can decide Lignite Pricing. The input price and statutory duties and levies applicable to lignite mines needs to be considered appropriately while computing input price of lignite mines. The procedure applied in case of coal mine may be extended to the lignite mine *mutatis mutandis*.

2.3.4 The depreciation treatment, mine closure expenses treatment, interest on loan and consideration of Mine Development Operator expenses are similar to the coal mine development except working capital. For these components, the treatment may be specified common for coal or lignite. The components of working capital may be specified separately for coal or lignite.

2.4 Conceptual framework

2.4.1. The mine may cater to requirement of a specific generation plant, i.e. the mine is captive to that specific generation plant. In case the mine caters requirement of multiple generating plants of the Company, it is termed as basket mine. Therefore, a coal mine, which is integral part of the generating station, may be treated as a separate sub-project of the generating station for the purpose of accounting, investment, financing, maintaining expenses and reporting purposes. The basket mine project may be considered as separate project.

2.4.2. In both the cases of captive /or basket mine, the mine is a separate functional unit within the generating company having common control over the mine as well as generating unit/station. Ministry of Coal in its order dated 26.12.2014¹⁶ has used the term transfer price. Transfer price refers to the setting of prices of goods and services that are exchanged among the subsidiary, affiliate or commonly controlled companies or legal entities that are part of the same larger enterprise. Transfer price term is also used for the purpose of taxation by the government authorities. In case of captive mine, the coal is transferred from one functional unit (coal mine) to other functional unit (generating station) of the same company. Further, in case of corporate borrowing, common loan borrowed on same terms may be allotted to both the functional units.

2.4.3 Creation of Special Purpose Vehicle (SPV) or Company, will not alter the allotment agreements. The allottee of mine, i.e. the Generating Company shall continue to have binding obligations to comply with allotment agreement and control of such SPV or separate company will remain with the generating company. The input price of coal is to be determined by taking into account the captive nature of mine irrespective of separate creation of company or SPV.

2.4.4 The Commission determines tariff of electricity supplied from generating station to the distribution licensee. The tariff of thermal generating station is determined by considering various cost elements which includes infrastructure cost, operational cost, cost of coal or lignite, fuel transportation cost etc. Thus, coal or lignite transferred to the generating station from mine is one of the input costs for tariff determination of electricity which comprises of the Run of Mine Cost, Surface transportation cost, Crushing Charges, coal handling charges, washing charges (as

¹⁶Reference: Order No.13016/9/2014-CA-III GOI, Ministry of Coal dated 26.12.2014.

applicable) along with the taxes and duties. The landed fuel cost may be worked out by considering input cost and transportation cost (from loading point to receiving point) as specified in the definition of landed fuel price under the 2019 Tariff Regulations.

3.1 Elements of Input Price

3.1.1 The production cost includes cost of only mining activities. The mined coal is processed for use by sizing, crushing, washing etc. The Ministry of Power under the direction dated 16th April, 2016 issued to the Central Electricity Regulatory Commission has recognized the components of fuel price as under:

- a) Run of Mine (ROM) price of coal;
- b) Transportation cost along with distance to the end use power plant (rail, road and other modes separately)
- c) Washery charges, if any;
- d) Crushing charges;
- e) Royalty/duties and levies etc.;
- f) Other charges, if any.

3.1.2 The Run of Mine (ROM) coal comes directly from a mine without going through the filtering of the impurities and other processing associated with it. Therefore, the Run of Mine Cost (Rs/T) is worked out based on the mining cost only by considering mining activities and transportation upto loading point. Thus, ROM Cost consists of mining cost, excluding crushing charges, transportation charges and washing charges.

3.1.3 Since the transportation charges from loading point to receiving point are already covered under the definition of landed fuel price, the input price of the coal supplied to the generating station from captive or basket mine allocated to the generating station may be limited to ROM cost, return on equity and associated cost such as washing charges, crushing charges, coal handling charges and transportation (rail/road/CHP) up to loading point at mine end covered under the mine project. Accordingly, elements of input price are as under:

- a) Run of Mine (ROM) cost and Return on Equity ¹⁷
- b) Crushing Charges, if any
- c) Transportation Charge,(up to to washery end or coal handling plant, as applicable), if any
- d) Coal Handling Charges at mine end, if any
- e) Washing Charges, if applicable and
- f) Transportation Charges (from washery or coal handling plant up to loading point at mine end, as applicable), if any,
- g) Royalty and statutory duties/levies etc.

Above elements from (b) to (g) are mine specific and therefore, input price may undergo change from mine to mine.

3.1.4 The extraction of lignite consists of mining cost and lignite handling charge including surface transportation, if any. Unlike coal mining, requirement of washing of

¹⁷ Return on Equity on ROM cost will be added separately.

coal, crushing and transportation is not envisaged in case of lignite. Due to characteristic of lignite and economic viability aspects, it is compulsory to have pit head linkage. The input price of lignite shall comprise only Run of Mine cost along with associated statutory charges.

3.1.5 The ROM Cost represents the cost of mining activities worked out based on Annual Extraction Cost. Likewise, the Crushing Charges represents the cost of crushing activities based on Annual Crushing Cost. The Handling Charges represents the cost of Handling activities based on Annual Handling Cost. The Transportation Charge represents the cost of transportation activities, other than transportation within the mine but upto washery end, if applicable, worked out based on Annual transportation cost. The Washing Charge represents the cost of washing activities worked out based on Annual Washing Cost.

3.1.6 The Annual Extraction Cost is worked out as sum of components under the following heads:

- (i) Depreciation;
- (ii) Interest on Debt capital;
- (iii) Interest on working capital;
- (iv) O&M Expenses including mine closure cost (with and without MDO); and
- (v) Statutory Charges, if applicable.

These components are worked out by considering capital cost of extraction activities (other than processing such as crushing, transportation, handling, washing etc.) in case of coal mine. The Operation & Maintenance (O&M) expense is the additive of MDO cost and/or Outsourcing Cost (wherever applicable), which includes mine closure, and all departmental cash and non-cash revenue expenditure.

3.1.7 Similarly, the Annual Crushing Charges, Annual Handling Charges, Annual Transportation Charges and Annual Washing Charges will also be worked out as sum of components under the following heads:

- (i) Depreciation;
- (ii) Interest on Debt capital;
- (iii) Interest on working capital;
- (iv) O&M Expenses; and
- (v) Statutory Charges.

These components are worked out by considering capital cost of respective activities in case of coal mine. Details of Operation & Maintenance (O&M) expenses are to be provided by the respective generating company separately taking into account all departmental cash and non-cash revenue expenditure.

3.2 Determination of Input Price

3.2.1 The elements defined as per Para 3.1 will be added along with applicable Return on Equity (ROE) to arrive at final input price for the generator. As per direction of the Government dated 16th April, 2016, each component is required to be determined separately. In case of lignite mine, generating units are necessarily located in the pithead. Therefore, the input price of lignite are worked out by adding

all cost upto loading point, added with cost of transfer from loading point to the generating station.

