



**ORDER
OF THE
WEST BENGAL ELECTRICITY REGULATORY
COMMISSION
IN CASE NO.
FPPCA – 54/11-12**

**IN RE APPLICATION OF THE CESC LIMITED
FOR FUEL & POWER PURCHASE
COST ADJUSTMENT (FPPCA) FOR
THE FINANCIAL YEAR 2010- 2011**

**PRESENT:
SRI PRASADRANJAN RAY, CHAIRPERSON
SRI SUJIT DASGUPTA, MEMBER**

DATE: 19.10.2012



CHAPTER – 1 INTRODUCTION

- 1.1 CESC Limited (in short “CESC”) submitted its application for ascertaining the fuel and power purchase cost adjustments (FPPCA) for the financial year 2010-11 on 12 September, 2011 in terms of regulation 2.8.7 of the West Bengal Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2011 which came into effect from 29.04.2011 in replacement of the West Bengal Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2007, as amended (hereinafter referred to as the ‘repealed Tariff Regulations’). Subsequent to their submission of FPPCA application for 2010 – 2011, some amendments to the West Bengal Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2011 was made vide notification no. 49/WBERC dated 27th August, 2012 issuing West Bengal Electricity Regulatory Commission (Terms and Conditions of Tariff) (Amendment) Regulations, 2012 and the instant application is to be dealt with as per the provisions of the West Bengal Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2011 along with the amendment thereof (hereinafter referred to as the ‘Tariff Regulations’). In terms of regulation 2.1.15 of the Tariff Regulations, such admissible fuel and power purchase costs are to be worked out with reference to the actual quantum of energy sold to its own consumers and to other licensee(s) during the concerned adjustment period applying the following formula specified in Schedule – 7A to the Tariff Regulations on the basis of normative parameters as was used in the tariff order for 2010-11 and also on the basis of regulation 4.8.1 of the repealed Tariff Regulations.
- 1.2 The Fuel and Power Purchase Cost (FPPC) during the referred adjustment period, i.e., financial year 2010 – 2011, is to be admitted in terms of the following formula as specified by the Commission in schedule 7A to the Tariff Regulations.



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$$\text{"FPPC (In Rs.)} = \{FC + (PPC - C_D) + (\pm A)\}$$

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) FPPC: Re-determined Fuel and Power Purchase Cost against application of FPPCA.
- iii) FC: 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 to own consumers and / or licensee during the adjustment period in accordance with the following methodology:

t = Norms of Transmission and Distribution loss in % considered for sale of power from licensee to licensee

d = Norms of distribution loss in %

E_O = Admitted Energy for own consumption by licensee,

E_{SL} = Energy sale to other licensee in MU

E_{SC} = Energy sale to consumer in MU

Fuel-Cost = Fuel cost at generation bus of own generating stations
= Cost determined on the basis of normative parameters of SHR and oil consumption rate against actual level of energy sent out plus normative auxiliary energy consumption.

FC_{IUC} = Per unit of Fuel Cost at distribution input
= Fuel-Cost ÷ Actual overall energy available at input of the distribution system which includes power purchase from different services.



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FC_{Adm_d} = Admitted Fuel Cost for sale to licensee

$$= \frac{E_{SL}}{(1 - t \times 0.01)} \times FC_{IUC}$$

FC_{Adm_C} = Admitted Fuel Cost for sale to consumer

$$= \frac{E_{SC} + E_O}{(1 - d \times 0.01)} \times FC_{IUC}$$

FC = FC_{Adm_d} + FC_{Adm_C}

iv) PPC (Rs.): Total cost incurred including the cost for fuel for power purchase from different sources commensurate with actual level of energy sales during the adjustment period.

v) C_D (Rs.): Cost disallowable by the Commission as per following methods:

Let d = Norms of distribution loss in %

t = Norms of Transmission and Distribution loss in % considered for sale of power from licensee to licensee

E_g = Actual energy sent out in MU from own generating station

E = Excess amount of auxiliary energy consumption in MU,

E_P = Total energy purchased in MU

E_O = Admitted Energy for own consumption by licensee

E_{SC} = Energy sale to consumer in MU

E_{SL} = Energy sale to other licensee in MU

E_{Adm} = Admitted amount of energy entitled for purchase

$$= \frac{E_{SC} + E_O}{(1 - d \times 0.01)} + \frac{E_{SL}}{(1 - t \times 0.01)} - E - E_g$$

E_E = Excess energy purchased = $E_P - E_{Adm}$



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$$C_D = E_E \times EP_{Avg}$$

When EP_{Avg} = Average cost of power purchase.

