

Staff Paper
on
Review of Composite Index used for Computing
the Escalation Rate for Imported Coal for Bid
Evaluation and Payment



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Disclaimer

The issues and suggestions presented in this staff paper do not reflect the views of the Central Electricity Regulatory Commission (CERC), its Chairperson, or individual Members, and are not binding on the Commission. The views are essentially those of the staff of the CERC. The paper is circulated to solicit inputs from the stakeholders on various aspects of the proposed composite index for imported coal.

Staff Paper on Review of the Composite Index used for Computing the Escalation Rate for Imported Coal for Bid Evaluation and Payment

A: Introduction

The Central Electricity Regulatory Commission (CERC) has been notifying various escalation rates, including the escalation rate for imported coal, for the purpose of bid evaluation and payment, in pursuance of Clause 5.6 (vi) of Ministry of Power's Notification on "Guidelines for Determination of Tariff by Bidding Process for Procurement of Power by Distribution Licensees" dated 19.1.2005, as amended from time to time, and in pursuance of paragraph 5.4 and paragraph 5.5 of the Ministry of Power's Resolution on "Guidelines for Tariff Based Competitive Bidding Process for Procurement of Round- the-Clock Power from Grid Connected Renewable Energy Power Projects, complemented with Power from Coal Based Thermal Power Projects" dated 22.7.2020 read with an amendment dated 3.11.2020.

2. The CERC developed a methodology for developing a composite index and computation of the escalation rates for various parameters, including the escalation rate for imported coal, for bid evaluation and payment in 2006¹. Developing the composite index for imported coal involves the selection of suitable indices and combining them appropriately. Accordingly, the composite index was developed based on credible and reliable indices available for Australian coal and South African coal by assigning appropriate weights. Though a significant amount of steam coal imports were taking place from Indonesia to India, in the absence of credible and reliable indices, the index representing Indonesian coal was not made part of the composite index. The composite index developed in 2006 was as under:

¹Consultant's Report, Revised as on 22, November 2006
https://cercind.gov.in/22112006/ConsultantReport_Revised_Nov22%5B1%5D.pdf

Composite Index for Imported Coal, 2006			
Name of the Country	Description of the Index	Publisher	Weightage
South Africa	API4 - FOB Richards Bay at 6000 kcal/kg GAD	Argus/McCloskey	50%
Australia	GlobalCoal Index-FOB Newcastle at 6700 kcal/kg GAD	GlobalCoal	25%
Australia	Barlow Jonker Index - FOB Newcastle at 6700 kcal/kg GAD	Barlow Jonker	25%

3. The above composite index was considered for computing the escalation rate for imported coal for the purpose of payment. Among all the three indices, historical data was available only for the Barlow Jonker Index; therefore, the same was considered for computing the escalation rate for imported coal for the purpose of bid evaluation.

4. The composite index for imported coal developed in 2006 was revised for the first time in 2013,² and the same has been used for computing the escalation rate for imported coal for the purpose of payment w.e.f. 1.4.2014. The composite index was revised mainly due to three reasons: (i) steam coal imports from Indonesia to India increased quite significantly (about 70% of the total imports in India); (ii) historical data on the price indices of Indonesian coal was available and the indices were considered reliable; and (iii) stakeholders suggested incorporation of the price indices of Indonesian coal representing imports of steam coal in India. The composite index was revised based on the analysis of data on steam coal imports in India from various countries and the credibility and reliability of coal prices/price indices that represent steam coal imports in India (based on the usage of the prices/price indices for contracts of coal). The composite index for imported coal developed in 2013 was for the purpose of payment; however, the same has also been used for computing the escalation rate for imported coal for the purpose of bid evaluation.

² CERC order dated 23.12.2013 in Petition No.308/SM/2013.