3.2.2 ROM Price

The ROM price will be worked out by applying following formula:

$$\begin{aligned} \text{ROM Price (Rs/Tonne)} \\ = & \quad [(\text{Annual Extraction Cost}) - (\text{Adjustment on account of Grade} \\ & \quad \text{Slippage})] / \text{Quantity} \end{aligned}$$

The adjustment on account of grade slippage is worked out based on input price of the respective year, mid-GCV of declared grade and actual slippage.

The ROM price is worked out based on annual target capacity as per mine plan or such capacity as agreed.

3.2.3 Additional Charges

For efficient and effective handling, ROM coal is subjected to crushing and washing before the loading point for final dispatch. These activities entail cost. Where such processing activity is undertaken departmentally, the annual cost of such activities are worked out by considering capital cost, depreciation, return on equity, interest on loan and operational expenses. Where the processing is undertaken on outsourced basis, the price discovered through competitive bidding are considered after prudence check. MDO expenses, as applicable, will be a part of O&M expenses:

- (i) Crushing Charges = Annual Crushing Cost/Annual Quantity crushed (Coal);
- (ii) Transportation Charges= Annual Transportation cost/Annual Quantity Transported;
- (iii) Washing Charges= Annual Washing Cost/Annual Quantity of washed coal

3.2.4 Statutory Charges

The Statutory Charges comprises of following components:

- a) Upfront payment;
- b) Fixed Reserve price of Rs.100/ton or escalated price¹⁸;
- c) Cost of Performance Bank Guarantee; and
- d) Statutory levies and duties like royalty, cess, GST as legally payable to Government of India and State Government.

The statutory charges are to be worked out as legally permissible in accordance with applicable Law.

3.2.5 Overburden Adjustment

(i) The extraction cost in an opencast project depends on quantum of coal and overburden (OB) extracted from the mine. Stripping ratio (ratio of volume of overburden to be removed to win one unit tonne of coal) dictates the economic mine-

¹⁸ Escalated price will be worked as per prescribed formula.

ability of an opencast mine. In practice, the ratio varies with the progress of the mine depending on geo-mining characteristics of deposit/coal block. The mine plan provides target capacity of coal and OB to be excavated, year-wise for the whole life of the project. In case of variation in actual OB handled vis-à-vis the target as indicated in the approved mining plan, the annual extraction cost of coal will also vary. The cost per tonne of coal can be representative if the production and extraction of OB both are in line with approved mining plan or vary proportionately. But in case of any disproportionate variation, cost per tonne will be distorted. Since the mine plan provides the stripping ratio *inter-alia* guiding factor for quantity of coal extracted and overburden to be removed, the same needs to be complied. The implementation of mine plan and compliance of stripping ratio will take care of the requirement of OB adjustment.

(ii) The compliance of mine plan and stripping ratio obviates the requirement of OB adjustment. The adjustment of OB is result of non-adherence of mine plan and stripping ratio. The regulatory framework should encourage the best practice discouraging inefficient practice. Accordingly, that any loss on account of higher OB adjustment may not be passed on to the consumer through input price. The OB adjustment may be rationalized, either in quantity of coal (in case of lower removal of overburden) or overburden (in case of lower extraction of coal) in accordance with annual production plan.

3.3 Recovery of Input Price

3.3.1 In case of integrated coal mine, the supply of coal is governed as per the Coal Mine Development and Production Agreement. As per this agreement, the coal extracted from coal mine is to be utilized by the allottee in the specified end use plants¹⁹. Diversion of coal from mine for commercial purpose is not permitted. The Agreement further provides to ensure optimal utilization of coal. It allows allottee to enter into arrangement for optimal utilization through arrangement application²⁰, utilization in any other plant of the Allottee²¹. If the allottee of mine is unable to carry out alternate arrangement or to utilize in any other plant, the agreement provides for sale to Coal India Ltd.²² at the CIL notified price. Relevant Para is extracted below:

“8.5 Sale to CIL

8.5.1 Any coal extracted from the Coal Mine which is in excess of the requirements of coal for the Specified End Use Plant and Other Plant(s) shall be required to be supplied to CIL at the CIL notified price.”

3.3.2 It is, therefore, implied that the allottee of coal mine has got the guaranteed off-take of coal extracted except uncertainty in coal mine such as force majeure conditions. Further, there may be a situation arising out of non acceptance of coal by CIL due to evacuation and/or any other issues. In addition there may be restriction of quantum of pit head stock due to incubation period of coal to avoid coal stock fire. Moreover, there may be less off take due to less demand of power due to reasons

¹⁹ Clause 8.1 Utilisation of Coal of Standard Coal Mine Development and Production Agreement(CMDPA)

²⁰ Clause 8.3 of CMDPA provides allottee to enter into arrangement for optimal utilization.

²¹ Clause 8.4 of CMDPA provides allottee to use coal in any other plant of the allottee.

²² Clause 8.5 of CMDPA provides allottee to sale excess coal to CIL at notified price.

beyond the control of generator. All these may lead to restrict capacity utilization of the mine.

3.3.3 Therefore, there is a need for specifying Normative Annual Utilization Factor (NAUF) due to demand constraints and uncontrollable factors at mine end. In other words, low production due to the any reasons beyond the control of the mine developer in mining operation needs to be addressed.

3.3.4 In case of generating company, recovery of annual fixed cost is admissible at 85% availability. On similar principle, the mine developer needs to be protected against less utilization or production due to un-controllable factors. Normative utilization of coal or lignite mine may also be specified as 85%, which may be reviewed by the Commission based on data of integrated mine operation.

3.3.5 The formula for recovery of input price may be worked out as under:

(i) For quantity supplied upto NAUF:

Input Charges= Input Price (Rs/T) x Quantity Supplied (for quantity \leq NAUF)

(ii) If quantity supplied beyond NAUF:

Input Charges = Input Price (Rs/T) x Quantity Supplied (for quantity \leq NAUF) +
O&M Expense (Rs/T) x Quantity Supplied (for quantity $>$ NAUF)

4. Capital Cost

4.1 Capital Cost

4.1.1. Nature of capitalization in mining industry is different from power project. In case of thermal power project, most of the capitalization is completed during construction period by the date of commercial operation and life of plant & machinery gets aligned with the useful life of the project. Additional capitalization and replacement of plant & machinery during operation period are not significant. But coal mine project exhibit different characteristics. Only partial capitalization is being completed during construction period and remaining capital cost is spread over during build up period and during operation period. Capital costs in mines as indicated in investment approval say original project cost can be split up into development cost (capital cost up to commercial operation date) and ongoing development cost (additional capitalization after commercial operation date). The development cost can be further split-up into initial development cost and development cost after commercial operation date. Initial development cost is on account of accessing seam body, infrastructure creation, equipment procurement and licensing costs.

4.1.2 Infrastructure cost covers preliminary development cost which includes water and electricity connections, offices, workshops, change houses, roads and employees' accommodation. In some instances, small townships need to be developed to accommodate employees. The infrastructure requirements also include coal processing facilities referred to as the plant. Once the mining project has taken off, additional infrastructure, development, equipment overhaul and replacement is conducted.