- vi) A: Adjustment, if any, to be made in the current period to account for any claim due to excess / shortfall in recovery of fuel and power purchase 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 licensee has already incurred such expenses. (-A) shall be considered as the amount to be refunded to the consumer and purchaser of electricity under the purview of the Commission because such amount of less expenses has been incurred by the licensee against any prior period adjustment.
- vii) Such re-determined fuel and power purchase cost (FPPC) of the licensee will be further adjusted for gain sharing as per Schedule – 9B for the parameters related to fuel cost to the extent it has impact in the fuel cost.”

1.3 The schedule – 9B to the repealed Tariff Regulations, contains provisions for sharing the gains derived by the licensee, if any, on account of its better performances over the operating and fuel consumption norms set by the Commission for the concerned year. The operational parameters which are to be considered for such sharing the gains accrued to the licensees are:

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

1.3.1 The referred schedule 9B to the repealed Tariff Regulations and the amendment thereof also provides that in case availability of a generating



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station of the licensee falls below the availability norm, then the total gains meant to be passed on to the consumers under the items (i) to (iii) above, is first to be used to compensate the deficit in the recovery of the fixed charges, if any, by the licensee.

- 1.4 Before ascertaining the amount of admissible fuel and power purchase cost as well as the amount of gains to be shared with the consumers and other licensees under the provisions of the repealed Tariff Regulations explained in earlier paragraphs, it needs to view the actual performances of CESC 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 here.

Sl No	Power Station	Particulars	Unit	As per Tariff Order / Norms	As per Actual
1	Budge Budge Units 1, 2 & 3 (Stabilized Operation)	Rate of Auxiliary Consumption	%	9.00	8.67
		Specific Consumption of Oil	MI/Kwh	1.50	0.77
		Station Heat Rate	kCal/kWh	2530	2094
2	Budge Budge Unit 3 (Stabilization period)	Rate of Auxiliary Consumption	%	9.00	8.28
		Specific Consumption of Oil	MI/Kwh	1.50	1.49
		Station Heat Rate	kCal/kWh	2580	2083
3	Southern	Rate of Auxiliary Consumption	%	9.00	9.34
		Specific Consumption of Oil	MI/Kwh	2.30	1.33
		Station Heat Rate	kCal/kWh	2915	2836
4	Titagarh	Rate of Auxiliary Consumption	%	9.00	8.17
		Specific Consumption of Oil	MI/Kwh	2.30	1.09
		Station Heat Rate	kCal/kWh	2925	3031
5	New Cossipore	Rate of Auxiliary Consumption	%	9.65	10.68
		Station Heat Rate	kCal/kWh	5125	5552



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The unit 3 of Budge Budge Generating Station commenced Commercial Operation with effect from 28 February, 2010 and thereafter being stabilized. The details of generation from the units 1, 2 and 3 during stabilized operation and generation from unit 3 during stabilization period for the year 2010 – 2011 are given separately.

- 1.5 As may be seen from the above statement, CESC succeeded in making improvements in auxiliary consumption in the generating stations at Budge Budge and Titagarh and oil consumption in the Budge Budge, Southern and Titagarh. Part of the benefits accrued to it in financial terms will, therefore, need to be passed on to its consumers and other licensees in terms of the provisions of Schedule 9B to the repealed Tariff Regulations.
- 1.6 The actual performances of CESC in respect of gross station heat rates in Budge Budge and Southern generating stations are found better than the norms considered in the tariff order for the concerned year. It will, therefore, require to share the benefits (in the financial terms) accrued to it in that respect in the manner as provided in paragraph A3 of the Schedule 9B to the repealed Tariff Regulations.
- 1.7 The norm for distribution loss of CESC for the year 2010 – 2011 was considered to be 14.75% in the tariff order. As it comes out from the data as provided by CESC for the year 2010 – 2011, the actual rate of distribution loss experienced by CESC on the quanta of sales to consumers, sales to WBSEDCL and on its own consumption works out at 12.78% as shown below:

Sl No	Particulars	Figures in Million Units
Inputs to System		
(a)	Gross Generation	8756.372
(b)	Less: Auxiliary consumption	761.226
(c)	Net Sent Out Energy [(a) – (b)]	7995.146
(d)	Sale to persons other than Consumers and WBSEDCL including Transmission loss to effect that sale	109.854



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(e)	Net energy available from own generation for sale to consumer and WBSEDCL [(c) – (d)]	7885.292
(f)	Energy purchased during the year	1523.481
(g)	Unscheduled Interchange (Net)	- 16.070
(h)	Delivered to the system [(e)+(f)-(g)]	9392.703
Utilization		
(i)	Sales to Consumers and WBSEDCL (including sale from generation of Unit-3 of Budge Budge Generating Station during stabilization period)	8173.391
(j)	Admitted energy for own consumption	19.000
(k)	Distribution loss to effect sale to consumers, sale to WBSEDCL and own consumption.	1200.312
(l)	Distribution loss in %	12.78

- 1.8 The actual sale to consumer and WBSEDCL is 8173.391 MU. Energy consumed in the own premises is 19.447 MU as against the admitted energy of 19.00 MU in the Tariff order for the concerned year. The allowable quantum of distribution loss on actual quanta of sales to consumers and WBSEDCL as well as the admitted energy for own consumption works out at 1417.452 MU and actual quanta of distribution loss @ 12.78% against that sale and own consumption works out at 1200.312 MU. The savings in this regard thus comes to 217.140 MU (1417.452 MU – 1200.312 MU). As provided in paragraph D of Schedule – 9B to the repealed Tariff Regulations, CESC is entitled to retain the gains accruing to it in this regard.
- 1.9 The re-determination of the amount of fuel and power purchase cost that can be allowed to CESC, after carrying out the adjustments towards gain sharing and the accrual of benefits for savings in the quanta of distribution loss, is being taken up in the next chapter.



CHAPTER – 2 COMPUTATION OF THE ALLOWABLE AMOUNT OF FUEL & POWER PURCHASE COST

2.1 The Commission now proceeds to determine the fuel and power purchase costs allowable to CESC in terms of the formula in this regard as referred to in paragraph 1.1 in the earlier chapter.

2.2 F.C.: FUEL COST:

2.2.1 Fuel cost of own generation is to be allowed as per normative parameters fixed by the Commission, or on actual basis in absence of any norms, and heat value of coal as may be allowed under regulation, commensurate with actual level of energy sales to own consumers and / or licensees during the adjustment period. The fuel costs to be allowed to CESC for the year 2010 – 2011 for its different power stations shall be based on the following fuel consumption norms:

Particulars	Unit	Budge Budge Units 1, 2 & 3 (Stabilized Operation)	Budge Budge Unit 3 (Stabilization Period)	Southern	Titagarh	New Cossipore
Station Heat Rate	Kcal/Kwh	2530.00	2580.00	2915.00	2925.00	5125.00
Specific Oil Consumption	MI/Kwh	1.50	1.50 ml/kWh which can be exceeded upto 3.5 ml/kWh	2.30	2.30	N.A.
Transit loss of Coal	%	1.00	1.00	1.00	1.00	1.00

2.2.2 On the basis of normative parameters as stated above and normative rate of auxiliary consumption as referred to in paragraph 1.4, the amount of fuel cost allowable to CESC for effecting sales to its consumers and WBSEDCL comes to Rs. 157123.84 lakh as per computations given in Annexure – 2A. The explanatory notes in this regard are as under:



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2.2.2.1 Out of the total ex-bus generation of 7995.146 MU, CESC utilized 109.854 MU to effect sales to persons other than its consumers and WBSEDCL. This quantum has been apportioned among Budge Budge, Southern and Titagarh Power Stations in the ratio of ex-bus generations from those generating stations.