B: Present Methodology for development of the composite index

5. The present methodology for the composite index for imported coal is specified by CERC in its order dated 23.12.2013 in Petition No.308/SM/2013. As per the Order, the composite index for imported coal is as under:

Composite Index for Imported Coal, 2013			
Name of the Country	Description of the Index	Publisher	Weightage
South Africa	API4 - FOB Richards Bay at 6000 kcal/kg NAR	Argus/McCloskey	25%
Australia	GlobalCoal Index - FOB Newcastle at 6000 kcal/kg NAR	GlobalCoal	25%
Indonesia	ICI3 - FOB Kalimantan 4600 kcal/kg NAR (5000 kcal/kg GAR)	Argus	25%
	Platts CI - FOB Kalimantan 4700 kcal/kg NAR (5000 kcal/kg GAR)	Platts	25%

6. In the Order dated 23.12.2013, it was decided that calorific values shall be harmonized across indices by normalizing the values to 5000 kcal/Kg by assuming a linear trend across indices of different calorific value of coal.

7. The methodology developed for the composite index in 2013 has been used for computing the six-monthly escalation rate for imported coal for the purpose of payment w.e.f. 1.1.2014. The same composite index has also been adopted, after stakeholder consultation, for computing the escalation rates for imported coal for payment on a monthly basis as per the CERC Order dated 6.6.2022 in Petition no 7/SM/2022 and for computing the escalation rates for the purpose of bid evaluation on an annual basis as per the CERC Order dated 29.5.2021 in Petition No. 7/SM/2021

C: Need for review of Methodology for development of the composite index

8. The CERC, in its order dated 23.12.2013 in Petition No.308/SM/2013, *inter-alia*, mentioned the review of the composite index as under:

“10. A suggestion was made by some of the stakeholders to use country specific indices. We have considered the suggestion and are of the view that country specific indices may not always be available, or reliability could be an issue. Moreover, the rationale for using composite index instead of country specific index is to induce efficiency in procurement and diversification of supplies. As regards the suggestion for prudence review of indices, we are of the view that the composite index shall be reviewed and revised as and when the need arises.”

8. It has been more than a decade now since the revision in the composite index for imported coal was done in 2013. There have been many developments in the international coal markets and the quantum of steam coal imports in India. The availability of credible and reliable coal price indices, which represent steam coal imports in India, has also improved over the years.

9. In recent years, the global demand and supply of coal have been impacted mainly due to disruption caused by the COVID-19 pandemic, heightened uncertainties due to geopolitical reasons, and a climatic impact on coal output. In 2022, in particular, the price of thermal coal witnessed an unprecedented increase. The price of Australian coal increased quite significantly compared to the price of coal in other countries. The International Energy Agency (IEA) Report on *Coal 2022 Analysis and Forecast to 2025*³ provides some evidence in this regard as under:

“.....Australian high-grade thermal coal prices climbed straight to the next record high of about USD 425/t in May as flooding in the country hampered coal production and transportation while utilities in Europe and Northeast Asia sought to obtain supplies of non-Russian coal.

European import prices for thermal coal were lower than Australia’s in early summer but jumped in July when Russia reduced gas flows to Europe. Rising fears Russia could cut off supplies altogether sent natural gas prices in Europe soaring, prompting the region’s utilities to buy more coal and driving prices above USD 400/t. The price of Australian high-CV thermal coal continued its upward trend, reflecting strong demand from Japanese utilities reliant on this coal type and the inability of Australian exporters to significantly increase export volumes, partly due to adverse weather conditions. In September, high-CV thermal coal prices reached USD 443/t, the fourth record within 12 months....” “emphasis supplied.”

³ <https://iea.blob.core.windows.net/assets/91982b4e-26dc-41d5-88b1-4c47ea436882/Coal2022.pdf>

10. It has been observed from the latest data on price/price indices that the price of high-CV Australian coal, after witnessing an unprecedented increase in 2022, has come down sharply from January 2023 onwards. A similar trend has been observed in coal prices/price indices in other countries as well. Thus, it can be inferred that the aberration in prices/price indices that started from late 2021 onwards is gradually subsiding.