4.1.3 Generally, in case of infrastructure projects, contractors are being engaged to carry out the development work and then operation can be undertaken through department. In mining industry, recent trend is observed to hire contractors for not only development but for operation of coal mine. Processing (such as washing, sizing etc.) can also be included or undertaken through separate contracts.

4.1.4 The Annual Extraction Cost of Coal Mine is to be determined separately for ROM cost, Washing, Crushing, Transportation upto loading point for implementation of procedure specified by the Ministry of Power on 16th April, 2015. In case of lignite mine, washing, crushing are not involved and the procedure specified by the Ministry of Power is not applicable. Thus, the capital cost of mining, washing, crushing and transportation (upto loading point) is to be determined separately in case of coal mine. Whereas in case of lignite mine, the capital cost of all infrastructure upto receiving point is to be determined on consolidated basis.

4.1.5 Following Investments are accepted as Capital cost of the Mining Project under departmental operation in CIL and SCCL as per extant industry practice:

- a) Cost of Land: The cost of land comprises the cost of Compensation for Project affected people (PAP), Rehabilitation & Resettlement (R&R), Mining operation and Infrastructure and other uses as may be permissible associated with the mine;

- b) Civil and Building: The cost of civil and building includes cost of Residential Building, service Building (Office, Workshop, Substation, Coal Handling Plant (CHP) etc.);
- c) Plant and Machinery: The major part of Plant & Machinery comprises Heavy Earth Moving Machinery (HEMM) in coal mine. Other than HEMM, cost of Electrical Equipment, Pump& pipes, Workshop equipment, Coal or lignite Handling Plant, Sizing, Crushing, Control room equipments, Furniture& Fittings etc.;
- d) Railway Siding, Vehicle and Prospecting & Boring / GR preparation;
- e) Development Expenditure: The development expenditure includes expenditure incurred on capital outlay in mines, Nulla, Road, Power line Diversion, Earth work, Temp Hutments, Community Development, Compensatory Afforestation, Retaining wall, garland drains etc., Water supply & sewerage, Roads and culverts, Scientific Research, PR formulation/Approval, Base line data generation-EIA/EMP Preparation & approval and Forestry Clearance;
- f) Revenue Expenditure Capitalized (Inclusive IDC): The revenue expenditure of a coal project is capitalized till the year, the project achieves 'Commercial Readiness' as per the envisaged plan.

4.1.6 Each coal mine project is unique in nature. The geo-mining conditions, the physical and chemical properties of coal, location, availability of basic infrastructural facilities like approach road and coal evacuation, all are site specific. The selection and deployment of mining equipment (HEMM), both type and size are also mine specific and plays a vital role in estimation of total project cost. Moreover, the project cost for mines to be developed through underground method of working and opencast method of working are not comparable. There may be variation in investment in view of cost of land because it is site specific. Hence it is not appropriate to suggest any uniform cost estimate for development of coal projects and pragmatic view needs to be taken considering mine specific aspects. Therefore, cost of coal production needs to be examined on case to case basis.

4.1.7 The company has to carry out due diligence before investment approval. Scope covered under the investment approval is recognized for the purpose of capital cost.

4.1.8 For engagement of MDO, at present there is no standard documents or statutory guidelines. When MDO is engaged for excavation of coal or removal of OB etc., a consolidated payment on per tonnage basis is made for all the assigned activities. There may be variations in the scope of work of engagement of MDOs from one mining project to other and cost coverage may not be uniform. Normally, the MDO cost is be excluded from capitalization and treated as revenue expenses. Such revenue expenses may be admitted by the Commission based on prudence check on case to case basis.

4.2 Additional Capital Expenditure

4.2.1 Capital expenditure and additional capital expenditure for various key components, including cost of land (government, private and land acquired under Coal Bearing Area (Acquisition and Development) Act, 1957 and Right to Fair

Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013), plant & machinery [Heavy Earth Moving Machines (HEMM), loading / unloading, Coal and lignite Handling Plant, crushing,], Railway siding, etc. are considered with reference to commercial operation date and date of achieving target capacity for determination of input price and thereafter actual expenditure as per provisions of Mining Plan or approved PR.

4.2.2 Any cost addition beyond the original project scope arising out of certain causes like change in law, force majeure, technological obsolescence etc will required to be examined on admissibility of the additions as well as admissibility of cost incurred on such additions.

4.2.3 The additional capital expenditure under original project may be further classified based on date of commercial operation *qua* additional capitalization up to date of achieving target capacity and after date of achieving target capacity.

4.3 Benchmark Cost or Reference Cost

4.3.1 Benchmarking of capital cost is relevant while considering the input price based on cost of service principle. However, unlike Power Generation standardization and benchmarking of the capital cost of mine would be difficult due to varying geo-mining condition.

4.3.2 Also the benchmarking or reference price with Coal India Ltd may not be appropriate option. The benchmarking of capital cost would require separate study of the various cost details, processes and technology of the mining. The benchmarking may be feasible after creation of adequate database covering various parameters like technology applied etc. Separate study may be carried out to take a view on benchmarking of capital cost of mine.

5. Computation of Extraction Cost

5.1 Annual Extraction Cost

The Input Price for the generating unit/station or Transfer Cost consists of Annual Extraction cost, Annual Crushing Cost, Annual Handling Cost, Annual Transportation Cost and Annual Washing Cost as applicable. These components are to be worked out separately by determining separate capital cost for each activity. The annual extraction cost and other activities cost may be worked components-wise such as Depreciation, Interest on Debt capital, Interest on working capital, O&M Expenses(with and without MDO) and Statutory Charges. Adding to these components the Return on Equity (RoE) will convert the cost of each activity into Price for the generating unit.

5.2 Depreciation

5.2.1 Depreciation is a measure of the wearing out, consumption or other loss of value of a depreciable asset arising from use, efflux of time or obsolescence through technology and market changes²³. It is allocated so as to charge a fair proportion of the depreciable amount in each accounting period during the expected useful life of the asset. It also includes amortization.

5.2.2 In power sector, the depreciation has been considered as repayment and the higher depreciation is allowed during the initial period. It may be noted that power project is highly capital intensive infrastructure where all capital investment are deployed upfront leading to higher repayment during initial period. The coal mine project is distinct in characteristics wherein the capital investment or deployment gets spread during useful life. The land acquisition and reclamation is continuous process. The deployment of Heavy Earth Moving Machinery (HEMM) are required corresponding to the annual target capacity.

5.2.3 Ministry of Corporate Affairs has specified separate depreciation rate for Specialized Mining equipment acquired on or after that date. The Coal Industry is following the depreciation rate specified by the Ministry of Corporate Affairs in respect of Specialized Mining equipment. In view of the above, the depreciation rate may be considered as under:

- 1) Depreciation for equipment or Machinery: Depreciation will be charged as per the provisions of the Companies Act 2013 for the assets other than Specialized Mining equipment;
- 2) Depreciation of Specialized Mining equipment acquired on or after that date and as per the accounting policies of the Company may be charged as notified by Ministry of Corporate Affairs;
- 3) Land other than the land held under lease shall not be a depreciable asset and shall be excluded from the computation of depreciation.

