

## **EXPLANATION FOR THE NOTIFICATION DATED 15.10.2018 ON ESCALATION FACTORS AND OTHER PARAMETERS**

In pursuance of Clause 5.6 (vi) of Ministry of Power (MOP) 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, the Central Electricity Regulatory Commission (CERC) has been notifying various escalation factors and other parameters, every six months, for the purpose of payment. The escalation factors and other parameters are as under:

1. Escalation rate for domestic coal.
  2. Escalation rate for domestic gas.
  3. Escalation rates for different escalable sub-components of energy charge for plants based on imported coal.
  4. Escalation rates for inland transportation charges for coal.
  5. Escalation rates for inland transportation charges for gas.
  6. Escalation rate for different escalable sub-components of energy charge for plants based on imported gas.
  7. 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.
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 and the CERC Order dated 23.12.2013 in Petition No.308/SM/2013 (see CERC website [www.cercind.gov.in](http://www.cercind.gov.in)). 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 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 Component**

The escalation rate for domestic coal for payment has been computed based on the data on WPI for Non-Coking coal (Base 2011-12) for the period from July 2017 to June 2018. The WPI for Non-coking coal for the grades G7-G14 has been used for the purpose of computation. The escalation rate for domestic coal has been computed as under.

<b>Table-1: ESCALATION RATE FOR DOMESTIC COAL</b>	
<b>Period</b>	<b>WPI (Non-Coking Coal)</b>
Jul-17	122.8
Aug-17	122.8
Sep-17	122.8
Oct-17	122.8
Nov-17	122.8
Dec-17	122.8
Jan-18	133.1
Feb-18	136.7
Mar-18	136.7
Apr-18	136.7
May-18	136.7
Jun-18	136.7
Average Index (July 17-Dec 17)	122.80
Average Index (Jan 18-Jun 18)	136.10
Half-Yearly Inflation	10.83%
Annual Inflation	21.66%

The above computed annual inflation (21.66%) 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 July 2017 to June 2018. The data has been collected from Ministry of Petroleum & Natural Gas (MOPNG) and GAIL (India) Ltd. Composite index, using 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:

<b>Period</b>	<b>Consumer Prices Off-shore (Landfall point and On-shore) (₹/'000' cubic metre)</b>	<b>Consumer Prices For North-Eastern States (₹/'000' cubic metre)</b>	<b>Composite Index*</b>
Jul-17	5754.62	3457.41	5525
Aug-17	5711.10	3431.26	5483
Sep-17	5753.29	3456.61	5524
Oct-17	6771.06	4053.26	6499
Nov-17	6748.31	4039.64	6477
Dec-17	6683.77	4001.01	6415
Jan-18	6620.78	3963.31	6355
Feb-18	6697.45	4009.20	6429
Mar-18	6764.82	4049.53	6493
Apr-18	7230.50	4347.75	6942
May-18	7440.14	4473.81	7144
Jun-18	7468.08	4490.61	7170
Average Index (July 17-Dec 17)			5987
Average Index (Jan 18-June 18)			6756
Half-Yearly Escalation			12.83%
Annual Escalation			25.66%
* 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 (25.66%) 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 has been computed based on price of South African Coal, Australian Coal and Indonesian Coal for the period from September 2017 to August 2018. The escalation rate for imported coal for payment has been computed as under:

<b>Table-3.1: ESCALATION RATE FOR IMPORTED COAL</b>		
<b>Component Index</b>	<b>Data Series</b>	<b>Annual Escalation Rate</b>
Composite series using weight of 25% to API4 (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 September 2017 to August 2018	2.98%

The annual escalation rate computed in the above table (2.98%) 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 has been computed based on FOB price of 380cst Singapore bunker fuel for the period from September 2017 to August 2018. The escalation rate for transportation of imported coal for payment has been computed as under:

<b>Table-3.2: ESCALATION RATE FOR TRANSPORTATION OF IMPORTED COAL</b>		
<b>Component Index</b>	<b>Data Series</b>	<b>Annual Escalation Rate</b>
Singapore Bunker Price Index	Monthly data from September 2017 to August 2018	35.14%

The annual escalation rate computed in the above table (35.14%) 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 (Base 2011-12) and CPI-IW for the period from July

2017 to June 2018. 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:

<b>Table-3.3: ESCALATION RATE FOR INLAND HANDLING OF IMPORTED COAL</b>			
<b>Period</b>	<b>WPI</b>	<b>CPI</b>	<b>Composite Index*</b>
Jul-17	113.9	285.0	182.3
Aug-17	114.8	285.0	182.9
Sep-17	114.9	285.0	182.9
Oct-17	115.6	287.0	184.2
Nov-17	116.4	288.0	185.0
Dec-17	115.7	286.0	183.8
Jan-18	116.0	288.0	184.8
Feb-18	116.1	287.0	184.5
Mar-18	116.3	287.0	184.6
Apr-18	117.3	288.0	185.6
May-18	118.3	289.0	186.6
Jun-18	119.1	291.0	187.9
Average Index (July 17-Dec 17)			183.53
Average Index (Jan 18-Jun 18)			185.64
Half-Yearly Inflation			1.15%
Annual Inflation			2.30%
*Composite index using weight of 60% to Wholesale Price Index (WPI) and 40% to Consumer Price Index (CPI).			