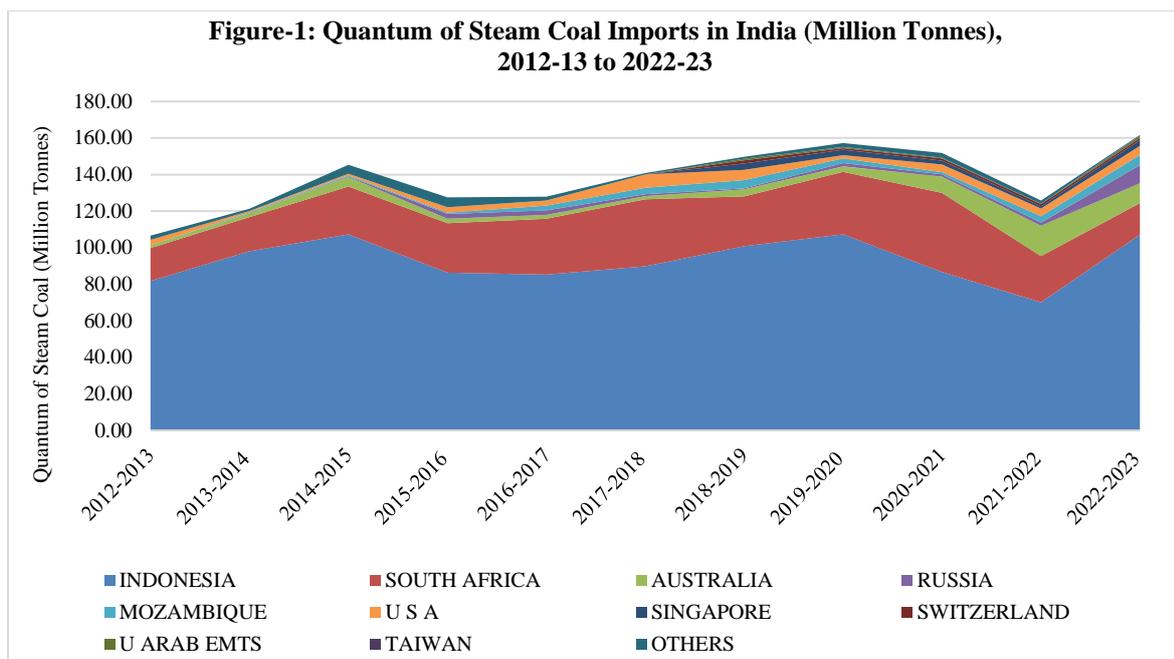
11. The Government of Indonesia has recently revised its methodology for the HBA Index to reflect market realities⁴. It has come out with two new indices, i.e., HBA1 and HBA2, to represent the contracts for exports of low-CV coal from Indonesia, besides high-CV HBA.

12. In view of the developments in the international coal market, it may be appropriate to review the existing CERC composite index for imported coal. In this regard, it is required to: (i) analyze the data on steam coal imports in India, (ii) examine the trends in coal prices/price indices used in the existing composite index, and (iii) explore the new coal price indices that represent steam coal imports in India.

D: Analysis of the Data on Imports of Steam Coal in India and Price/Price Indices relevant to India