5.2.4 Considering practices followed in the Coal Industry, following approach may be considered for computation of depreciation:

²³ Accounting Standard 6 of the Institute of Chartered Accountant

- a) The depreciation is to be worked out based on historical cost as per generally accepted accounting principles in India and the relevant provisions of the Companies Act, 2013 except otherwise stated for specialized machinery;
- b) Value of land includes cost of acquisition, rehabilitation expenses, resettlement cost and compensation²⁴;
- c) Assets taken on lease are capitalised and amortized as per the depreciation policy.
- d) The value of leasehold land are to be amortized on the basis of lease period or balance life of the project, whichever is earlier.
- e) The residual value of depreciable assets may be considered as per the Companies Act, 2013. .

However, the useful life over which the management expects to use the assets may be different from useful lives as prescribed under Part C of schedule II of Companies Act, 2013.

5.2.5 The Straight Line Method is widely accepted in the Coal Industry. In view of above, the depreciation of the assets may be arrived by applying Straight Line Method corresponding to useful life and in case of leasehold land, the depreciation may be arrived corresponding to life of project or lease period, whichever is earlier' .

5.3 Return on Equity (ROE)

5.3.1 In Electricity Sector the equity fund employed in the generation project is considered to workout the return on equity. Interest on debt is a pass through considering actual interest rate. This approach gains precedence in the electricity sector for determination of tariff. The captive mine is also a part of the project of generating station and aimed to serve the electricity produced from that generating station. The coal extracted from the integrated mine is not allowed to sale for commercial purpose. The generating company allocate fund to captive mine in the same manner as followed for generating assets. The approach for consideration of equity for the rate of return as followed in case of generating station may also be adopted for the captive mine. Thus, it is suggested that the approach of return on equity may be adopted for computation of return. However, as regards rate of return for computation of return may be considered based on industrial practice in coal industry.

5.3.2 In Coal India Ltd the entire funding is through internal accruals with marginal amount of external borrowing and net fixed asset approach is followed. However, in case of coal mine integrated with generation project, the funding from equity is capped to 30%. Thus, gross fixed asset approach may be followed to work out the rate base for computation of return.

5.3.3 In the cost plus method, the regulatory framework will address the majority of risk involved in captive mine and at the same time will encourage performance and efficiency. In the generating station, the rate of return is not linked with performance

²⁴Compensation includes employment incurred for concerned displaced persons

but separate incentive and disincentive mechanism has been introduced. It is believed that the consideration of performance based rate of return would be more appropriate because the investment consideration would be based on specific performance level. In this situation, the generating company shall strive to achieve the performance for not only regulatory compliance but to ensure adequate return on the investment.

5.3.4 As per the guideline of MOC, criteria for approval of coal mining project is considered at minimum 12% FIRR at 85% capacity utilization. Pricing of coal at CIL is market driven. As such, practice of CIL cannot be benchmarked for deciding the level of Return of Investment in case of integrated project.

5.3.5 Since the funding mix for mine is proposed to be similar to that of Power generation, the rate of return admissible for power generation may be adopted for integrated mining project also. The approach of return on equity may be adopted based on CAPM model.

5.3.6 On reduction of production below annual target capacity, the generating company will not get the input price. The additional penalty mechanism is not suggested as the Ministry of Coal is already imposing penalty for reduction of coal production below target capacity. There could be a situation where the generating company will supply excess coal to Coal India Ltd, in accordance with the conditions of allotment agreement. If additional profit is earned on such supply of coal, same may be ploughed back to service the cost of investment.

5.4 Interest on Loan Capital (IOL)

5.4.1 In coal sector the original loans as per approved project cost and the original schedule of repayment are to be considered for the purpose of interest on loan. The agreed interest rate may be applied on the schedule outstanding loan amount. However, in case of integrated coal mining project, the loan capital is to be arranged by the generator, the generator may adopt any of the prevalent practices, either of coal or power sector.

5.5 Operation and Maintenance Expenses (O&M Expenses)

5.5.1 Operation cost comprise of all departmental cash and non-cash revenue expenditure namely Salaries and Wages, Administrative charges (Overheads including Legal charges), Stores (POL, Repair & Maintenance, Explosive etc.), Power (Energy charges inclusive of duties & taxes), Miscellaneous (Repair maintenance of P&M, vehicles, Security, TA/DA, water cess, workshop expenses etc) and Coal & Overburden removal (if outsourced).

5.5.2 The Operation & Maintenance (O&M) expense is the additive of MDO/ Outsourcing Cost (wherever applicable), which includes mine closure.

5.5.3 Due to variance in geo-mining conditions, standardization in quantum of work involved and standardization of cost thereof is difficult. Therefore prescribing a Normative O&M Expenses is not possible. However, after ensuring sufficient data, the Commission may consider to carry out a separate exercise to identify those activities of mining operations, which could be standardized to evolve the Normative O&M Expenses.

5.5.4 The admissibility of Operation & Maintenance expenses, other than extraction through outsourced agency, is to be subjected to prudence check separately for each project. The escalation rate in Operation & Maintenance expenses may be estimated based on indices.

5.6 Interest on Working Capital (IWC)

5.6.1 As per circular no. 28012/1/2014-CA-II dated 02.01.2015 on Fixation of transfer price of Lignite for NLC, MoC has allowed 20 days lignite stock in mines, 12 months consumption of spares and 1 months O&M expenses as working capital. MoC has also allowed IWC on normative basis at the base rate of SBI+350 points.

5.6.2 The working capital comprises coal stock, consumption of store and spares and operation and maintenance expenses. Since the mine is integrated with generating station, the billing cycle and inventory cycle will reduce to some extent leading to saving in working capital. However there is a concern of geo-mining and climatic impact in day to day mining operations. Accordingly, the working capital may be considered as input cost for 20 days coal production towards inventory stock, as per MOC guideline for lignite, 15% of operation & maintenance expenses towards consumption of stores and spare and one month operation & maintenance expenses.

5.7 Mine Closure Expenses

5.7.1 The mine closure is driven by the statutory guidelines in coal industry. As per extant rules, the mine owner is required to deposit a sum based on land required for project area and life of mine with annual escalation in an Escrow Account with the Coal Controller. This Escrow account is an interest-bearing account. The expenditure of mine closure is incurred during mining and also after the mining operation are completed. The obligations to deposit mine closure expenses in the Escrow account lies with the generating company.

5.7.2 The mine closure are part and parcel of mining activities undertaken concurrently as well as after completion of mining activities known as final mine closure. A mine closure plan along with indicated activities and cost thereof is approved by competent authority before taking up actual mining operations. After carrying out the scheduled activities, in respect of mine closure plan, the owner can claim re-imbursalment upto 80 % of accumulated amount at the end of every fifth year period from the escrow account. The residual amount is reimbursed after due completion of final mine closure activities. The re-imbursalment is subject to approval of competent authority after due audit.

5.7.3 Hence apart from mine closure cost in built in the mining operational cost and recovered through input cost mechanism, another financial cost towards mine closure is limited to differential between the cost of fund for deposit in the escrow account and interest earned from the deposit. The mine closure expenses allowed will be trued up with amount reimbursed from escrow account at every five year interval.