2.2.2.2 The weighted average calorific values of coal and oil are, however, variable factors for assessing the quantity of coal and oil requirements and depend on the actual grade mix of their use in the power stations. Moreover, the declared Heat Value of each grade of coal varies between ranges. The weighted average heat value of coal for each generating station of CESC, as considered in the tariff for the year 2010 – 2011, was based on the mid value of the range of the proposed grade mix of use. With reference to actual grade mix of coal and oil at different generating station, CESC computed and claimed heat value of coal and heat value of oil as under:

Generating Station	Heat Value of Coal (Kcal/Kg)	Heat Value of Oil (Kcal/Litre)
Budge Budge Units 1, 2 & 3 (Stabilized Operation)	3432.00	9555.00
Budge Budge (Unit 3 during stabilization period)	3323.00	9555.00
Southern	3967.00	9612.00
Titagarh	4676.00	9529.00
New Cossipore	5655.00	N.A.

Heat value of coal, as referred to above, for each of the generating stations, has been computed based on the lower value of the range of the actual grades of coal used for the supply sourced from Coal India Limited (in short "CIL") and actuals on supplies received from other sources including imports.



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The heat value of coal and oil as claimed by CESC are found admissible in terms of regulation 4.8 of the repealed Tariff Regulations.

2.2.2.3 The weighted average price of coal and oil, as certified by the auditors, came as under:

Generating Station	Price of Coal (Rs/MT)	Price of Oil (Rs/KL)
Budge Budge Units 1, 2 & 3 (Stabilized Operation)	1946.13	54521.96
Budge Budge Unit 3 (during stabilization period)	1810.26	49265.71
Southern	2468.22	49882.71
Titagarh	3118.76	42374.60
New Cossipore	5077.43	N.A.

The above prices are inclusive of freight charges which also includes payment made to Kolkata Port Trust for Southern generating station.

2.3 PPC: POWER PURCHASE COST:

2.3.1 The power purchase requirement of CESC during 2010 – 2011 was considered 1058.00 MU; vide the statement of Energy Balance at paragraph 5.7 of the Tariff order dated 30 September, 2008 for the concerned year. The total quanta of actual purchase and the cost incurred thereon are as under:

Sources	Quantum MU	Cost incurred (Rs in lakh)
WBSEDCL	1177.973	53405.72
Indian Energy Exchange (IEX)	85.804	3114.92
RPGTCL	242.527	9100.47
NTPC Vidyut Vyapar Nigam Ltd. (NVTNL)	0.470	25.92
National Energy Trading Services Limited (NETSL)	16.707	895.38
Total	1523.481	66542.41



2.4 C_D : COST DISALLOWABLE:

2.4.1 Factor C_D, as referred to in the FPPCA formula mentioned in paragraph 1.1 in the earlier chapter, stands for cost as to be found disallowable by the Commission as per the methodology specified in the FPPCA formula referred to in Chapter - 1. It has been observed that CESC succeeded in sending out generation from each of its generating stations (including prorated sent out generation from 3rd unit of Budge Budge generating station) except New Cossipore generating station a considerable quantum in excess of the target set for the concerned year. It also succeeded in keeping the rate of distribution loss much below the norm considered for the year. Paragraphs 1.6 and 1.7 in the earlier chapter may be referred to in this regard. No part of the fuel and power purchase cost is found disallowable and hence, value of factor C_D is nil.

2.5 (±) A: PRIOR PERIOD'S ADJUSTMENTS:

2.5.1 Factor A in the referred FPPCA formula signifies the adjustment, if any, to be made in the current period to account for any excess / shortfall in the recovery of fuel and power purchase cost for the past period. CESC did not ask for any such adjustment and no such adjustment is also found necessary. The value of this factor is, therefore, considered NIL.

2.6 Computations of the aggregate allowable amount of fuel and power purchase cost:

2.6.1 The aggregate amount of fuel and power purchase cost, commensurate with the actual quantum of sale to the consumers and to the licensee (WBSEDCL), that can be allowed to CESC works out to Rs. 227023.90 lakh with the break-up as given hereunder. The detailed computations in this regard are shown in Annexure – 2B and Annexure – 2C. This amount, however, is inclusive of the amounts of gains derived to CESC on account of



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its better performances on different parameters of operations and fuel consumption norms:

SI No	Particulars/Factors	Rs. in Lakh
1	FC: Fuel cost	160481.49
2	PPC: Power purchase cost	66542.41
3	C _D : Cost disallowable	0.00
4	±A :Adjustment relating to earlier period	0.00
5	FC+(PPC-C_D) ± A	227023.90