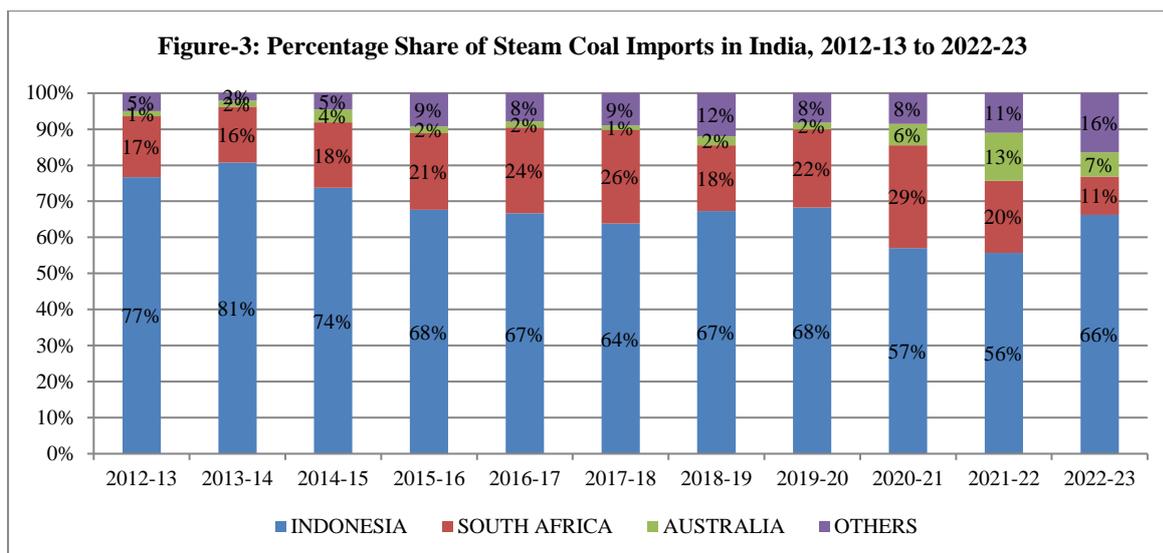
13. The country-wise data on steam coal imports (primarily used in power plants) published by the Ministry of Commerce and Industry has been examined. As per the data for the period 2012-13 to 2022-23, the steam coal imports in India have been taking place from about 52 countries; however, the imports took place only from 18 countries during the latest year 2022-23. The quantum of steam coal imports in India is given in Figure-1. It can be observed from Figure-1 that the imports of steam coal in India increased from 106.68 Million Tonnes in 2012-13 to 161.74 Million Tonnes in 2022-23. It can also be observed from the figure that the imports in India are mostly from 3 countries, i.e., Indonesia, South Africa, and Australia.

⁴ Decree of the Minister of Energy and Mineral Resources of the Republic of Indonesia No: 41.K/MB.01/MEM.B/2023 dated 27 February, 2023 concerning Guidelines for Setting Benchmark Prices for the Sale of Coal Commodities



Source: Ministry of Commerce and Industry

14. Figure-1 shows a sharp decline in the imports of steam coal in India in 2020-21 and 2021-22, followed by a sharp recovery in 2022-23. This could be attributed to several reasons, including the domestic demand-supply imbalance, the impact of the COVID-19 pandemic, and geopolitical factors. The percentage share of the steam coal imports into India from Indonesia, South Africa, and Australia is provided in Figure-2. It can be observed that India has been consistently importing the majority of steam coal from Indonesia (more than 64% except in 2020-21 and 2021-22 when it has gone down to 56-57%) and South Africa (varying between 16-29% except in the year 2022-23 when it has gone down to 11%). The share of steam coal imports from Australia has been insignificant till the year 2019-20, however, in the last 3 years, it has increased to 6-7% (though in the year 2021-22, it increased up to 13%, but again came down to 7% in the year 2022-23). It can also be observed that the steam coal imports from these three countries together accounts for about 84% of the total steam coal imports in 2022-23. In recent years, countries like the USA, Russia, and Mozambique have also emerged as important markets for coal imports in India. The share of other countries in total steam coal imports in India has increased from 2% in 2013-14 to 16% in 2022-23, which indicates increasing diversification of the import basket of steam coal.



Source: Ministry of Commerce and Industry

15. While arriving at an appropriate composite index in 2013, the price/price indices available in various countries and representing the steam coal imports in India were considered. In 2013, India was importing mainly from 3 (three) countries, i.e., Indonesia, South Africa, and Australia. The price indices of Indonesian and South African coal were considered based on their considerable share in steam coal imports in India and the credibility/reliability of the available price indices. The price index of Australian coal was retained in the composite index despite insignificant steam coal imports, mainly because the price index of Australian coal was so credible/reliable and was acceptable for many contracts.

16. Even after a decade, the steam coal imports in India are mainly from 3 (three) countries, i.e., Indonesia, South Africa, and Australia, as may be seen in Figure-2. Therefore, the price indices of these three countries have been examined in detail. It has been observed from the last ten years' data that the correlation among coal prices/price indices in Australia, Indonesia, and South Africa was very high from 2013 to 2021. However, a weak correlation has been observed from the second half of 2021 onwards between the price of high-CV Australian coal and low-CV Indonesian coal. Therefore, the availability of credible/reliable lower-CV Australian price indexes has also been explored, as low-CV coal is mainly used in the Indian power sector. The price/price indices, their availability, and credibility/reliability have been discussed as under:

- (i) **South African Coal:** The following relevant indices are available for South African coal:

a. **Argus and IHS McCloskey:** API4 6000 kcal/kg NAR is part of the existing composite index. It is a well-established benchmark reference price/price index widely used for coal contracts for imports from South Africa. It is being used for contracts with adjustments to lower-CV coal. API3 5500 kcal/kg NAR was launched in 2013, expecting more imports by Asian countries, particularly from China and India, and the same can be used as an outright reference price for a lower grade of South African coal. A high correlation has been observed between API4 and API3 during the last ten years.

b. **Platts:** Platts 5500 kcal/kg NAR was launched in 2013.

In the case of South African coal, API3 5500 kcal/kg NAR of Argus/McCloskey and Platts 5500 kcal/kg NAR are more representative for imports into India. API3 has a very high correlation with API4 (which is mostly used for coal contracts worldwide) and represents steam coal imports into India, and the same may be considered as part of the composite index in place of the high-CV API4 of 6000 kcal/kg.

(ii) **Australian Coal:** The following relevant indices are available for Australian coal:

a. **GlobalCoal:** GlobalCoal price index of 6000 kcal/kg NAR is part of the existing composite index. The price index is mostly used as a benchmark price for imports in Japan for high-CV thermal coal imports.

b. **Argus and IHS McCloskey:** API5 of Argus and IHS McCloskey 5500 kcal/kg NAR was launched in 2012. The CERC did not consider this index as part of the composite index developed in 2013 due to the non-availability of historical data. Now, sufficient historical data is available for this index, and the index contains low CV when compared to the GlobalCoal Index.

c. **Platts:** Platts Newcastle index 5500 kcal/kg NAR was launched in 2012. The CERC did not consider this index as part of the composite index developed in 2013 due to the non-availability of historical data. Now, sufficient historical data is available for this index, and the index contains low-CV when compared to the Global Coal Index.

In the case of Australian coal, API5 of Argus and IHS McCloskey 5500 kcal/kg NAR and Platts Newcastle index 5500 kcal/kg NAR are more representative for imports into India. Moreover, these indices are being used for coal contracts. Therefore, these indices are worth considering as part of the proposed composite index in place of the existing high-CV GlobalCoal index of 6000 kcal/kg NAR.

(iii) **Indonesian Coal:** The following relevant indices are available for Indonesian coal:

- a. **Argus:** Indonesian Coal Index (ICI3), 5000 kcal/kg GAR is part of the existing composite index. It was launched in June 2006. Argus has other Indonesian coal indices, including ICI4, 4200 kcal/kg GAR, launched in August 2008, and ICI5, 3400 kcal/kg GAR coal, launched in November 2011.
- b. **Platts:** FOB Kalimantan 5000 kcal/kg GAR is part of the existing composite index. It was launched in 2006. Platts has another Indonesian coal index as well, i.e., FOB Kalimantan 4200 kcal/kg GAR, launched in June 2012.
- c. **Government of Indonesia:** The HBA index 6322 kcal/kg GAR is a composite index available since January 2009. The Government of Indonesia changed the methodology for computing the HBA index in February 2023 and also started publishing two new indices, namely HBA1 Index 5200 kcal/kg GAR and HBA2 Index 4200 kcal/kg GAR since March 2023, besides the HBA index.

In the case of Indonesian coal, Argus, Platts, and the Government of Indonesia have been publishing the indices for 5000 kcal/kg GAR and less, representing the steam coal imports in India. ICI3 of Argus 5000 kcal/kg GAR and Platts 5000 kcal/kg GAR are part of the composite index developed in 2013, and no major aberration has been observed in these two price indices so far. The new HBA1, and HBA2 indices, published by the Government of Indonesia, are of recent origin. Therefore, ICI3 of the Argus 5000 kcal/kg GAR and Platts 5000 kcal/kg GAR indices may be retained as part of the proposed composite index.

E: Proposed Methodology for development of the composite index

17. In the proposed methodology, the price indices have been suggested based on the following criteria:

- (i) the price indices should reflect the volume of steam coal imports in India (the countries having a consistent share of 5% and above in total steam coal imports in India);
- (ii) the price indices should have credibility, reliability, and availability of historical data; and
- (iii) the price indices should be representative of the calorific value of steam coal imports in India.