6. Miscellaneous Issues

6.1 Outsourced Agency

6.1.1 In case a mine is entrusted in totality for development and operation to an outside agency, the agency is normally known as Mine Developer cum Operator (MDO). However in certain cases part of the pre-identified activities of a coal project, like overburden removal or coal winning operations etc., are given on contract basis. These agencies are selected through competitive bid mechanism. In such cases the capital investment required for executing the activities are borne by concerned agencies and cost thereof is a part of the quoted rate and considered to be revenue expenses for the owner.

6.2 Certification of Coal production and Overburden removal

6.2.1 Measurement of coal production and overburden removal is necessary for the purpose of computation of input price. The quantity of coal and overburden is to be measured at regular intervals as it has significant commercial implication on per tonne input price of coal.

6.3 Quality Measurement

6.3.1 The quality measurement is to be determined in accordance with applicable standards specified by Bureau of Indian Standards as the Royalty and Cess are on ad-valorem basis as well as the quality of input coal has a direct bearing on the quantity consumed at the generating station and therefore on the tariff. The Ministry of Power in its direction dated 16.4.2015 has also suggested to follow third party sampling procedure specified by the Ministry of Coal. Further, the Commission in its 2019 Tariff Regulations has defined the GCV as Received which laid down the condition of the measurement of coal shall be carried out through sampling by third party to be appointed by the generating companies in accordance with the guidelines issued by Central Government.

6.4 Mine Plan

6.4.1 Exploration, preparation of Detailed Project Report and Mining Plan are pre-requisite before taking up mining operation. While Mining plan is approved by Ministry of Coal, the detailed Project Report and Investment Proposal is approved by Board of Directors of the generating company. The scope of project including progressive land requirement, method of mining, mining schedule, progressive plant & machinery requirement, requirement of coal beneficiation plant and coal handling plant, technical parameter have been specified in the mining plan. The mining plan is mandated under clause (b) of sub-section (2) of section 5 of the Mines & Minerals (D&R) Act, 1957 ("the 1957 MMDR Act") and to be approved by the Central Government, or by the State Government, as the case may be. Clause (1) of Rule 11 of Mineral Conservations and Development Rules, 2017 provides that no holder of a mining lease shall commence or carry out mining operations except in accordance with mining plan approved by Ministry of Coal.

6.4.2 The mining plan is basic document which decides the manner of mining. The mining plan is recognized as statutory document and it is approved through a statutory process. The methodology of mining decides the requirement of plant & machinery, land and other requirements. The mining plan compliance has implication on the expenditure planned by the project developer which is to be considered by the Commission at the time of determination of the capital cost of the mine. Thus mine plan may be recognized under the regulatory framework as statutory document for ascertaining the expenditure related with mining activities at the time of prudence check.

6.5 Commercial Operation Date (“COD”)

6.5.1 The Commercial Operation Date of the Coal mine is important as to commence the obligations for supply of coal under the CMDPA and to the generating station. Declaration of commercial operation is regulated activity as it has commercial implication on tariff. It is also important to have a dispute free declaration of commercial operation date. The Group has examined the different methods prevailing for declaration of commercial operation date.

6.5.2 Ministry of Coal issued draft Model Contract Agreement on 22nd April, 2015. As per this agreement, the commercial Operation Date is to be declared as under:

“14.2 Commercial Operation Date

14.2.1 The first day of the month in any Accounting Year in which the quantity of Coal produced from the Mine equals [****]18 Tons, as certified by the Independent Engineer, shall be the “Commercial Operation Date” or “COD”.

14.2.2 In the event that COD does not occur prior to the Scheduled COD, unless the delay is on account of reasons solely attributable to the Authority or due to Force Majeure, the Mine Operator shall pay Damages to the Authority in a sum calculated at the rate of 0.5% (zero point five per cent) of the amount of Performance Security for delay of each day until COD is achieved.”

It is gathered that the above practice is not followed at present. NTPC Ltd. has considered the commercial operation date in line with the practice followed by the Ministry of Coal for the purpose of accounting and disclosed the same in the annual financial statement for the year 2017-18.

6.5.3 Coal India Ltd is considering commercial operation date for the mines owned by them observing certain conditions. The Coal India Ltd has disclosed these conditions in their balance sheet. Similar conditions were also evolved by the Ministry of Coal in 2004 to bring coal project in the revenue account²⁵. The commercial operation date is deemed to be declared if it satisfied following conditions:

- (a) From beginning of the financial year immediately after the year in which the project achieves physical output of 25% of the rated capacity as per approved project report;
- (b) 2 years of touching of coal, or

²⁵ OM No. 43011/5/2001-CPAM dated 23.6.2004 of Ministry of Coal

- (c) From the beginning of the financial year in which the value of the production is more than total expenses

Whichever event occurs first.

On being brought to revenue, the assets under capital work-in-progress may be re-classified as a component of property, plant and equipment under the nomenclature 'other mining structure'. Other mining structure is amortized from the year when the mine is brought under revenue in 20 years or working life of the project whichever is less."

6.5.4 With regard to the condition of two year touching of coal, the intention is to ensure the timely completion of the development of mine. In case of any force majeure condition, this condition may not get satisfied, and may lead to dispute before the Commission. The objective for ensuring timely development of coal mine can be achieved by strict scrutiny of the time overrun. Under regulatory regime, the same can be ensured by alternative framework. In case of disallowing time overrun, the generating company will be deprived from capitalization of pre-operative expenses for corresponding period. This will adequately take care of ensuring timely completion.

6.6 Treatment of Coal Supplied Prior to COD

6.6.1. In power sector there is provision for paying only variable cost before declaration of commercial operation date of a unit which is termed as Infirm Power. During infirm period all expenditure are capitalized netting the revenue earned from infirm power. Similarly, in coal sector, during the capitalization period, any revenue earned from coal produced, is adjusted against the Revenue Expenditure Capitalized. Prior to attaining commercial readiness, the Coal supplied may be charged at estimated price as per approved DPR subjected to true up. The group is of the view that the estimated price as per approved project report shall be representative for individual coal mine for charging coal supplied prior to commercial operate date.

6.7 Useful life of the Mine

6.7.1 The useful life of the coal mine is important for two different reasons: (i) In context with the servicing of depreciation over a useful life and (ii) Obligations of supply of coal agreed under the CMDPA to the end use project.

6.7.2 The useful life of the plant & machinery, buildings and civil constructions, land, other capital assets is to be assessed taking into account technological and other relevant factors. Where the life of the individual asset is less than the life of the mine, it is considered at reduced life and accordingly the depreciation is charged. Moreover in certain cases, replacement of equipment are necessary to continue mining operation till the life of the mining project.

6.7.3 Each mine is unique in terms of their life, operational and geo-mining conditions. It is not possible to work out the depreciation rate based on uniform life of the projects.

