



**ORDER**

**OF THE**

**WEST BENGAL ELECTRICITY REGULATORY  
COMMISSION**

**IN CASE NO.: FPPCA-67/13 – 14**

**IN RE THE APPLICATION OF THE WEST BENGAL  
POWER DEVELOPMENT CORPORATION LIMITED  
FOR FUEL COST ADJUSTMENT (FCA)  
FOR THE FINANCIAL YEAR  
2012 – 2013**

**DATE: 06.06.2014**



## CHAPTER – 1 INTRODUCTION

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- 1.1 In terms of the provisions contained in the regulation 2.8.7.1 of the West Bengal Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2011, as amended, (hereinafter referred to as the “Tariff Regulations”) the West Bengal Power Development Corporation Limited (in short “WBPDCCL”), a generating company, submitted its application on 11<sup>th</sup> November, 2013 for ascertaining the Fuel Cost Adjustments (in short “FCA”) separately for each of the following generating stations for the financial year 2012 – 2013.
- A) Kolaghat Thermal Power Station (KTPS),
  - B) Bakreswar Thermal Power Station (BkTPS),
  - C) Bandel Thermal Power Station (BTPS),
  - D) Santaldih Thermal Power Station (STPS),
  - E) Sagardighi Thermal Power Station (SgTPS)
- 1.2 WBPDCCL submitted in its application that part of the consumption of oil (L.D.O) at all the generating stations except BkTPS exceeding the norm stipulated in the Tariff Regulations, 2011 was due to total grid failure on 31.07.2012 as well as forced back-down on several occasions when State Load Despatch Centre (in short “SLDC”) / Area Load Despatch Centre (in short “ALDC”) of West Bengal State Electricity Distribution Company Limited (in short “WBSEDCL”) asked to de-synchronize the generating units. The re-synchronization of the units could be done only on obtaining clearance from ALDC. As such, since the de-synchronization and re-synchronization involving additional quantity of oil consumption were beyond the control of the generating station, WBPDCCL prayed for allowing the recovery of an amount of Rs. 1335.28 lakh in this regard through energy charges for the year 2012 – 2013.
- 1.3 Apart from above amount of Rs. 1335.28 lakh for the year 2012 – 2013, WBPDCCL has further submitted the claim for Rs. 459.67 lakh being the balance



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amount of Rs. 269.95 lakh for 2010 – 2011 and Rs. 189.72 lakh for 2011 – 2012 on similar grounds and disallowed by the Commission earlier. Thus, the total aggregated amount of claim submitted in FCA for 2012 – 2013 on account of excess consumption of LDO due to forced back down etc. arrives at Rs. 1794.95 lakh (Rs. 1335.28 lakh + Rs. 459.67 lakh).

- 1.4 The Commission has given considered view to the plea of WBPDCCL placed to it from time to time in this regard but is unable to admit the same on the grounds as highlighted in the FCA orders for the years 2010 – 2011 and 2011 – 2012.
- 1.5 The Commission has noted the submissions, as made by WBPDCCL. The issues raised by WBPDCCL will be examined and viewed in the subsequent part of this order. Upon submission of FCA by WBPDCCL for the year 2012 – 2013 the Commission proceeds to determine the amounts of admissible fuel costs for the generating stations at Kolaghat, Bakreswar, Bandel, Santaldih and Sagardighi.
- 1.6 The Fuel and Power Purchase Cost Adjustments (in short “FPPCA”) during the referred adjustment period, i.e., financial year 2012 – 2013, are to be ascertained in terms of the following formula as enunciated by the Commission and incorporated in Part – B in Schedule – 7A to the Tariff Regulations, 2011.

$$\text{“FPPCA (In Rs.)} \quad = \quad \{FC + (PPC - C_D) + (\pm A)\} - (fc + ppc)$$

Where –

- i) The adjustment period for fuel and power purchase cost will normally be on annual basis, if not otherwise decided by the Commission.
- ii) FC (Rs): Fuel Cost of own generation as per normative parameters fixed by the Commission or on actual basis in absence of any norm and UHV range as may be allowed under regulation 5.8 commensurate with actual level of energy sales by the



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generating company to the licensee during the adjustment period.

- iii) PPC (Rs): Total cost incurred including the cost for fuel for power purchase from different sources commensurate with actual level of pumped energy required by pumped storage hydro-generating station only.
- iv)  $C_D$  (Rs): Cost disallowed by the Commission as having been incurred in breach of its economic generation, or of order / direction of the Commission, if any, or for any other reason considered sufficient by the Commission during the adjustment period and adjusted corresponding to actual level of sales to the licensee.
- v) A (Rs): Adjustment, if any, to be made in the current period to account for any claim due to excess / shortfall in fuel cost in the past adjustment period based on directions / orders of the Commission. (+A) shall be considered as the amount to be recovered from consumer and purchaser of electricity under the purview of the Commission when the generating company has already incurred that expenses. (-A) shall be considered as the amount to be refunded to the purchaser of electricity under the purview of the Commission because such amount of less expenses has been incurred by the generating company against any prior period adjustment.
- vi) fc (Rs.): Fuel cost of own generation for sale to the licensee as allowed by the Commission in the tariff order corresponding to relevant adjustment period.
- vii) ppc (Rs.): Power purchase cost allowed by the Commission for the relevant adjustment period in the tariff order for pumping



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energy required by pumped storage hydro-generating station only.