Annexure - 2A
ADMISSIBLE FUEL COST

Sl No	Particulars	Unit	Budge Budge Units 1, 2 & 3 (Stabilized Operation)	Budge Budge Unit 3 (stabilisation period)	Southern	Titagarh	New Cossipore	Total
1	Ex-bus Generation	MU	4216.332	754.185	986.965	1713.623	324.041	7995.146
2	Ex-bus Generation utilized to effect sales to persons other than consumers and WBSEDCL	MU	60.380	10.800	14.134	24.540	0.000	109.854
3	Energy sent-out from own generation for the consumers and WBSEDCL (1 - 2)	MU	4155.952	743.385	972.831	1689.083	324.041	7885.292
4	Rate of Normative Auxiliary Consumption	%	9.00	9.000	9.00	9.00	9.65	-
5	Normative Auxiliary Consumption	MU	411.028	73.522	96.214	167.052	34.610	782.426
6	Gross Generation to effect sales to consumers and WBSEDCL (3+5)	MU	4566.980	816.907	1069.045	1856.135	358.651	8667.718
7	Normative Station Heat Rate	Kcal/Kwh	2530.000	2580.000	2915.000	2925.000	5125.000	-
8	Station Heat Rate Required (6x7)	M.Kcal	11554459.400	2107620.060	3116266.175	5429194.875	1838086.375	24045626.885
9	Specific Oil Consumption	MI/Kwh	1.50	1.500	2.30	2.30	0.00	-
10	Normative Oil Consumption on generation for sale to consumers and WBSEDCL (6x9)	KL	6850.470	1225.361	2458.804	4269.111	0.000	14803.746
11	Weighted Average Heat Value of Oil	Kcal/Ltr	9555.00	9555.000	9612.00	9529.00	0.00	-
12	Heat from Oil [(10X11)/1000]	M.Kcal	65456.241	11708.324	23634.024	40680.359	0.000	141478.948
13	Heat from Coal (8-12)	M.Kcal	11489003.159	2095911.736	3092632.151	5388514.516	1838086.375	23904147.937
14	Weighted Average Heat Value of Coal	Kcal/Kg	3432.00	3323.000	3967.00	4676.00	5655.00	-
15	Coal required for consumption [(13/14)*1000]	MT	3347611.643	630728.780	779589.652	1152376.928	325037.378	-
16	Coal required with transit loss	MT	3381425.902	637099.778	787464.295	1164017.099	328320.584	-
17	Weighted Average Price of Oil	Rs/KL	54521.96	49265.71	49882.71	42374.60	0.00	-
18	Weighted Average Price of Coal	Rs/MT	1946.13	1810.26	2468.22	3118.76	5077.43	-
19	Cost of Oil (10X17)	Rs. in Lakh	3735.01	603.68	1226.52	1809.02	0.00	7374.23
20	Cost of Coal ((16X18)	Rs. in Lakh	65806.94	11533.16	19436.35	36302.90	16670.25	149749.61
21	Admissible Cost of fuel (19+20)	Rs. in Lakh	69541.95	12136.85	20662.87	38111.92	16670.25	157123.84
22	Average Cost of Generation at Generation Bus (21/6)	Paise/kWh	152.27	148.57	193.28	205.33	464.80	181.27



ANNEXURE – 2B COMPUTATIONS OF ALLOWABLE FUEL AND POWER PURCHASE COST

Factor Notation	Nomenclature	Unit	Value
t	Norms of Transmission and Distribution loss considered for sale to licensee	%	14.75
d	Norms of distribution loss for sale to consumers	%	14.75
E _O	Admitted energy for own consumption	MU	19.000
E _{SL}	Energy sale to licensee (WBSEDCL)	MU	38.479
E _{SC}	Energy sale to consumer	MU	8134.912
Fuel Cost	Fuel cost for generation on normative parameters (Refer Annexure – 2A)	Rs. in Lakh	157123.84
FC _{IUC}	Per unit Fuel Cost at distribution input (Refer para A of Annexure – 2C)	Paise/Kwh	166.997
FC _{Adm_d}	Admissible Fuel Cost for sale to licensee (Refer para B of Annexure – 2C)	Rs. in Lakh	753.77
FC _{Adm_C}	Admissible Fuel Cost for sale to consumer (Para – C of Annexure 2C)	Rs. in Lakh	159727.72
FC	Allowable fuel cost (Refer para D of Annexure 2C)	Rs. in Lakh	160481.49
PPC	Power Purchase Cost (Refer Para 2.3)	Rs. in Lakh	66542.41