6.7.4 Unlike power sector, where the useful life of the assets is uniform for 25 years, there is no such uniformity in case of useful life of the assets involved in a coal mine project. In power sector, life of the plant & machinery is commensurate with the useful life of the project. In case of coal mine, the useful life is linked with extractable reserve of the coal permitted for mining. Thus, the useful life of the mine may be considered as per the life assessed under approved mine plan and amendment thereof. However, as regards the useful life of the Heavy Earth Moving Machinery (HEMM), the Ministry of Corporate Affairs has considered specialized depreciation rate based on useful life of 9-10 years which may be considered. For remaining assets, the useful life may be considered as per schedule II of Companies Act, 2013.

6.8 Special Observation

6.8.1 Post Supreme Court cancellation of Coal Mines allotment, the Coal mines were allotted to non-Commercial Miners through two different processes:-

- 1) To Central and State Public Sector Undertakings, by nomination,&
- 2) To others through a competitive bidding process, which was open to everyone, including the Central and State Public Sector units.

6.8.2 The purpose of competitive bidding, is to create a competitive regime, reducing the input cost i.e. feed cost (Coal) and consequent power charges to the consumer through cheaper power availability to distribution utility. Objective of this exercise is to bring a regime that, even for allocated mine, the feed stock cost will be linked to actual cost incurred and indirectly bringing the system under regulatory scrutiny of prudence of cost of feed stock of coal mined by the Generating Companies itself. SERCs are also expected to be guided by CERC under section 61(a) of the Electricity Act, 2003.

6.8.3 There are a few related issues which may require the attention of the regulators and generators and *inter alia* the distribution licensees. Most of the mines are being operated by Mine Developer Cum Operator (MDO) in absence of any mining cadre in the allottee Government companies. The mining done mostly is opencast (strip mining), and such mining volume is admeasured by composite mining under a well laid down mining plan. But for most of the MDO contracts, it is understood that they have been approved on 'per tonne' delivery of Coal as the deciding criteria implying whichever bidder has indicated minimum value for the delivery cost of coal has been declared successful. While thus the contract is simple to administer, this may lead to a situation of front-loading by the MDOs by deviating from laid down mining process and extracting more coal by operating at lower stripping ratio. But effect will be encountering higher stripping ratio with progress of time.

6.8.4 Operating MDO may go for less of composite mining but produce higher quantity of coal by working in low stripping ratio patches in the beginning. They may abandon mining when the stripping ratio become higher. In absence of effective monitoring, it will be detrimental for consumers. Scenario is probable, because generators do not have mining cadre, and monitoring may be ineffective unless specifically concentrated upon.

6.8.5 Further many of the MDO contracts have been decided by bench marking with the price of Coal India Ltd. (CIL) without finding out the cost of the coal extraction in

similar geo-mining conditions. As has been pointed out, CIL pricing is kept at a level to keep reasonable profit for the entire company and is not directly related to individual mine wise cost. Further it may so happen that due to some constraints, mining is allowed to commence at a place with lower stripping ratio and there is no migration clause to deal with such eventuality in the contract. This may allow MDO to gain unduly in the beginning and further create a route of abandonment at a later stage.

6.8.6 In future, for contract settlement, these aspects have to be kept in mind in absence of any standard bidding guidelines and lack of prescription and criteria for evaluation of MDO tender.

7. Recommendations

7.1 The working group after detailed deliberations on various aspects including the factors for determination of input price of coal/lignite, views and suggestions of stakeholders, tariff fixation methodology of generation presently in vogue with coal supply from commercial mines, objectives enshrined under the Electricity Act, 2003 and benefits of integrated mines recommends the following for consideration in preparing regulatory framework for fixation of input price of coal or lignite for generating stations whose tariff is determined under Section 62 of the Act:

7.2 General recommendations:

- a) Coal price of integrated mine is one of the input costs for generation of electricity for tariff determination. The term “transfer price” wherever used may be substituted by the term “input price”.
- b) The regulatory framework may apply to the coal mine or block allotted, through nomination route under the 2015 Mine Act, or lignite mine, with the end use projects whose tariff is determined by the Commission under Section 62 of the Act.
- c) The findings and recommendations for coal mines are applicable, *mutatis-mutandis*, for lignite also.

7.3 Principle of Input Price:

For determination of input price, the following principles may be recognized:

- a) Principle of cost of extraction, similar to cost of service principle followed for generation tariff, wherein all costs including cost of extraction of coal, either departmental or through outsourced agency admitted after prudence check, shall be the basis for working out the input price.
- b) In case of the Coal mine, the input price shall comprise of :
 - (i) Run of Mine cost, (ii) Crushing Charges, if any, (iii) Transportation Charge, if any, upto the loading point, (iv) Coal Handling Charges at mine end, (v) Washing Charges, if applicable, (vi) Royalty and Statutory Charges etc. The charges from (ii) to (vi) are additive to ROM cost.

7.4 Components of Annual Extraction Cost:

(1) The Annual Extraction Cost for mining activities shall consist of following components:

- Depreciation,
- Interest on Debt capital,
- Interest on working capital,
- O&M Expenses including mine closure cost (with and without MDO);and
- Statutory Charges, as applicable.

(2) The Annual Crushing Charges, Annual Transportation (other than transportation carried out within the mine) Charges, Annual Handling Charges, Annual Washing Charges for each activities shall consist of following components:

- Depreciation,
- Interest on Debt capital,
- Interest on working capital,
- O&M Expenses; and
- Statutory Charges, as applicable.

7.5 Determination of Input Price:

The working group recommends that

- a) The input price of coal may be worked out by addition of following components along with applicable Return on Equity (ROE):

Run of Mine cost= $\frac{[(\text{Annual Extraction Cost})-(\text{Adjustment on account of Grade Slippage})]}{\text{Quantity}}$

Crushing Charges = $(\text{Annual Crushing Cost} / \text{Quantity})$

Transportation Charges= $(\text{Annual Transportation cost} / \text{Quantity})$

Washing Charges= $\text{Annual Washing Cost} / \text{Quantity}$

The adjustment on account of grade slippage is worked out based on input price of the respective year, mid-GCV of declared grade and actual slippage.

- b) In case of Coal mine, Annual Extraction Cost, Annual Crushing Charge, Annual Transportation Charge, Annual Washing charge are to be worked out by computing capital cost separately for respective activity. If coal and OB extraction, crushing, transportation or washing activity and if any other mining activities are outsourced or done through engagement of MDO, the price discovered through the transparent competitive bidding is to be considered after prudence check. The MDO expenses, as applicable, will be a part of O&M expenses. Further Mine Closure expenses will be part of Annual Extraction Cost. The Annual Extraction Cost of lignite mine is to be worked out by considering total capital cost required up to receiving point of generating station.
- c) The recovery of input price of coal may be allowed based on actual quantity of coal supplied at loading point of mine and considering utilization factor of 85% in line with generating station as under:

(i) For quantity supplied upto NAUF:

Input Charges= Input Price (Rs/T) x Quantity Supplied (for quantity \leq NAUF)

(ii) If quantity supplied beyond NAUF:

Input Charges = Input Price (Rs/T) x Quantity Supplied (for quantity \leq NAUF) +
O&M Expense (Rs/T) x Quantity Supplied (for quantity $>$ NAUF)

7.6 Capital Cost:

The group recommends that the capital cost may be arrived and admitted based on actual capital expenditure incurred in following manner.