- viii) FPPCA thus determined on normative basis will further be adjusted for gain sharing as per Schedule – 9B for the parameter related to fuel cost only.”

1.7 The formula referred to above has two distinct parts. The first part is intended to arrive at the amount that should reasonably be recovered by a generating company from its energy recipients for the particular adjustment period under consideration towards fuel and power purchase cost. The second part is meant for the total amount of such costs that was allowed to be recovered through the power tariff fixed by the Commission. The difference between the two amounts is to signify the amount that needs to be either additionally recovered from or refunded to the recipients of energy, as the case may be. The factor PPC and ppc in the referred formula stands for “power purchase cost” and are not applicable for WBPDCCL in the present case. The nomenclature of each of other factor notations used in the formula and value that needs to be assigned to each of such factors is being discussed in the next chapter. The instant order is for ascertaining the amounts of admissible fuel cost separately for each of the concerned generating stations applying the first part of the formula referred to above.

1.8 The schedule – 9B to the Tariff Regulations, 2011 contains provisions for sharing the gains, if any, derived by the generating company on account of its better performances over the operating and fuel consumption norms set by the Commission for the concerned year, with the energy recipient. The operational parameters which are to be considered for such sharing the gains are:

- i) Oil consumption rate,
- ii) Rate of Auxiliary Consumption,
- iii) Gross Station Heat Rate.



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The paragraph D of referred schedule 9B to the Tariff Regulations, 2011 also provides that in case availability of a generating station of the generating company falls below the availability norms, then the total gains meant to be passed on to the energy recipients under above item, is first to be used to compensate the deficit in the recovery of the fixed charges, if any, by the generating company.

- 1.9 It, therefore, needs to view the actual performances of WBPDCCL in comparison to the operational and fuel efficiency norms set by the Commission in the Tariff Order for the concerned year. Such comparisons are made hereunder:

Sl No	Generating Station	Particulars	Unit	As per Tariff Order	As per Actual
1	Kolaghat	Rate of Auxiliary Consumption	%	9.70	10.59
		Specific Consumption of Oil	ml/Kwh	2.00	2.21
		Station Heat Rate	KCal/kWh	2700.00	2795.33
2	Bakreswar	Rate of Auxiliary Consumption	%	9.00	9.57
		Specific Consumption of Oil	ml/Kwh	1.30	1.00
		Station Heat Rate	KCal/kWh	2485	2524.72
3	Bandel	Rate of Auxiliary Consumption	%	10.05	11.53
		Specific Consumption of Oil	ml/Kwh	2.50	5.31
		Station Heat Rate	KCal/kWh	2900.00	3031.20
4	Santaldih	Rate of Auxiliary Consumption	%	9.00	9.97
		Specific Consumption of Oil	ml/Kwh	1.00	2.22
		Station Heat Rate	KCal/kWh	2425.00	2485.70
5	Sagardighi	Rate of Auxiliary Consumption	%	9.00	11.53
		Specific Consumption of Oil	ml/Kwh	1.00	1.29
		Station Heat Rate	KCal/kWh	2345.00	2397.28

The computations of actual Station Heat Rates achieved are shown in Annexure – 1A.

- 1.10 As observed from above, actual performances of WBPDCCL relating to the referred factors did not qualify for deriving gains to share with WBSEDCL except Bakreswar generating station where the actual rate of oil consumption is less than the norm.



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- 1.11 It has, however, been stated by WBPDC that excess consumption of LDO at Kolaghat, Bandel, Santaldih and Sagardighi generating stations is due to forced back down of units at the instance of ALDC of WBSEDCL/SLDC. WBPDC has claimed that they had to consume excess oil due to such forced de-synchronization and re-synchronization of the units at Kolaghat, Bakreswar and Bandel generating stations. It is seen from the documents submitted by WBPDC that the units at Kolaghat, Bakreswar and Bandel generating Stations had to de-synchronize as per the instructions from ALDC of WBSEDCL/SLDC due to low system demand in normal condition which are taken into consideration during fixation of norm. Moreover, the consumption of oil at BkTPS is less than the norms. The Commission does not consider the claim of excess consumption of oil at all the generating stations for 2012 – 2013.
- 1.12 As it comes out from above, the rate of oil consumption in respect of Bakreswar generating station came lower than the rates considered in the tariff order. All other parameters as per the actual performance of WBPDC fall short of the norms set by the Commission. In terms of provision contained in paragraph A1 of the Schedule 9B to the Tariff Regulations, 2011 WBPDC needs to share the gains derived by it by improving the oil consumption norm in respect of Bakreswar generating station. Such gains are to be shared with WBSEDCL, the lone purchaser of entire generation of WBPDC. This aspect will be further examined and considered in the next chapter.