The annual inflation computed in the above table (2.30%) is notified as escalation rate for inland handling charges 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 (₹/Tonne) for the period from July 2017 to June 2018. The data has been collected from Ministry of Railways. The data on coal freight rate for 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 125 km, upto 500 km, upto 1000 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:

<b>Table-4: ESCALATION RATE FOR INLAND TRANSPORTATION CHARGES FOR COAL</b>					
<b>Period</b>	<b>Coal Freight Rate for 125 km</b>	<b>Coal Freight Rate for 500 km</b>	<b>Coal Freight Rate for 1000 km</b>	<b>Coal Freight Rate for 2000 km</b>	<b>Coal Freight Rate for 3000 km</b>
Jul-17	226.0	732.4	1369.9	2263.8	2813.8
Aug-17	311.2	817.6	1455.1	2349.0	2899.0
Sep-17	311.2	817.6	1455.1	2349.0	2899.0
Oct-17	296.7	803.1	1440.6	2334.5	2884.5
Nov-17	296.7	803.1	1440.6	2334.5	2884.5
Dec-17	296.7	803.1	1440.6	2334.5	2884.5
Jan-18	330.5	894.5	1604.6	2600.2	3212.8
Feb-18	358.3	969.8	1739.6	2819.0	3483.1
Mar-18	358.3	969.8	1739.6	2819.0	3483.1
Apr-18	358.3	969.8	1739.6	2819.0	3483.1
May-18	358.3	969.8	1739.6	2819.0	3483.1
Jun-18	358.3	969.8	1739.6	2819.0	3483.1
Average Rate (Jul 17-Dec 17)	289.76	796.16	1433.66	2327.56	2877.56
Average Rate (Jan 18-June 18)	353.66	957.25	1717.09	2782.53	3438.04
Half-Yearly Escalation Rate	22.06%	20.23%	19.77%	19.55%	19.48%
Annual Escalation Rate	44.11%	40.47%	39.54%	39.09%	38.96%

The annual escalation rates computed in the above table (44.11% applicable upto 125 km, 40.47% upto 500 km, 39.54% upto 1000 kms, 39.09% upto 2000 kms and 38.96% 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 along HVJ pipeline charged by GAIL for the period from July 2017 to June 2018. The data has been collected from Ministry of Petroleum & Natural Gas. The escalation rate for transportation of natural gas has been computed as under:

<b>Table-5: ESCALATION RATE FOR INLAND TRANSPORTATION CHARGES OF GAS</b>	
<b>Period</b>	<b>Transportation charges along HVJ pipeline (₹/1000 SCM)</b>
Jul-17	856
Aug-17	856
Sep-17	856
Oct-17	856
Nov-17	856
Dec-17	856
Jan-18	856
Feb-18	856
Mar-18	856
Apr-18	856
May-18	856
Jun-18	856
Average Charges (Jul 17-Dec 17)	856
Average Charges (Jan 18-Jun 18)	856
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 transportation charges of gas.

**(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 JCC LNG price for the period from September 2017 to August 2018. The data has been subscribed from Platts. The computation of escalation rate for imported gas can be seen from the following table.

<b>Table-6.1: ESCALATION RATE FOR IMPORTED GAS</b>		
<b>Component Index</b>	<b>Data Series</b>	<b>Annual Escalation Rate</b>
Japan JCC LNG Price Index	Monthly data from September 2017 to August 2018	35.14%

The annual escalation rate computed in the above table (35.14%) 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 has been computed based on FOB price of 380cst Singapore bunker fuel for the period from September 2017 to August 2018. The escalation rate for transportation of imported gas for payment has been computed as under:

<b>Table-6.2: ESCALATION RATE FOR TRANSPORTATION OF IMPORTED GAS</b>		
<b>Component Index</b>	<b>Data Series</b>	<b>Annual Escalation Rate</b>
Singapore Bunker Price Index	Monthly data from September 2017 to August 2018	35.14%

The annual escalation rate computed in the above table (35.14%) 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 (Base 2011-12) and CPI-IW for the period from July 2017 to June 2018. 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:

<b>Table-6.3: ESCALATION RATE FOR INLAND HANDLING OF IMPORTED GAS</b>			
<b>Period</b>	<b>WPI</b>	<b>CPI</b>	<b>Composite Index*</b>
Jul-17	113.9	285.0	182.3
Aug-17	114.8	285.0	182.9
Sep-17	114.9	285.0	182.9
Oct-17	115.6	287.0	184.2
Nov-17	116.4	288.0	185.0
Dec-17	115.7	286.0	183.8
Jan-18	116.0	288.0	184.8



Feb-18	116.1	287.0	184.5
Mar-18	116.3	287.0	184.6
Apr-18	117.3	288.0	185.6
May-18	118.3	289.0	186.6
Jun-18	119.1	291.0	187.9
Average Index (July 17-Dec 17)			183.53
Average Index (Jan 18-Jun 18)			185.64
Half-Yearly Inflation			1.15%
Annual Inflation			2.30%
*Composite Index using weight of 60% to Wholesale Price Index (WPI) and 40% to Consumer Price Index (CPI).			

The annual inflation computed in the above table (2.30%) is notified as escalation rate for inland handling charges of imported gas for payment.

#### **(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 (Base 2011-12) and CPI-IW for the period from July 2017 to June 2018. 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:

<b>Table-7: INFLATION RATE TO BE APPLIED TO INDEXED CAPACITY CHARGE COMPONENT</b>			
<b>Period</b>	<b>WPI</b>	<b>CPI</b>	<b>Composite Index*</b>
Jul-17	113.9	285.0	182.3
Aug-17	114.8	285.0	182.9
Sep-17	114.9	285.0	182.9
Oct-17	115.6	287.0	184.2
Nov-17	116.4	288.0	185.0
Dec-17	115.7	286.0	183.8
Jan-18	116.0	288.0	184.8
Feb-18	116.1	287.0	184.5
Mar-18	116.3	287.0	184.6
Apr-18	117.3	288.0	185.6
May-18	118.3	289.0	186.6
Jun-18	119.1	291.0	187.9

Average Index (July 17-Dec 17)	183.53
Average Index (Jan 18-Jun 18)	185.64
Half-Yearly Inflation	1.15%
Annual Inflation	2.30%
*Composite index using weight of 60% to Wholesale Price Index (WPI) and 40% to Consumer Price Index (CPI).	

The annual inflation computed in the above table (2.30%) 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 (Base 2011-12) used in the captive mining for the period from July 2017 to June 2018, 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 giving weight of 10% to WPI; 20% to CPI; 10% to Tyres; 10% to Matches, Explosives & Other Chemicals; 25% to Machinery & Machine Tools; and 25% to HSD Oil and the same has been used for computing the escalation rate.

Period	WPI-all commodities	CPI-IW	Wholesale Price Index				Composite Index*
			Medium & heavy commercial vehicle tyre	Manufacture of other chemical products	Manufacture of Machinery and Equipment	High Speed Diesel Oil	
Jul-17	113.9	285.0	97.5	108.4	107.9	78.8	135.66
Aug-17	114.8	285.0	97.0	108.4	108.5	80.9	136.37
Sep-17	114.9	285.0	97.4	109.0	108.5	82.5	136.88
Oct-17	115.6	287.0	92.3	109.7	109.0	84.5	137.54
Nov-17	116.4	288.0	94.4	109.5	109.3	85.8	138.41
Dec-17	115.7	286.0	96.5	110.0	108.9	87.1	138.42
Jan-18	116.0	288	95.5	111.5	110.0	89.5	139.78
Feb-18	116.1	287	95.5	113.4	109.7	91.3	140.15
Mar-18	116.3	287	96.4	114.7	109.9	90.1	140.14
Apr-18	117.3	288	94.9	113.7	110.1	92.5	140.84
May-18	118.3	289	95.5	114.7	109.9	95.4	141.98
Jun-18	119.1	291	94.8	115.9	110.5	97.5	143.18
Average Index (July 17-Dec 17)							137.21

Average Index (Jan 18-Jun 18)	141.01
Half-Yearly Inflation	2.77%
<b>Annual Inflation</b>	<b>5.54%</b>
*Composite Index using weight of 10% to Wholesale Price Index (WPI), 20% to Consumer Price Index (CPI), 10% to WPI-Tyres, 10% to WPI-Matches, Explosives & other chemicals, 25% to WPI-Machinery & Machine Tools and 25% to WPI-HSD Oil.	

The annual inflation computed in the above table (5.54%) 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, Japan JCC LNG Price Index and Singapore 380 CST 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.

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