- a) The capital cost of scope covered in mine shall be determined as on commercial date and as on achieving peak rated capacity based on actual expenditure incurred for the scope covered under the investment approval.
- b) The Additional capital expenditure shall be recognized in two separate stream, (i) additional capital expenditure under original project, (ii) additional capital expenditure in addition to original project scope. The additional capital expenditure under original project may be further classified as additional capitalization upto date of achieving target capacity and after date of achieving target capacity.
- c) Where one or more activities for development have been outsourced and capital expenditure incurred by outsourced agency on behalf of the generating company, such activities need to be identified consistent with the scope covered under investment approval for the purpose of capital cost. The generating company may be mandated to finalize the scope of work covered under departmental works and outsourced work immediately after taking investment approval.

7.7 Depreciation:

The capital deployment in mining gets spread during useful life and varies depending on the depth of coal mining leading to uneven variation in production cost. This uneven variation should be addressed through suitable methodology. The group recommends that the depreciation of mine may be worked in following manner.

- a) The depreciation chargeable shall be arrived by applying Straight Line Method based on useful life as practiced in the Indian Coal Industry and the Electricity Industry. The amortization of leasehold land shall be arrived based on lease period or life of project, whichever is earlier.
- b) The depreciation should be worked out based on historical cost as per generally accepted accounting principles in India. The depreciation rate may

be considered as per the provisions of the Companies Act 2013 for the assets other than Specialized Mining equipment. For Specialized Mining equipment, the depreciation rate may be charged as notified by Ministry of Corporate Affairs.

7.8 Return on Equity:

After considering all relevant aspects, practice followed in Coal Industry and Electricity Industry, the group recommends that Return on equity may be adopted as followed in power sector applying on base value of equity worked out based on gross fixed assets. The rate of return on equity may be adopted in line with the power sector.

7.9 Operation & Maintenance Expenses:

Each mine is unique and hence the estimation of capital investment vis-à-vis annual revenue cost is case specific. It would be difficult to standardize and specify O&M expenses on normative basis. Therefore the group recommends that the O&M expenses may be worked out based on percentage of capital cost during initial years followed by actual O&M expenses in subsequent years separately. Where mining operation or part of it is outsourced, the admitted cost of price discovered through competitive bidding shall form part of O&M expenses subject to prudence check by considering following:

- a) The Commission may consider to carry out some component of mining activities to specify on normative basis after undertaking detailed study and availability of adequate data of O&M expenses for different type of mining operations such as underground, opencast mining and stripping ratio etc;
- b) The mine closure expenses deposited in the Escrow account as per guidelines of Ministry of Coal shall be considered as part of O&M activities and treated as revenue expenses as discussed in this report. The actual amount of deposit in the Escrow may be more or less than that of actual mine closure expenditure which will be required to be trueing up appropriately.

7.10 Interest on working capital:

The group recommends that the working capital may be considered as input cost for 20 days coal production towards inventory stock near pit head, 15% of operation & maintenance expenses towards consumption of stores and spare and one month operation & maintenance expenses for coal mine;

7.11 Interest on loan:

The group recommends that since integrated mine is a part of generating station, the loan will be allocated between generating station and integrated mine. The group recommends that the approach for interest adopted for the generating station may be followed for integrated mine.

7.12 Miscellaneous aspects:

The group recommends that the approach for commercial operation date, treatment of coal prior to commercial operation, useful life of plant & machinery, certification of coal production, quality measurement have been discussed in detail in this report which may be considered for incorporation in regulation if found appropriate.

Definitions or Interpretations

The terms used in this report has been assigned with the following meaning or definitions:-

- 1) **Captive Mine** means the mine which supplies the entire coal production to a specific power generating station.
- 2) **Basket Mine** means the mine which supplies the coal production to identified multiple power generating stations.
- 3) **Mine Head** means the stacking yard where coal after mining is stored for beneficiation and/or dispatch.
- 4) **End Use Project end** or **EUP end** means the stacking yard at power generating station from where coal is transported through internal network of the generating station for firing.
- 5) **Useful Life** means the period over which an asset is expected to be available for use.
- 6) **Residual Value** means the residual value of any specific asset, as notified for accounting purpose by a Regulatory Authority constituted under an Act or by the Central Government.
- 7) **Infirm Coal** means the quantity of coal produced prior to commercial operation date of the mine.

List of Abbreviations & Acronyms

CBA	Coal Bearing Areas (Acquisition & Development) Act 1957
CHP	Coal Handling Plant
CIL	Coal India Limited
CMSPA	Coal Mines (Special Provisions) Act, 2015 (“the 2015 Coal Mine Act”)
COD	Commercial Operation Date
CMDPA	Coal Mine Development and Production Agreement
DGMS	Director General of Mines Safety
EA	Electricity Act, 2003 (referred as “the Act”)
EIA	Environment Impact Analysis
EMP	Environment Management Plan
EUPs	End Use Plants
FOR	Free on Rail/Road
GCV	Gross Calorific Value
GR	Geological Report
HEMM	Heavy Earth Moving Machineries
IDC	Interest During Construction
IPPs	Independent Power Producers
IWC	Interest on Working Capital
Kcal/Kg	Kilo Calorie per Kilogram
MDO	Mine Developer cum Operator
MOC	Ministry of Coal
NEP	National Electricity Policy
NLC	Neyveli Lignite Corporation Limited
O&M	Operation & Maintenance
OBR	Over Burden Removal
P&M	Plant & Machinery
PAF	Plant Availability Factor
PAP	Project Affected People
PLF	Plant Load Factor
POL	Petroleum, Oil & Lubricant
PPA	Power Purchase Agreement
PR	Project Report
PSUs	Public Sector Undertakings
R&R	Rehabilitation & Resettlement
RoE	Return on Equity
ROM	Run of the Mines
SAIL	Steel Authority of India Limited
SCCL	Singareni Collieries Company Limited
TA/DA	Travelling & Daily Allowance
UHV	Useful Heat Value
UMPP	Ultra Mega Power Project