## ANNEXURE - 1A COMPUTATIONS OF ACTUAL STATION HEAT RATES ACHIEVED IN 2012 -2013

SI No	Particulars	Unit	Stations				
			Kolaghat	Bakreswar	Bandel	Santaldih	Sagardighi
1	Generation (Actual)	MU	7350.159	8004.145	1859.579	2410.483	3896.394
2	Consumption of Oil (Actual)	KL	16266.02	8004.92	9868.00	5356.53	5034.55
3	Consumption of Coal (Actual as per submission)	MT	6169368.107	5476614.324	1677853.945	1585194.336	2627002.770
4	GCV of Oil (Actual as per submission)	Kcal/Lit	9454.884	9597.776	9577.008	9530.94	9299.181
5	Heat value of Coal (Actual as per submission)	Kcal/Kg	3305.41	3675.88	3303.18	3747.60	3537.84
6	Heat from Oil (2X4/1000)	M.Kcal	153793.33	76829.43	94505.91	51052.77	46817.19
7	Heat from Coal (3X5/1000)	M.Kcal	20392291.03	20131377.06	5542253.59	5940674.29	9293915.48
8	Total Heat used (6+7)	M.Kcal	20546084.36	20208206.49	5636759.50	5991727.06	9340732.67
9	Station Heat Rate achieved (8/1)	Kcal/kWh	2795.33	2524.72	3031.20	2485.70	2397.28





## CHAPTER – 2 DETERMINATION OF ALLOWABLE FUEL COST

2.1 In this part of the order, the Commission takes up the determination of fuel cost allowable to WBPDCCL separately for each of its generating stations in commercial operation using the factors FC,  $C_D$  and  $\pm A$  of the formula referred to in the earlier chapter.

### 2.2 Factors considered in Tariff Order:

2.2.1 The consumption of fuel and costs thereon allowed to WBPDCCL for its different generating stations in operation for the year 2012 – 2013 were based on the following factors.

Sl. No.	Particulars	Unit	Generating stations				
			Kolaghat	Bakreswar	Bandel	Santaldih	Sagardighi
(i)	Station Heat Rate (normative)	K.cal/kwh	2700.00	2485.00	2900.00	2425.00	2345.00
(ii)	Rate of Oil Consumption (normative)	MI/kwh	2.00	1.30	2.50	1.00	1.00
(iii)	Calorific Value of Oil	K.cal/lit	9454.884	9597.776	9577.008	9530.94	9299.181
(iv)	Average Heat value of Coal	K.cal/kg	3305.41	3675.88	3331.85	3747.60	3537.84
(v)	Weighted Average Price of Oil	Rs/kl	54516.94	54010.18	52745.23	50964.28	56028.47
(vi)	Weighted Average Price of Coal	Rs/MT	3031.35	3279.46	3085.60	3602.21	3656.58

The first two of the above factors, i.e., the station heat rate and the rate of consumption of oil were the fuel usage norms adopted by the Commission. The weighted average calorific value of oil and the weighted average heat value of coal are the variable factors depending upon the actual mix of different grades of fuel used in operation. The declared heat value of each grade of coal varies within a range. The weighted average heat value of coal considered at the tariff fixation level was based on the minimum value of the range of each projected grade of coal and is subject to adjustments in terms of regulation 5.8.1(i) of the Tariff Regulations, 2011.



### 2.3 Determination of Allowable Fuel Cost:

2.3.1 On careful consideration of all the related facts and factors, the Commission worked out the amount of fuel cost that can be allowed to WBPDCCL for each of its referred generating stations in commercial operation for the actual level of sale of energy to WBSEDCL during 2012 – 2013 as shown hereunder:

Generating station	Amount (Rs. in Lakh)
	As found admissible
Kolaghat	187959.38
Bakreswar	181111.53
Bandel	51321.44
Santaldih	55821.61
Sagardighi	94438.86
<b>Total</b>	<b>570652.82</b>

The detailed computations leading to the determination of such allowable fuel cost pertaining to the actual level of sales to WBSEDCL are shown in Annexure 2A to this chapter.

### 2.4 Explanatory Notes to Computations:

#### 2.4.1 Generation:

Admissible gross generation of each of the referred generating stations has been estimated considering normative auxiliary consumption commensurate with actual level of sales from each generating station to the licensee, i.e., energy as per scheduled injection.

#### 2.4.2 Auxiliary Consumption:

The quantum of auxiliary consumptions at the generating station as per the norms fixed by the Commission is as under:



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Generating station	Scheduled Injection	Normative Rate (%)	Normative Auxiliary Consumption including UI (out) (MU)	Admissible Gross Generation
Kolaghat	6559.112	9.70	704.578	7263.690
Bakreswar	7205.897	9.00	712.671	7918.568
Bandel	1638.847	10.05	183.106	1821.953
Santaldih	2124.138	9.00	210.080	2334.218
Sagardighi	3451.948	9.00	341.401	3793.349
Total	20979.942		2151.836	23131.78

**2.4.3 Weighted Average GCV of Oil:**

The weighted average gross calorific value of oil claimed by WBPDCCL for different generating stations were as follows:

Generating station	GCV of Oil (k.cal/lit)
Kolaghat	9454.884
Bakreswar	9597.776
Bandel	9577.008
Santaldih	9530.940
Sagardighi	9299.181

WBPDCCL presented the detailed computations of the weighted average calorific value of oil for each of the generating stations with reference to the month-wise supplies received. As this is a variable factor depending on the grades of oil used, the Commission has considered the same for working out the amount of allowable fuel cost.