ANNEXURE – 2C

A. Fuel Cost per Unit (Kwh) at Distribution			
	Input	Unit	Amount
(i)	Fuel Cost (As per Annexure – 2A)	Rs. in Lakh	157123.84
(ii)	Energy sent out from own generation for the consumers and licensee	MU	7885.292
(iii)	Purchase	MU	1523.481
(iv)	$FC_{IUC} [(i)/\{(ii)+(iii)\}]$	Paise/Kwh	166.997

B. Admissible Fuel Cost for Sale to Licensee			
		Unit	Amount
(i)	$\frac{E_{SL}}{(1-t \times 0.01)} \times FC_{IUC} = \frac{38.479 \text{ MU}}{0.8525} \times 166.997$	Rs. in Lakh	753.77

C. Admissible Fuel Cost for sale to Consumers			
		Unit	Amount
(i)	$\frac{E_{sc} + E_o}{(1-d \times 0.01)} \times FC_{IUC} = \frac{(8134.912+19.000) \text{ MU}}{0.8525} \times 166.997$	Rs. in Lakh	159727.72

D. Allowable Fuel Cost for Sale to Licensee and to Consumers			
		Unit	Amount
(i)	B + C	Rs. in Lakh	160481.49

E. Excess/(Savings in Auxiliary Consumption)						
Figures in MU						
Generating Station	Energy sent out for Licensee and Consumers	Normative Rate of Auxiliary Consumption	Normative Auxiliary Consumption	Actual Rate of Auxiliary Consumption	Actual Auxiliary Consumption	Savings
Budge Budge Unit 1,2 & 3 (Stabilized Operation)	4155.952	9.00%	411.028	8.67%	394.557	16.471
Budge Budge Unit – 3 (Stabilization Period)	743.385	9.00%	73.522	8.28%	67.146	6.376
Southern	972.831	9.00%	96.214	9.34%	100.226	0.00
Titagarh	1689.083	9.00%	167.052	8.17%	150.207	16.845
New Cossipore	324.041	9.65%	34.610	10.68%	38.745	0.00
Total	7885.292	-	782.426	-	750.881	39.692



CHAPTER – 3 SHARING OF GAINS WITH THE CONSUMERS AND LICENSEE (WBSEDCL)

3.1 The amount of re-determined fuel and power purchase cost, i.e. Rs. 227023.90 lakh, as shown in paragraph 2.6 in the previous chapter, is inclusive of the amounts of gains derived by CESC on account of its better performances on different parameters of operational and fuel consumption norms. As mentioned in paragraph 1.6, CESC is required to pass on part of such gains derived by it to its consumers and WBSEDCL. The amounts of gains attributable to the consumers and WBSEDCL are being viewed and ascertained hereafter.

3.2 Gain Sharing for better Oil Consumption Rate:

3.2.1 The actual specific oil consumption rates for Budge Budge [Units 1, 2 & 3 (Stabilized Operation) and Unit 3 (Stabilization period)], Southern and Titagarh generating stations are found better than the normative rate as considered in tariff order. The actual rate of oil consumption vis-à-vis rate of specific oil consumption as per tariff order/ norms for the respective year for Budge Budge [Units 1, 2 & 3 (Stabilized Operation) and Unit 3 (Stabilization period)], Southern and Titagarh Generation Station are given hereunder:

Figures in MI/Kwh

Generating Station	As per Tariff Order/ Norms	Actual as per submission	Savings
Budge Budge [(1, 2 & 3 (Stabilized Operation))]	1.50	0.77	0.73
Budge Budge [(3 (Stabilization Period))]	1.50	1.49	0.01
Southern	2.30	1.33	0.97
Titagarh	2.30	1.09	1.21

3.2.2 With reference to actual generation for effecting supply to the consumers and to WBSEDCL, the normative and actual consumption of oil at above mentioned specific consumption rate works out as under:



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SI No	Particulars	Unit	Budge Budge Unit 1, 2 & 3 (Stabilized Operation)	Budge Budge Unit 1, 2 & 3 (Stabilization period)	Southern	Titagarh	Total
1	Energy sent-out for the consumers and WBSEDCL	MU	4155.952	743.385	972.831	1689.083	
2	Actual rate of Auxiliary Consumption	%	8.67	8.28	9.34	8.17	
3	Gross generation for consumers and WBSEDCL	MU	4550.509	810.531	1073.057	1839.290	
4	Normative Oil consumption rate	MI/kwh	1.50	1.50	2.30	2.30	
5	Actual Oil consumption rate	MI/kwh	0.77	1.49	1.33	1.09	
6	Oil Consumption at normative rates	KL	6825.76	1215.80	2468.03	4230.37	
7	Oil Consumption at actual rates	KL	3500.85	1207.69	1432.31	2003.88	
8	Category		B	B	C	C	
9	Percentage of gain sharing attributable to consumers and WBSEDCL	%	35%	45%	35%	30%	
10	Average rate of Oil	Rs./KL	54521.96	49265.71	49882.71	42374.60	
11	Cost of Oil on normative consumption (6X10)	Rs. in Lakh	3721.54	598.97	1231.12	1792.60	
12	Actual Cost of Oil (7X10)	Rs. in Lakh	1908.73	594.98	714.48	849.13	
13	Gains accrued on saving of Oil (11-12)	Rs. in Lakh	1812.81	3.99	516.64	943.47	
14	Share of gains attributable to consumers and WBSEDCL (In terms of categorization and criteria as per para A1 of Schedule 9B to Tariff Regulations)	Rs. in Lakh	634.48	1.80	180.83	283.04	1100.15

3.3 Gain Sharing for Better Rate of Auxiliary Consumption:

3.3.1 As shown in paragraph E in Annexure – 2C to the previous chapter, the savings arising out of difference between normative quanta of auxiliary consumption on generation meant for supply of power to the consumers and WBSEDCL and actual such consumption were found as given hereunder. The entire benefits of savings in the quanta of auxiliary consumption have been passed on to CESC while computing the amount of allowable fuel and



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power purchase cost as shown in Annexure – 2B in the previous chapter. Such benefits have been valued in monetary terms at the average rate of cost of generation of the respective generation station. In terms of paragraph A2 of Schedule 9B to the repealed Tariff Regulations, part of the gains so derived by CESC requires to be passed on to the consumers and WBSEDCL. Share to be passed on works out as under:

Generating Station	Savings in Auxiliary Consumption (MU)	Cost of Generation (Paise / kWh)	Monetary value of Savings (Rs. in Lakh)	Share to consumers & WBSEDCL	Amount (Rs. in Lakh)
Budge Budge [(1, 2 & 3 (Stabilized Operation))]	16.471	152.27	250.80	40%-	100.32
Budge Budge Unit 3 (Stabilization Period)	6.376	148.57	94.73	30%	28.42
Southern	0.00	193.28	-	-	-
Titagarh	16.845	205.33	345.88	25%	86.47
New Cossipore	0.00	464.80	-	-	-
Total	39.692	-	691.41	-	215.21

3.4 Share of Savings in Cost of Coal for achieving better Station Heat Rates:

3.4.1 The normative Station Heat Rates considered in the tariff order for 2010 – 2011 for different generating stations of CESC with reference to their respective design station heat rates and vintages were as under:

Generating Station	Station Heat Rates as per Norm set (Kcal/kWh)
Budge Budge [(1, 2 & 3 (Stabilized Operation))]	2530
Budge Budge Unit 3 (Stabilization Period)	2580
Southern	2915
Titagarh	2925
New Cossipore	5125

3.4.2 The allowable cost of fuel at different generating stations, as computations shown in Annexure – 2A, was ascertained based on such normative station heat rates. It has been seen that CESC succeeded in achieving better Station Heat Rates in all the generating stations except at Titagarh and New



