

**EXPLANATION TO
THE NOTIFICATION DATED 5.4.2023
ON
ESCALATION FACTORS AND OTHER PARAMETERS**

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 19.01.2005, as amended from time to time, and in pursuance of paragraph 5.4 and paragraph 5.5 of Ministry of Power's Resolution dated 22.07.2020 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" read with amendment dated 03.11.2020, the Central Electricity Regulatory Commission (CERC) notifies various escalation factors and other parameters, every six months, for the purpose of payment. The escalation factors and other parameters are as under:

- i. Escalation rate for domestic coal
- ii. Escalation rate for domestic gas
- iii. Escalation rates for different escalable sub-components of energy charge for plants based on imported coal
- iv. Escalation rates for inland transportation charges for coal
- v. Escalation rates for inland transportation charges for gas
- vi. Escalation rate for different escalable sub-components of energy charge for plants based on imported gas
- vii. Inflation rate to be applied to indexed capacity charge component
- viii. Inflation rate to be applied to indexed energy charge component in cases of captive fuel source

2. The escalation factors and other parameters have been computed based on the methodology/explanation published along with the notification dated 22.11.2006 and 3.7.2009, CERC Order dated 23.12.2013 in Petition No.308/SM/2013, CERC Order dated 18.10.2019 in Petition No.10/SM/2019, CERC Order dated 15.01.2020 in Petition No.11/SM/2019, and CERC Order dated 29.05.2021 in Petition No.7/SM/2021 and its Addendum dated 6.4.2022 (see CERC website www.cercind.gov.in for details). Following the same, the escalation factors and other parameters for payment have been

computed for the present notification.

3. Escalation Factors and other parameters for Payment

The annual escalation rates for payment have been computed based on latest available twelve months data. The steps followed while computing the escalation rates are as under.

Step 1: Average index values for the appropriate six months period computed.

Step 2: A half-yearly escalation rate computed based on the average six months index.

Step 3: Annual escalation rate computed by multiplying half-yearly escalation rate by two.

Step 4: The annual escalation rate for parameters that require combining of two or more series in pre-determined proportion has been determined by combining each data point of two or more series in the pre-determined proportion to arrive at a composite new single series and then the annual escalation rate has been determined.

(1) Escalation Rate for Domestic Coal

The escalation rate for domestic coal for payment has been computed based on the data on Coal Price Index of CERC for the period from March, 2022 to February, 2023 as under.

Table-1: ESCALATION RATE FOR DOMESTIC COAL	
Period	CERC Coal Price Index (2017-18=100)
Mar-22	108.7
Apr-22	108.7
May-22	108.7
Jun-22	108.7
Jul-22	108.7
Aug-22	108.7
Sep-22	108.7
Oct-22	108.7
Nov-22	108.7
Dec-22	108.7
Jan-23	108.7
Feb-23	108.7

Average Index (Mar 22-Aug 22)	108.70
Average Index (Sep 22-Feb 23)	108.70
Half-Yearly Inflation	0.00%
Annual Inflation	0.00%

The above computed annual inflation (0.00%) is notified as escalation rate for domestic coal for payment.

(2) Escalation Rate for Domestic Gas

The escalation rate for domestic gas has been computed based on the data on consumer price of gas for the period from January, 2022 to December, 2022. The data has been collected from Ministry of Petroleum & Natural Gas and GAIL (India) Ltd. A composite index, assigning weight of 90% to Consumer Price off-shore and 10% to Consumer Price for North-Eastern States, has been developed and used for computing the escalation rate for domestic gas as under:

Table-2: ESCALATION RATE FOR DOMESTIC GAS			
Period	Consumer Prices Off-shore (Landfall point and On-shore) (₹/'000 cubic metre)	Consumer Prices for North-Eastern States (₹/'000 cubic metre)	Composite Index*
Jan-22	7771.70	4663.02	7461
Feb-22	7830.33	4698.20	7517
Mar-22	7959.92	4775.95	7642
Apr-22	16726.46	10035.87	16057
May-22	16979.31	10187.59	16300
Jun-22	17145.18	10287.11	16459
Jul-22	17480.50	10488.30	16781
Aug-22	17470.29	10482.17	16771
Sep-22	17618.85	10571.31	16914
Oct-22	25402.69	15235.68	24386
Nov-22	25240.18	15138.22	24230
Dec-22	25441.86	15259.18	24424
Average Index (Jan 22-Jun 22)			11906
Average Index (Jul 22-Dec 22)			20584
Half-Yearly Escalation			72.89%
Annual Escalation			145.78%
* Composite index using weight of 90% to Consumer Price Off-shore and 10% to consumer price North-Eastern States.			

The annual escalation rate computed in the above table (145.78%) is notified as escalation rate for domestic gas for payment.