**2.4.4 Heat Value of Coal:**

The weighted average heat value of coal is also a variable factor depending on the actual grade mix of coal consumption. As ascertained by WBPDCCL, the weighted average heat value of coal consumed at different generating stations during 2012 – 2013 came as under:



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<b>Generating station</b>	<b>Heat Value of Coal (k.cal/kg)</b>
Kolaghat	3305.41
Bakreswar	3675.88
Bandel	3303.18
Santaldih	3747.60
Sagardighi	3537.84

Above heat values have been viewed with reference to the quantitative accounts of grade-wise coal consumption of the concerned generating stations, as submitted by WBPDCCL, the declared heat value of different grades of coal varying within a range and the minimum allowable heat value in terms of provision of regulation 5.8.1 of the Tariff Regulations. The weighted average heat value of coal for each generating station as claimed by WBPDCCL has been checked with month wise data submitted by WBPDCCL in the petition and shown in annexure 2G. The computations of the minimum allowable heat value of coal for different generating stations have been shown in Annexure – 2B to 2F to this chapter. In this context it is to be mentioned that the minimum allowable heat value of coal is considered based on UHV value of each grade of coal as notified by Coal India Limited (in short 'CIL') for the financial year 2012 - 2013 as per regulation 5.8.15 of the Tariff Regulations, 2011. As it is observed from the computations in the aforesaid annexures, the actual heat value of coal received by WBPDCCL is marginally higher than the minimum heat value that can be admitted in terms of the Tariff Regulations in all the generating stations except Bandel generating station. The admitted heat values of coal for different generating stations thus come as under:

<b>Generating station</b>	<b>Heat Value of Coal (k.cal/kg)</b>
Kolaghat	3305.41
Bakreswar	3675.88
Bandel	3331.85
Santaldih	3747.60
Sagardighi	3537.84



#### 2.4.5 Permitted Transit & Handling Loss of Coal:

As specified in Part F of the Schedule 9A to the Tariff Regulations, 2011 transit and handling losses of coal allowable to WBPDCCL is 0.80% for Kolaghat, Bandel, Santaldih and Sagardighi generating stations. The same is 0.50% for Bakreswar generating station. The allowable quantum of coal requirement at such provision of loss in different generating stations is shown in item no. 15 of the statement at Annexure – 2A.

#### 2.4.6 Average Price of Oil and Coal:

Based on the submission of WBPDCCL and as per Notes on Accounts under note 42.3 and 42.4 to the audited annual accounts for the year 2012 – 2013, the weighted average price of Oil (Rs/KL) and weighted average price of Coal (Rs/MT) are computed as under:

Generating station	Average price of Oil (Rs/KL)	Average price of Coal (Rs/MT)
Kolaghat	54516.94	3031.35
Bakreswar	54010.18	3279.46
Bandel	52745.23	3085.60
Santaldih	50964.28	3602.21
Sagardighi	56028.47	3565.58

The above rates were inclusive of freight / transportation charges.

#### 2.5 Additional Cost of Oil:

2.5.1 As regards excess oil consumption at all the generating stations of WBPDCCL except Bakreswar, as claimed by WBPDCCL and explained in paragraph 1.12 of preceding chapter, the Commission does not allow any excess oil consumption for any generating station for the year 2012 – 2013.



**2.6 C<sub>D</sub>: Cost Disallowable:**

2.6.1 The factor C<sub>D</sub>, as referred to in the formula vide paragraph 1.7, stands for cost as to be found disallowable by the Commission as having been incurred in breach of economic generation or of order / direction of the Commission, if any, or for any other reason considered sufficient by the Commission during the adjustment period and adjusted corresponding to actual level of sales. As can be seen in the statement at paragraph 1.10, the actual parameters of fuel usage of WBPDCCL in all the concerned generating stations, except Bakreswar for specific oil consumption were adverse to such usage norms fixed by the Commission. As the unit rates of energy charges from the generating stations have been worked out based on normative parameters, no further cost disallowance is required on this score.

2.7 As referred to in paragraph 1.13, WBPDCCL is to share of gains derived by it in monetary terms for economic use of oil and better station heat rate at Bakreswar generating station. The share of gains attributable to WBSEDCL, being the lone energy recipient, works out as under:

a) Computation of share of gain for better Oil Consumption Rate:

Sl. No.	Particulars	Unit	Bakreswar
1	Oil allowed in fuel cost (vide item No. 8 in Annexure 2A)	KL	10294.138
2	Actual quanta of Oil used @ 1.00 ml/kWh on admissible gross generation of 7918.568 MU	KL	7918.568
3	Savings in use of Oil (1-2)	KL	2375.570
4	Price of Oil (vide item 16 in Annexure – 2A)	Rs. / KL	54010.180
5	Total Gains	Rs in Lakh	1283.05
6	Category of generating station for gain sharing in terms of Section A of Schedule 9B to the Tariff Regulations	-	B
7	Share attributable to WBSEDCL	%	40%
8	Share of WBSEDCL	Rs in Lakh	513.22



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- 2.8 But as already mentioned in paragraph 1.9, the total gain to be passed on to the energy recipient is first to be used to compensate the deficit in the recovery of fixed charges, in case availability of any generating station of WBPDCCL falls below the availability norm. As the recovery of fixed charge as per availability will be determined in the Annual Performance Review (APR) of WBPDCCL for the year 2012 – 2013, the matter of gain sharing, if any will be viewed in the APR order for 2012 – 2013.
- 2.9 Summing up the findings as explained in the earlier paragraphs, the amounts of admissible fuel cost for different generating station of WBPDCCL for the year 2012 – 2013 come as under:

Particulars	Unit	Kolaghat	Bakreswar	Bandel	Santaldih	Sagardighi	Overall
Total admissible fuel cost as per norms (FC as per annexure 2A)	Rs. in Lakh	187959.38	181111.53	51321.44	55821.61	94438.86	570652.82
C <sub>D</sub> (Cost disallowed)	Rs. in Lakh	0.00	0.00	0.00	0.00	0.00	0.00
A (+) (Adjustment)	Rs. in Lakh	0.00	0.00	0.00	0.00	0.00	0.00
Fuel cost admitted	Rs. in Lakh	187959.38	181111.53	51321.44	55821.61	94438.86	570652.82

**ANNEXURE - 2A**

SI No	Particulars	Unit	Stations				
			Kolaghat	Bakreswar	Bandel	Santaldih	Sagardighi
1	Energy sold to licensee from the generating station (Scheduled injection)	MU	6559.112	7205.897	1638.847	2124.138	3451.948
2	Rate of Auxiliary Consumption (normative)	%	9.70%	9.00%	10.05%	9.00%	9.00%
3	Auxiliary consumption (normative) including UI (out)	MU	704.578	712.671	183.106	210.080	341.401
4	Admissible Gross Generation (1)+(3)	MU	7263.690	7918.568	1821.953	2334.218	3793.349
5	Station Heat Rate (Normative)	Kcal/kWh	2700.00	2485.00	2900.00	2425.00	2345.00
6	Total Heat Required (4)×(5)	M.Kcal	19611963.000	19677641.480	5283663.700	5660478.650	8895403.405
7	Specific Oil consumption (Normative)	ml/kWh	2.00	1.30	2.50	1.00	1.00
8	Oil consumption (4)×(7)	KL	14527.380	10294.138	4554.883	2334.218	3793.349
9	Average GCV of Oil (Actual)	K.cal/lit	9454.884	9597.776	9577.008	9530.940	9299.181
10	Heat from oil [(8)×(9)/1000]	M.Kcal	137354.693	98800.831	43622.151	22247.292	35275.039
11	Heat from coal (6)-(10)	M.Kcal	19474608.307	19578840.649	5240041.549	5638231.358	8860128.366
12	Heat value of coal	K.cal/Kg	3305.410	3675.880	3331.850	3747.600	3537.840
13	Coal consumption [(11)/(12) ×1000]	MT	5891737.578	5326300.273	1572712.322	1504491.237	2504389.222
14	Permissible transit loss	%	0.80	0.50	0.80	0.80	0.80
15	Coal requirement with permissible transit loss	MT	5939251.591	5353065.601	1585395.486	1516624.231	2524585.909
16	Average price of oil	Rs/KL	54516.94	54010.18	52745.23	50964.28	56028.47
17	Average price of coal	Rs/MT	3031.35	3279.46	3085.60	3602.21	3656.58
18	Cost of oil [(8)×(16)/100000]	Rs lakh	7919.88	5559.88	2402.48	1189.62	2125.36
19	Cost of coal [(15)×(17)/100000]	Rs lakh	180039.50	175551.65	48918.96	54631.99	92313.50
20	Cost of Fuel (18)+(19)	Rs lakh	187959.38	181111.53	51321.44	55821.61	94438.86
21	Average fuel cost per unit of generation [(20)/(4)×10]	Paise/kWh	258.77	228.72	281.68	239.14	248.96





## Annexure – 2B Computation of UHV of Coal based on Minimum of declared Heat Value

### KOLAGHAT THERMAL POWER STATION

Source of Coal	GRADE OF COAL	COAL CONSUMED (MT) [CLWT <sub>g</sub> ]	LOWER UHV VALUE OF GRADE (Kcal/Kg) [UHVgm]	PRODUCT = UHV X QUANTITY [UHVgm X CLWT <sub>g</sub> ]
(1)	(2)	(3)	(5)	(6) = (3) X (5)
ECL	G3	37479.97	5600	209887832.00
	G4	632761.10	5600	3543462160.00
	G5	611764.34	4940	3022115839.60
	G6	54898.58	4200	230574036.00
	G7	67654.71	4200	284149782.00
	G8	10592.00	3360	35589120.00
MCL	G9	137059.22	3360	460518979.20
	G11	774622.70	2400	1859094480.00
	G13	1443550.78	1300	1876616014.00
BECML	G6	323306.28	4200	1357886376.00
	G7	247701.98	4200	1040348316.00
	G8	79828.77	3360	268224667.20
	G9	32295.02	3360	108511267.20
	G10	10906.16	2400	26174784.00
	G11	7528.90	2400	18069360.00
	G12	7799.40	1300	10139220.00
BCCL	W-III	434360.07	3360	1459449835.20
	W-IV	521845.91	3360	1753402257.60
	G5	115728.86	4940	571700568.40