List of References

- (1) The Coal Mines (Special Provisions) Act, 2015 (11 of 2015) published in Extraordinary Gazette (Part II, Section-I) on 30th March, 2015;
- (2) Methodology for fixing Floor/Reserve Price for Auction and Allotment of Coal Mines or Blocks issued by the Ministry of Coal on 26th December, 2014 under the provision of Rule 8(3) of the Coal Mines (Special Provisions), Rules 2014 and Section 8(5) of the Coal Mines (Special Provisions) Ordinance, 2014
- (3) Model Coal Mine Development and Production Agreement (CMDPA) for allotment of Coal Mine to the Government Company (www.coal.nic.in)
- (4) Direction of Ministry of Power dated 16th April, 2015 to the Central Electricity Regulatory Commission under the provision of order dated 26th December, 2014 issued by the Ministry of Coal;
- (5) Fixation of Transfer Price of Lignite for Nayveli Lignite Corporation (NLC) Mines –reg. dated 2nd January, 2015;
- (6) Draft Model Contract Agreement issued by Ministry of Coal vide letter No.48023/1/2015–CA-II dated 22nd April, 2015 seeking comments of Stakeholders ;
- (7) Guidelines for preparation of Mine Closure Plan issued by Ministry of Coal vide reference no 55011-01-2009 –CPAM dated 7th January, 2013;
- (8) Accounting instructions in respect of specimen journal entries for mine closure and Accounting of changes in site restoration liabilities (mine closure) dated 9.1.2019 issues by Coal India Ltd.;
- (9) Review of ongoing project-IRR regarding reference No, 28011/2/96-IF of Ministry of Coal dated 7th November, 2001 and OM No. F.1(4)-PF-II/84 dated 27th January, 1993;
- (10) Guidelines on Public Investment/Expenditure, Ministry of Finance, Department of Expenditure reference No. 1(3)/PF.II/2001 dated 15th November, 2007;
- (11) Price Notification No.01:CIL:S&M:GM(F)/Pricing 2016/294 dated 29th May, 2016 issued by Coal India Ltd;
- (12) Indian Bureau of Mines, Manual for Appraisal of Mining Plan 2017 issued by Ministry of Mines, Government of India;
- (13) Mines & Minerals (Development & Regulation) Act 1957 and Minerals (Other than Atomic and Hydro-Carbon Energy Minerals) Concession Rule 2016, The Minerals (Evidence of Mineral Contents) Rules, 2015 and Mineral Conservation and Development Rules 2017.

Annex-1 Letter of Constitution of Working Group



केन्द्रीय विद्युत विनियामक आयोग CENTRAL ELECTRICITY REGULATORY COMMISSION



No. 17/2019/E/CERC

Date 22th April, 2019

Subject : Constitution of Working Group for "Regulatory framework for determination of input price or transfer Price from Integrated Coal Mine"

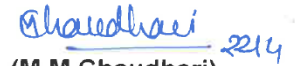
In context of the above subject and with reference to the meeting held on 19th March, 2019 at Conference Room, CERC, New Delhi, it was discussed to form a working group to examine various aspects and suggest suitable approach for developing regulatory framework for determination of input price or transfer Price from Integrated Coal Mines of generating station whose tariff is determined by the Commission under Section 62 of the Electricity Act, 2003. Accordingly, the Central Electricity Regulatory Commission has constituted following working group under the Chairmanship of Shri Sutirtha Bhattacharya, Chairperson, WBERC:

- a) Shri Hemant Gandhi, Jt Chief, CERC - Member
- b) Representatives from WBERC - Member
- c) Shri M.M.Chaudhari, Dy Chief, CERC - Member cum Convener

2. The broad Terms of Reference (TOR) of the Group are:

- (a) Identify issues associated with the practices of coal price fixation and factors to be considered for determination of input price of coal to the generating station;
- (b) Suggest suitable regulatory framework for fixation of input price of coal for the generating companies in India and provide inputs for developing formats for seeking information of coal mine;
- (c) Any other matter related to the above.

3. The working group, if deemed necessary, may take assistance from the experts and necessary information from officials with regard to details of coal mine owned by them.


(M.M.Chaudhari)
Dy Chief, CERC

To,
(i) Secretary, WBERC
(ii) All Members of Working Group

Copy to:
i) PS to Chairperson, CERC
ii) PS to Chairperson, WBERC

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केन्द्रीय विद्युत विनियामक आयोग
CENTRAL ELECTRICITY REGULATORY COMMISSION



No. 17/2019/E/CERC

Date 24th May, 2019

Subject : Constitution of Working Group for "Regulatory framework for determination of input price or transfer Price from Integrated Coal Mine"

Pursuant to the nomination received from Secretary, West Bengal Electricity Regulatory Commission (WBERC) vide letter dated 21st May, 2019, Shri Tapan Kumar Chakrabarty, Advisor (Engg) is hereby nominated as representative of WBERC in Working Group constituted vide letter dated 22nd April, 2019 on above subject.

2. It has been decided that the input price or transfer price from Integrated Lignite mine will also be included in Terms of Reference (TOR). Accordingly, Working Group will consider "Regulatory framework for determination of input price or transfer Price from Integrated Coal or Lignite Mine".

3. This letter is issued in continuation with letter dated 22nd April, 2019.

M. M. Chaudhari 24/5
(M.M.Chaudhari)
Dy Chief, CERC

To,
i) Secretary, WBERC
ii) All Members of Working Group

Copy to:
i) PS to Chairperson, CERC
ii) PS to Chairperson, WBERC

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Annex-2 Comments in response to draft Tariff Regulation 2019

The Commission has proposed regulatory framework in draft of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for determination of input price of coal or lignite from integrated mine.

2. In response, some of the stakeholders have submitted their comments. summary of comments of few stakeholders are available on CERC website. (<http://www.cercind.gov.in>)

Annex-3 Suggestions of the Stakeholders

Some of the generating companies who have undertaken development of integrated coal mine were invited by the working group to understand their perspective and challenges. The working group sought suggestions/inputs on specific issues which are available on website of CERC (<http://www.cercind.gov.in>)

- 1) NTPC Ltd
- 2) The West Bengal Power Development Corporation dated 26th July, 2019
- 3) Damoder Valley Corporation

Annex-4 Minutes of Meeting of the working group

Record note of meeting of working group for “Regulatory framework for determination of Input or Transfer Price from Integrated Coal or Lignite Mine Allotted to Thermal Power Generating Stations (End Use project)” is hoisted on website (www.cercind.gov.in)

Annex-5 List of Mines owned by the inter-state Generating Companies

List of Coal Mines or Blocks allotted to NTPC Ltd-

Sr. No	Name of Coal Blocks	Date of Allotment	Estimated Mine Capacity (MTPA)	Manner of Allotment
1	Pakri-Barwadih	11.10.2004	18	Government Dispensation Route 2004
2	Chatti-Bariatu & Chatti- Bariatu(S)	8.9.2015	7	Coal Mine (Special Provisions) Act, 2015
3	Kerandari	8.9.2015	6	
4	Dulanga	8.9.2015	7	
5	Talaipalli	8.9.2015	18	
6	Banai	31.3.2015	12	
7	Bahlumuda	31.3.2015	11	Auction by Competitive bidding under Coal Mine Rules 2015
8	Kudanali-Lubun*	31.3.2015	5	
9	Mandakini-B	8.8.2016	15	Coal Mine (Special Provisions) Act, 2015
10	Banhardih**	-	5	
Total			107	

*Allotted jointly to NTPC Ltd and J&K SPDCL

** Allotted to Jharkhand State

List of Coal Mines or Blocks allotted to DVC-

Sr. No	Name of Coal Blocks	Estimated Mine Capacity (MTPA)	Manner of Allotment
1	JaydevKhagra	3	Coal Mine (Special Provisions) Act
2	Tubed	6	

List of Lignite Mines allotted to NLC India Ltd.-

Sr. No.	Name of Coal Blocks	Estimated Mine Capacity (MTPA)	Manner of Allotment
1	Total 4 mines	30.60	Government Allocation