(3) Escalation Rate for different escalable sub-components of energy charge for plants based on imported coal

(3.1) Escalation Rate for Imported Coal

The escalation rate for imported coal for payment has been computed based on price of South African Coal, Australian Coal and Indonesian Coal for the period from March, 2022 to February, 2023 as under:

Table-3.1: ESCALATION RATE FOR IMPORTED COAL		
Component Index	Data Series	Annual Escalation Rate
Composite series using weight of 25% to API-4 (Price of South African Coal), 25% to GlobalCOAL (Price of Australian Coal), 25% to Argus ICI 3 (Price of Indonesian Coal) and 25% to Platts CI (Price of Indonesian Coal)	Weekly/Daily data from March 2022 to February 2023	(-)34.19%

The annual escalation rate computed in the above table (-)34.19% is notified as escalation rate for imported coal for payment.

(3.2) Escalation Rate for Transportation of Imported Coal

The escalation rate for transportation of imported coal for payment has been computed based on the price of LSFO published by Clarksons Research [VLSFO Price at Singapore, basis maximum Sulphur content of 0.5% (\$/t)] for the period from March, 2022 to February, 2023 as under:

Table-3.2: ESCALATION RATE FOR TRANSPORTATION OF IMPORTED COAL		
Component Index	Data Series	Annual Escalation Rate
Singapore Bunker Price (VLSFO price, basis maximum sulphur content of 0.5%) (\$/t)	Weekly data from March 2022 to February 2023	(-)55.17%

The annual escalation rate computed in the above table (-)55.17% is notified as escalation rate for transportation of imported coal for payment.

(3.3) Escalation Rate for Inland Handling of Imported Coal

The escalation rate for inland handling of imported coal has been computed based on the data on WPI-all commodities and CPI-IW for the period from January, 2022 to December, 2022. A composite index, based on WPI-all commodities with 60% weight and CPI-IW with 40% weight, has first been developed, which then has been used for computing the escalation rate. The data on WPI and CPI-IW has been taken from the website of Ministry of Commerce & Industry and Labour Bureau, respectively. The escalation rate for inland handling of imported coal has been computed as under:

Table-3.3: ESCALATION RATE FOR INLAND HANDLING OF IMPORTED COAL			
Period	WPI (Base 2011-12=100)	CPI-IW (Base 2016=100)	Composite Index*
Jan-22	143.8	125.1	136.3
Feb-22	145.3	125.0	137.2
Mar-22	148.9	126.0	139.7
Apr-22	152.3	127.7	142.5
May-22	155.0	129.0	144.6
Jun-22	155.4	129.2	144.9
Jul-22	154.0	129.9	144.4
Aug-22	153.2	130.2	144.0
Sep-22	151.9	131.3	143.7
Oct-22	152.9	132.5	144.7
Nov-22	152.5	132.5	144.5
Dec-22	150.5	132.3	143.2
Average Index (Jan 22-Jun 22)			140.87
Average Index (Jul 22-Dec 22)			144.08
Half-Yearly Inflation			2.28%
Annual Inflation			4.56%
*Composite index with weight of 60% to WPI and 40% to CPI- IW			

The annual inflation computed in the above table (4.56%) is notified as escalation rate for inland handling of imported coal for payment.

(4) Escalation rates for inland transportation charges for coal

The escalation for inland transportation charges for coal has been computed based on the data on coal freight rates (Rs./Tonne) for the period from January, 2022 to December, 2022. The data has been collected from Ministry of Railways. Based on the

availability of data from Ministry of Railways, the data on coal freight rate for 100 km, 125 km, 500 km, 1000 km, 2000 km and 3000 km has been used for computing the escalation rate for inland transportation charges for coal for distance upto 100 km, upto 125 km, upto 500 km, upto 1000 km, upto 1400 km, upto 2000 km and beyond 2000 km respectively. The escalation rate for inland transportation charges of coal for payment has been computed as under:

Table-4: ESCALATION RATE FOR INLAND TRANSPORTATION CHARGES FOR COAL						
Period	Coal Freight Rate for 100 km	Coal Freight Rate for 125 km	Coal Freight Rate for 500 km	Coal Freight Rate for 1000 km	Coal Freight Rate for 2000 km	Coal Freight Rate for 3000 km
Jan-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Feb-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Mar-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Apr-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
May-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Jun-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Jul-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Aug-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Sep-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Oct-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Nov-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Dec-22	216.0	389.6	1054.7	1891.8	3065.7	3787.9
Average Rate (Jan 22-Jun 22)	216.00	389.60	1054.70	1891.80	3065.70	3787.90
Average Rate (Jul 22-Dec 22)	216.00	389.60	1054.70	1891.80	3065.70	3787.90
Half-Yearly Escalation Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Annual Escalation Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

The annual escalation rates computed in the above table (0.00% applicable upto 100 kms, 0.00% applicable upto 125 kms, 0.00% applicable upto 500 kms, 0.00% applicable upto 1000 kms, 0.00% applicable upto 2000 kms and 0.00% applicable beyond 2000 kms) are notified as annual escalation rates for inland transportation charges of coal for payment.