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IMPORT	G6	118522.45	4200	497794290.00
	G7	13987.46	4200	58747332.00
	G11	469263.40	2400	1126232160.00
	G12	3940.96	2400	9458304.00
	G13	3857.29	1300	5014477.00
E-Auction	G7	27866.90	4200	117040980.00
	G8	19429.95	3360	65284632.00
	G9	9867.50	3360	33154800.00
	G11	14154.99	2400	33971976.00
	G12	17652.78	1300	22948614.00
OTHER (DIVERTED)	G4	126390.00	5600	707784000.00
	G5	98560.00	4940	486886400.00
	G12	82709.67	1300	107522571.00
<b>Sub Total : (A)</b>		<b>6561133.10</b>		<b>21411973930.40</b>
<b>Value of 'X' = <math>\frac{\{\sum(UHVgm \times CLWTg)\}}{\sum CLWTg}</math> = [ (6) / (3) ]</b>				<b>3263.46</b>
<b>Actual Weighted average Heat value of coal</b>				<b>3305.41</b>
<b>Allowable heat value of coal</b>				<b>3305.41</b>



## Annexure – 2C Computation of UHV of Coal based on Minimum of declared Heat Value

### BAKRESWAR THERMAL POWER STATION

Source of Coal	GRADE OF COAL	COAL CONSUMED (MT) [CLWT <sub>g</sub> ]	LOWER UHV VALUE OF GRADE ( Kcal/ Kg ) [UHVgm ]	PRODUCT = UHV X QUANTITY [UHVgm X CLWT <sub>g</sub> ]
(1)	(2)	(3)	(5)	(6) = (3) X (5)
ECL	G3	11445.29	5600	64093624.00
	G4	717466.90	5600	4017814640.00
	G5	139581.04	4940	689530337.60
	G6	14753.20	4200	61963440.00
	G7	6257.40	4200	26281080.00
	G8	72006.77	3360	241942747.20
MCL	G11	90266.50	2400	216639600.00
	G12	308329.67	1300	400828571.00
	G13	1116030.92	1300	1450840196.00
BECML	G5	217972.97	4940	1076786471.80
	G6	543465.43	4940	2684719224.20
	G7	306537.28	4200	1287456576.00
	G8	45473.15	3360	152789784.00
	G9	18643.30	3360	62641488.00
BCCL	G6	17328.21	4200	72778482.00
	G7	48637.97	4200	204279474.00
	W-III	224176.47	3360	753232939.20
	W-IV	372480.77	3360	1251535387.20
IMPORT	G6	314495.86	4940	1553609548.40
	G12	26727.18	1300	34745334.00
E-AUCTION	G12	160178.72	2400	384428928.00



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OTHER (DIVERTED)	G3	11110.80	5600	62220480.00
	G4	407871.63	5600	2284081128.00
	G5	84188.86	4940	415892968.40
	G6	161723.31	4200	679237902.00
	G7	3761.20	4200	15797040.00
	G11	3500.00	2400	8400000.00
	G12	23071.76	1300	29993288.00
	G13	62219.15	1300	80884895.00
	W-III	38648.49	3360	129858926.40
<b>TOTAL</b>		<b>5568350.20</b>		<b>20395304500.40</b>
Value of 'X' = $\frac{\{\sum(\text{UHVgm X CLWTg})\}}{\sum \text{CLWTg}} = [ (6) / (3) ]$				3662.72
Actual Weighted average Heat value of coal				3675.88
Alloweable heat value of coal				3675.88



## Annexure – 2D Computation of UHV of Coal based on Minimum of declared Heat Value

### BANDEL THERMAL POWER STATION

Source of Coal	GRADE OF COAL	COAL CONSUMED (MT) [CLWT <sub>g</sub> ]	LOWER UHV VALUE OF GRADE ( Kcal/ Kg) [UHVgm]	PRODUCT = UHV X QUANTITY [UHVgm X CLWT <sub>g</sub> ]
(1)	(2)	(3)	(5)	(6) = (3) X (5)
ECL	G2	759.00	6200	4705800.00
	G3	26509.20	5600	148451520.00
	G4	250939.83	5600	1405263048.00
	G5	41481.96	4940	204920882.40
	G6	42864.39	4200	180030438.00
	G7	4505.40	4200	18922680.00
	G8	703.00	3360	2362080.00
MCL	G11	57458.79	2400	137901096.00
	G13	431779.20	1300	561312960.00
BECML	G4	3827.71	5600	21435176.00
	G6	22231.38	4940	109823017.20
	G7	49302.50	4200	207070500.00
	G8	22806.56	3360	76630041.60
	G9	18807.03	3360	63191620.80
	G10	7599.43	3360	25534084.80
	G11	3830.79	2400	9193896.00
	G12	3849.77	1300	5004701.00
BCCL	G14	3853.37	1300	5009381.00
	G8	1019.21	3360	3424545.60
	G9	1217.95	3360	4092312.00



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	W-IV	19404.12	3360	65197843.20
IMPORT	G6	132432.53	4200	556216626.00
	G12	284703.65	1300	370114745.00
E-AUCTION	G12	52448.84	1300	68183492.00
OTHER (DIVERTED)	G4	278686.08	5600	1560642048.00
	G5	41466.74	4940	204845695.60
	G13	3542.88	1300	4605744.00
<b>Total :</b>		<b>1808031.31</b>		<b>6024085974.20</b>
Value of 'X' = $\{ \sum(\text{UHVgm X CLWTg}) / \sum \text{CLWTg} \} = [ (6) / (3) ]$				3331.85
Actual Weighted average Heat value of coal				3303.18
Allowable heat value of coal				3331.85



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**Order on FCA of WBPDCCL for the year 2012-2013**