18. Based on the above criteria, the proposed methodology contains three major changes: (i) incorporation of two new price indices in place of the existing coal price index used for Australian coal; (ii) incorporation of a new price index in place of the existing coal price index used for South African coal, and (ii) changes in the weight assignments based on the trends in steam coal imports in India. The proposed methodology for the composite index is as under:

- a. **South African Coal:** Except in 2022-23, the share of South African coal in total steam coal imports in India consistently varied between 16% and 29%. Keeping this in view, the price index of South African coal is proposed as part of the composite index with the same weightage. Among the available price indices, API3 5500 kcal/kg NAR of Argus/McCloskey has a very high correlation with API4 (presently used in the CERC composite index) and is more representative of steam coal imports into India. Therefore, the same is proposed as part of the composite index as a representative index for South African coal, with a weightage of 25%.
- b. **Australian Coal:** While formulating the mechanism for the coal price index in 2013, 25% weightage was given to Australian coal, considering that the share of steam coal imports from Australia may increase. However, it is observed that the steam coal imports from Australia were not significant till 2019-20. It is only in the last three years that the share of coal imported from Australia increased. Considering this trend in imports and its acceptability for contracts, the price index of Australian coal is retained as part of the proposed composite index, but with a lower weightage of 10% (presently it is 25%). Historical data on the two new price indices (i) API5 of Argus

and IHS McCloskey 5500 kcal/kg NAR and (ii) Platts Newcastle index 5500 kcal/kg NAR is now available. These indices represent lower-CV coal, which is more representative for imports into India and are being used as reference prices for coal contracts. Therefore, in place of the GlobalCoal Newcastle Index, these two new indices are proposed to be considered as part of the composite index as representative indices for Australian coal, with a weightage of 5% to each index and an overall weightage of 10% to Australian coal.

- c. **Indonesian Coal:** It is noted from the analysis that Indonesian coal consistently forms a significant part of the steam coal imports in India. Therefore, it is worth assigning more weightage to the Indonesian coal indices as part of the composite index. Considering the relative merits, the indices published by Platts (5000 kcal/kg GAR) and Argus (ICI3 5000 kcal/kg GAR) are proposed to be retained as part of the composite index as representative indices for Indonesian coal. with a weightage of 32.5% to each index and an overall weightage of 65% to Indonesian coal.

19. As specified above, the proposed Composite Index for Imported Coal is as under:

Proposed Composite Index for Imported Coal			
Name of the Country	Description of the Index	Publisher	Weightage
South Africa	API3 - FOB Richards Bay 5500 kcal/kg NAR	Argus/McCloskey	25%
Australia	API5- FOB Newcastle 5500 kcal/kg NAR	Argus/McCloskey	5%
	Platts FOB Newcastle 5500 kcal/kg NAR	S&P Global Platts	5%
Indonesia	ICI3 - FOB Kalimantan 4600 kcal/kg NAR (5000 kcal/kg GAR)	Argus/CoalIndo	32.5%
	Platts CI - FOB Kalimantan 4700 kcal/kg NAR (5000 kcal/kg GAR)	S&P Global Platts	32.5%

20. **Calorific value harmonization across indices and normalization.** In this regard, no change is proposed. The calorific values shall be harmonized across indices by normalizing for 5000 kcal/kg and assuming a linear trend across indices of different calorific values of coal.

21. **Use of the composite index:** The composite index proposed shall be used for computing the escalation rate for imported coal both for the purposes of bid evaluation and payment.

22. **Review of the composite index:** The volatility in international coal prices has been quite significant in the recent past, and coal imports from other countries have increased. Thus, the composite index may need to be reviewed periodically, and indices of other coal exporting countries may need to be added once they have at least a 5% share in the total steam coal imports and subject to the availability of credible/reliable price indices. Keeping this in view, it is proposed to review the composite index every three years or as and when the need arises, whichever is earlier.

23. Comments from stakeholders are invited on the above-proposed methodology for the development of a composite index for imported coal.