(5) Escalation rate for inland transportation charges for gas

The escalation rate for inland transportation charges for gas has been computed based on the data on transportation charges of gas applicable for HVJ pipeline charged by GAIL for the period from January, 2022 to December, 2022. The data has been collected from the Petroleum and Natural gas Regulatory Board (PNGRB) and GAIL. The escalation rate for inland transportation charges for gas has been computed as under:

Table-5: ESCALATION RATE FOR INLAND TRANSPORTATION CHARGES FOR GAS	
Period	Transportation charges along HVJ pipeline (₹/'000' SCM)
Jan-22	1365.39
Feb-22	1365.39
Mar-22	1365.39
Apr-22	1365.39
May-22	1365.39
Jun-22	1365.39
Jul-22	1365.39
Aug-22	1365.39
Sep-22	1365.39
Oct-22	1365.39
Nov-22	1365.39
Dec-22	1365.39
Average Charges (Jan 22-Jun 22)	1365
Average Charges (Jul 22-Dec 22)	1365
Half-Yearly Escalation	0.00%
Annual Escalation	0.00%

The annual escalation rate computed in the above table (0.00%) is notified as escalation rate for inland transportation charges for gas for payment.

(6) Escalation rate for different escalable sub-components of energy charge for plants based on imported gas

(6.1) Escalation rate for imported gas

The escalation rate for imported gas for payment has been computed based on Japan/ Korea Marker (JKM) for the period from March, 2022 to February, 2023 in terms

of CERC Order dated 29 May, 2021 in Petition No. 7/SM/2021. The data has been subscribed from Platts. The computation of escalation rate for imported gas can be seen from the following table.

Table-6.1: ESCALATION RATE FOR IMPORTED GAS		
Component Index	Data Series	Annual Escalation Rate
LNG Japan/Korea DES Spot Crg (\$/MMBTU)	Daily data from March, 2022 to February, 2023	(-)43.11%

The annual escalation rate computed in the above table (-)43.11% is notified as escalation rate for imported gas for payment.

(6.2) Escalation rate for transportation of imported gas

The escalation rate for transportation of imported gas for payment has been computed based on the price of LSFO published by Clarksons (VLSFO Price at Singapore, basis maximum Sulphur content of 0.5% (\$/t)) for the period from March, 2022 to February, 2023. The escalation rate for transportation of imported gas has been computed as under:

Table-6.2: ESCALATION RATE FOR TRANSPORTATION OF IMPORTED GAS		
Component Index	Data Series	Annual Escalation Rate
Singapore Bunker Price (VLSFO price, basis maximum sulphur content of 0.5%) (\$/t)	Weekly data from March 2022 to February 2023	(-)55.17%

The annual escalation rate computed in the above table (-)55.17% is notified as escalation rate for transportation of imported gas for payment.

(6.3) Escalation rate for inland handling of imported gas

The escalation rate for inland handling of imported gas has been computed based on the data on WPI-all commodities and CPI-IW for the period from January, 2022 to December, 2022. A composite index, based on WPI with 60% weight and CPI-IW with 40% weight, has first been developed, which then has been used for computing the escalation rate. The data on WPI and CPI-IW has been taken from the website of Ministry

of Commerce & Industry and Labour Bureau, respectively. The escalation rate for inland handling of imported gas has been computed as under:

Table-6.3: ESCALATION RATE FOR INLAND HANDLING OF IMPORTED GAS			
Period	WPI (Base 2011-12=100)	CPI-IW (Base 2016=100)	Composite Index*
Jan-22	143.8	125.1	136.3
Feb-22	145.3	125.0	137.2
Mar-22	148.9	126.0	139.7
Apr-22	152.3	127.7	142.5
May-22	155.0	129.0	144.6
Jun-22	155.4	129.2	144.9
Jul-22	154.0	129.9	144.4
Aug-22	153.2	130.2	144.0
Sep-22	151.9	131.3	143.7
Oct-22	152.9	132.5	144.7
Nov-22	152.5	132.5	144.5
Dec-22	150.5	132.3	143.2
Average Index (Jan 22-Jun 22)			140.87
Average Index (Jul 22-Dec 22)			144.08
Half-Yearly Inflation			2.28%
Annual Inflation			4.56%
*Composite index with weight of 60% to WPI and 40% to CPI-IW			

The annual inflation computed in the above table (4.56%) is notified as escalation rate for inland handling of imported gas.