## Annexure – 2E Computation of UHV of Coal based on Minimum of declared Heat Value

### SANTALDIH THERMAL POWER STATION

SOURCE OF COAL	GRADE OF COAL	COAL CONSUMED (MT) [CLWT <sub>g</sub> ]	LOWER UHV VALUE OF GRADE (Kcal/ Kg) [UHVgm]	PRODUCT = UHV X QUANTITY [UHVgm X CLWT <sub>g</sub> ]
(1)	(2)	(3)	(5)	(6) = (3) X (5)
ECL	G4	354289.10	5600	1984018960.00
	G5	25587.58	4940	126402645.20
	G6	7508.26	4200	31534692.00
	G9	3675.45	3360	12349512.00
BCCL	G6	14675.74	4200	61638108.00
	G7	2802.82	4200	11771844.00
	G8	193728.85	3360	650928936.00
	G9	814530.94	3360	2736823958.40
MCL	G12	136041.35	1300	176853755.00
	G13	11254.80	1300	14631240.00
IMPORT	G6	24078.85	4200	101131170.00
E-AUCTION	G12	31791.23	1300	41328599.00
OTHER (DIVERTED)	G13	268.50	1300	349050.00
<b>Total :</b>		<b>1620233.47</b>		<b>5949762469.60</b>
Value of 'X' = $\{ \sum(\text{UHVgm} \times \text{CLWTg}) \} / \sum \text{CLWTg} = [ (6) / (3) ]$				3672.16
Actual Weighted average Heat value of coal				3747.60
Allowable heat value of coal				3747.60





## Annexure – 2F Computation of UHV of Coal based on Minimum of declared Heat Value

### SAGARDIGHI THERMAL POWER STATION

Source of Coal	GRADE OF COAL	COAL CONSUMED (MT) [CLWT <sub>g</sub> ]	LOWER UHV VALUE OF GRADE ( Kcal/ Kg) [UHVgm ]	PRODUCT = UHV X QUANTITY [UHVgm X CLWT <sub>g</sub> ]
(1)	(2)	(3)	(5)	(6) = (3) X (5)
ECL	G3	14352.70	5600	80375120.00
	G4	240995.69	5600	1349575864.00
	G5	243650.32	4940	1203632580.80
	G6	3874.50	4200	16272900.00
	G7	21810.64	4200	91604688.00
	G8	6828.70	3360	22944432.00
MCL	G12	266525.73	1300	346483449.00
	G13	411866.79	1300	535426827.00
BECML	G5	21268.50	4940	105066390.00
	G6	314487.04	4200	1320845568.00
	G7	169414.02	4200	711538884.00
	G8	28945.34	3360	97256342.40
	G9	7347.12	3360	24686323.20
BCCL	G6	13398.22	4200	56272524.00
	G7	3055.91	4200	12834822.00
	W-III	206227.70	3360	692925072.00
	W-IV	117984.05	3360	396426408.00
IMPORT	G5	147974.13	4940	730992202.20
	G6	206489.92	4200	867257664.00
E-AUCTION	G12	101602.01	1300	132082613.00



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OTHER (DIVERTED)	G4	79009.15	5600	442451240.00
	G12	48090.72	1300	62517936.00
Total :		2675198.90		9299469849.60
Value of 'X' =	$\{ \sum(\text{UHVgm X CLWTg}) / \sum \text{CLWTg} \} = [ (6) / (3) ]$			3476.18
Actual Weighted average Heat value of coal				3537.84
Alloweable heat value of coal				3537.84



## Annexure – 2G

### Computation of Weighted Average Calorific Value of Coal

#### KOLAGHAT THERMAL POWER STATION:

Month (2012 - 2013)	Consumption (MT)	Heat Value (Kcal/Kg)	Product
(1)	(2)	(3)	(4) = (2) x (3)
April	468423.00	3305.00	1548138015.000
May	532064.00	3239.00	1723355296.000
June	557352.00	3066.00	1708841232.000
July	569136.00	3190.00	1815543840.000
August	509486.00	3323.00	1693021978.000
September	473070.00	3405.00	1610803350.000
October	549710.00	3410.00	1874511100.000
November	585336.00	3305.00	1934535480.000
December	486567.00	3195.00	1554581565.000
January	473214.00	3306.00	1564445484.000
February	472977.00	3495.00	1653054615.000
March	451067.00	3494.10	1576073204.700
Total	6128402.000		20256905159.700
Weighted average	3305.41		

#### BAKRESWAR THERMAL POWER STATION:

Month (2012 - 2013)	Consumption (MT)	Heat Value (Kcal/Kg)	Product
(1)	(2)	(3)	(4) = (2) x (3)
April	438813	3878.445	1701912085.785
May	486161	3661.225	1779944807.225
June	488631	3485.830	1703284598.730
July	464555	3442.071	1599031293.405
August	458357	3239.040	1484636657.280
September	458964	3763.615	1727363794.860
October	477006	3565.988	1700997671.928
November	398787	3632.549	1448613318.063
December	441856	3684.651	1628085152.256
January	454149	3697.233	1679094669.717
February	422675	3821.503	1615253780.525
March	440716	4298.173	1894273611.868
Total	5430670.000		19962491441.642
Weighted average	3675.88		