(7) Inflation Rate to be applied to Indexed Capacity Charge Component

The inflation rate to be applied to Indexed Capacity Charge Component has been computed based on the data on WPI-All commodities and CPI-IW for the period from January, 2022 to December, 2022. A composite Index, based on WPI with 60% weight and CPI-IW with 40% weight, has first been developed, which then has been used for computing the escalation rate. The data on WPI and CPI-IW has been taken from the website of Ministry of Commerce & Industry and Labour Bureau, respectively. The inflation rate has been computed as under:

Table-7: INFLATION RATE TO BE APPLIED TO INDEXED CAPACITY CHARGE COMPONENT			
Period	WPI (Base 2011-12=100)	CPI-IW (Base 2016=100)	Composite Index*
Jan-22	143.8	125.1	136.3
Feb-22	145.3	125.0	137.2
Mar-22	148.9	126.0	139.7
Apr-22	152.3	127.7	142.5
May-22	155.0	129.0	144.6
Jun-22	155.4	129.2	144.9
Jul-22	154.0	129.9	144.4
Aug-22	153.2	130.2	144.0
Sep-22	151.9	131.3	143.7
Oct-22	152.9	132.5	144.7
Nov-22	152.5	132.5	144.5
Dec-22	150.5	132.3	143.2
Average Index (Jan 22-Jun 22)			140.87
Average Index (Jul 22-Dec 22)			144.08
Half-Yearly Inflation			2.28%
Annual Inflation			4.56%
*Composite index with weight of 60% to WPI and 40% to CPI-IW.			

The annual inflation computed in the above table (4.56%) is notified as Inflation Rate to be applied to Indexed Capacity Charge Component.

(8) Inflation Rate to be applied to indexed energy charge component in cases of captive fuel source

Using Consumer Price Index for Industrial Workers (CPI-IW), Wholesale Price Index for all commodities and disaggregated items used in the captive mining for the period from January, 2022 to December, 2022 the inflation rate to be applied to indexed energy charge component in cases of captive fuel source has been computed. Before computing the escalation rate, composite index has been arrived at by assigning weight of 10% to WPI-All commodities; 20% to CPI-IW; 10% to WPI-Medium & heavy commercial vehicle tyres; 10% to WPI- Manufacture of other chemical products; 25% to WPI-Machinery & Equipment; and 25% to WPI-HSD Oil and the same has been used for computing the escalation rate.

Table-8: INFLATION RATE TO BE APPLIED TO INDEXED ENERGY CHARGE COMPONENT IN CASE OF CAPTIVE MINE COAL SOURCE							
Period	WPI- all commodities (Base 2011- 12=100)	CPI- IW (Base 2016=100)	Wholesale Price Index				Composite Index*
			Medium & heavy commercial vehicle tyre	Manufacture of other chemical products	Manufacture of Machinery and Equipment	High Speed Diesel Oil	
Jan-22	143.8	125.1	107.3	136.3	121.6	141.2	129.46
Feb-22	145.3	125.0	107.8	137.6	122.0	147.5	131.45
Mar-22	148.9	126.0	104.3	140.5	122.7	157.8	134.70
Apr-22	152.3	127.7	105.1	142.9	124.3	169.3	138.97
May-22	155.0	129.0	106.0	143.8	124.9	204.3	148.58
Jun-22	155.4	129.2	107.5	144.4	125.1	207.6	149.75
Jul-22	154.0	129.9	111.3	144.9	125.8	210.0	150.95
Aug-22	153.2	130.2	113.2	143.4	126.1	194.7	147.22
Sep-22	151.9	131.3	116.2	143.0	126.4	196.0	147.97
Oct-22	152.9	132.5	116.7	143.3	126.5	188.4	146.52
Nov-22	152.5	132.5	115.8	142.0	126.7	200.5	149.33
Dec-22	150.5	132.3	115.0	141.1	126.3	184.4	144.80
Average Index (Jan 22-Jun 22)							138.82
Average Index (Jul 22-Dec 22)							147.80
Half-Yearly Inflation							6.47%
Annual Inflation							12.94%
*Composite Index with weight of 10% to WPI- all commodities, 20% to CPI-IW, 10% to WPI- Medium & heavy commercial vehicle tyre, 10% to WPI-Manufacture of other chemical products, 25% to WPI- Manufacture of Machinery and Equipment and 25% to WPI-HSD Oil.							

The annual inflation computed in the above table (12.94%) is notified as inflation rate to be applied to indexed energy charge component in cases of captive fuel source.

4. The data series for API-4, Global Coal Index, Argus ICI3, Platts CI, Platts JKM, and Singapore VLSFO Bunker Fuel Price Index has been analysed by CERC. The data is not made available for public dissemination since it is paid for and is sourced on a single user subscription.