**Order on FCA of WBPDC for the year 2012-2013**

**BANDEL THERMAL POWER STATION:**

Month (2012 - 2013)	Consumption (MT)	Heat Value (Kcal/Kg)	Product
(1)	(2)	(3)	(4) = (2) x (3)
April	158803	3347.84	531647035.520
May	160207	3211.46	514498372.220
June	164769	3056.90	503682356.100
July	169623	3102.13	526192596.990
August	104395	3422.59	357301283.050
September	133327	3445.50	459378178.500
October	159404	3481.22	554920392.880
November	112753	3201.06	360929118.180
December	77645	3246.59	252081480.550
January	143578	3290.49	472441973.220
February	117925	3148.90	371334032.500
March	162109	3663.39	593868489.510
Total	1664538.000		5498275309.220
Weighted average	3303.18		

**SANTALDIH THERMAL POWER STATION:**

Month (2012 - 2013)	Consumption (MT)	Heat Value (Kcal/Kg)	Product
(1)	(2)	(3)	(4) = (2) x (3)
April	166214	3859.680	641532851.520
May	202918	3560.023	722392747.114
June	74908	3549.551	265889766.308
July	104206	3375.565	351754126.390
August	105024	3375.435	354501685.440
September	122887	3572.764	439046249.668
October	123114	3836.389	472313195.346
November	104183	3703.640	385856326.120
December	167726	3883.098	651296495.148
January	132592	3781.848	501442790.016
February	125764	3922.566	493317590.424
March	149420	4269.525	637952425.500
Total	1578956.000		5917296248.994
Weighted average	3747.60		



**Order on FCA of WBPDC for the year 2012-2013**

**SAGARDIGHI THERMAL POWER STATION:**

Month (2012 - 2013)	Consumption (MT)	Heat Value (Kcal/Kg)	Product
(1)	(2)	(3)	(4) = (2) x (3)
April	210052.00	3492.349	733574892.148
May	205325.00	3518.952	722528819.400
June	164587.00	3244.865	534062595.755
July	246320.00	3414.460	841049787.200
August	235980.00	3348.920	790278141.600
September	146548.00	3547.067	519815574.716
October	268216.00	3414.733	915886026.328
November	231354.00	3992.183	923607505.782
December	258684.00	3321.441	859203643.644
January	249915.00	3628.055	906705365.325
February	167197.72	3760.262	628707233.003
March	216486.00	3812.329	825315855.894
Total	2600664.720		9200735440.795
Weighted average	3537.84		



## CHAPTER – 3 ORDER

- 3.1 WBPDCCL, in response to the Commission's letter no. WBERC/FPPCA-67/13-14/1965 dated 19.03.2014, submitted the documents showing the amount recovered through energy charges and Monthly Fuel Cost Adjustments (MFCA) during the year 2012 – 2013 vis-à-vis the amount adjusted in energy charges on the basis of the tariff order for 2012 – 2013 duly certified by the auditors vide their letter no. WBPDCCL/WBERC-19/14/1822 dated 25.03.2014.
- 3.2 As per the findings narrated in the preceding chapter and the documents submitted by WBPDCCL vide their letter dated 25.03.2014, WBPDCCL is entitled to an additional recovery of Rs. 95288.57 lakh in respect of Kolaghat, Bakreswar, Bandel, Santaldih and Sagardighi thermal power stations towards Fuel Cost Adjustments (FCA) for the year 2012 – 2013 from its energy recipient i.e., WBSEDCL as per the generating station wise break-up given below:

Generating Station	Sales (MU)	Energy charges recovered as per tariff order (Rs. in lakh)	Amount of MFCA recovered in addition to energy charges recovered as per tariff order of 2012 (Rs. in lakh)	Amount of fuel cost recovered during 2012–2013 (Rs. in lakh)	Amount of fuel cost admitted in FPPCA for 2012–2013 (Rs. in lakh)	Balance amount recoverable for 2012–2013 (Rs. in lakh)
(1)	(2)	(3)	(4)	(5) = [(3)+(4)]	(6)	(7) = [(6)-(5)]
Kolaghat	6559.112	150918.61	3731.42	154650.03	187959.38	33309.35
Bakreswar	7205.897	151446.33	2582.92	154029.25	181111.53	27082.28
Bandel	1638.847	45443.58	545.55	45989.13	51321.44	5332.31
Santaldih	2124.138	45603.11	1023.84	46626.95	55821.61	9194.66
Sagardighi	3451.948	69705.19	4363.70	74068.89	94438.86	20369.97
<b>Total</b>	<b>20979.942</b>	<b>463116.82</b>	<b>12247.43</b>	<b>475364.25</b>	<b>570652.82</b>	<b>95288.57</b>

- 3.3 The recoverable amount of Rs. 95288.57 lakh or part thereof in respect of any of the generating stations of WBPDCCL shall be adjusted with the Aggregate Revenue Requirement of that generating station of WBPDCCL for 2014 – 2015 or that of any other ensuing year or through a separate order, as may be decided by the Commission. The decision of the Commission in this regard will be given



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**Order on FCA of WBPDCCL for the year 2012-2013**

in the APR order for 2012 – 2013 or in the tariff order of WBPDCCL for the year 2014 – 2015 or through a separate order.

3.4 WBPDCCL is directed to take note of this order of the Commission.

**Sd/-  
(SUJIT DASGUPTA)  
MEMBER**

**DATE: 06.06.2014**