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Cossipore where the rate exceeded the rate considered in tariff order for the concerned year. CESC, thus, could derive some gains by way of saving the fuel cost in the generating stations at Budge Budge and Southern. In terms of Schedule 9B to the repealed Tariff Regulations, part of such gains derived by the savings in the cost of coal are to be passed on to the consumers and to WBSEDCL. However, CESC experienced higher station Heat Rate than the norms in the generating station at Titagarh and at New Cossipore and suffered loss due to higher station heat rate. CESC in their petition prayed to pass on 50% of the loss suffered by them at New Cossipore generating station due to higher station heat rate to the consumers as a portion of the gain achieved in the other generating stations are to be passed on to the consumers. In their application CESC has also given the justification for running the old power station at New Cossipore during peak hours. Since any losses suffered by the licensee in any generating station for achieving operating norms, are on the account of the licensee the loss suffered by CESC at New Cossipore Generating Station cannot be passed on to the consumer.

- 3.4.3 Following the methodology enunciated by the Commission in paragraph A3 of Schedule 9B to the repealed Tariff Regulations, share of such gains attributable to the consumers and WBSEDCL is 20% for Budge Budge [(1, 2 & 3 (Stabilized Operation)] and Budge Budge Unit 3 (Stabilization Period). The same for Southern generating station come to 25%. The total amount so to be passed on to consumers comes to Rs. 3016.60 lakh with the following station wise break-up:

	Rs. in Lakh
Budge Budge [(1, 2 & 3 (Stabilized Operation)]	2390.13
Budge Budge Unit 3 (Stabilized Period)	479.78
Southern	146.69
Total	3016.60



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3.4.4 The computations in these regards may be seen at Annexure – 3A.

3.5 Benefits for savings in Distribution Loss:

3.5.1 As analyzed in paragraph 1.7 and 1.8 in Chapter – 1, CESC could save 217.140 MU by making improvements in the extent of distribution loss. In terms of Section – D of the Schedule 9B to the repealed Tariff Regulations, CESC is allowed to retain the entire benefits for such savings. Such benefits in monetary terms work out as under:

Sl. No.	Particulars	Quantum (MU)	Amount (Rs. in Lakh)
1	Ex-bus generation for sale to consumers and WBSEDCL and Fuel cost thereon (Vide Annexure 2A)	7885.292	157123.84
2	Purchase of Energy (vide paragraph 2.3 of Chapter 2)	1523.481	66542.41
3	Total	9408.773	223666.25
4	Average cost per unit in the Distribution System	-	237.72 Paise/kWh
5	Cost of quantity saved (vide paragraph 1.7 of Chapter 1)	217.140	5161.85

3.5.2 Out of the amount of Rs. 5161.85 lakh computed above, a total amount of Rs. 3357.65 lakh (Rs. 160481.49 lakh – Rs. 157123.84 lakh) has already been passed on to CESC while computing the allowable fuel costs for sales to WBSEDCL and the consumers by way of adopting the normative rate of distribution loss in the denominator of the fraction for such computation. The balance amount of Rs. 1804.20 lakh (Rs. 5161.85 lakh – Rs. 3357.65 lakh) is now being allowed.



ANNEXURE – 3A

COMPUTATIONS OF THE SHARE OF SAVINGS IN COST OF COAL ON ACCOUNT OF ACHIEVING BETTER STATION HEAT RATE

SI No	Particulars	Factor Notation	Unit	Budge Budge [(1, 2 & 3 (Stabilized Operation))]	Budge Budge Unit 3 (Stabilization Period)	Southern	Titagarh	New Cossipore	Overall
1	Design Station Heat Rate	D	Kcal/Kwh	2252	2220	2707	2659	2920	-
2	Gross Station Heat Rate considered for the year	SHR _n	Kcal/Kwh	2530	2580	2915	2925	5125	-
3	Ratio of SHR _n to D	-	-	1.124	1.162	1.077	1.100	1.755	-
4	Categorization of Generating Stations as per Regulations	-	-	C	C	B	C	C	-
5	SHR/SHR _n	-	-	Less than 0.96	Less than 0.96	Less than 0.98 and greater than 0.97	More than 1.00	More than 1.00	-
6	Generation (net of units used for sale to persons other than own consumers and WBSEDCL vide Annexure – 2A)	-	MU	4566.980	816.907	1069.045	1856.135	358.651	8667.718
7	Cost of Coal for sale to own consumers and WBSEDCL (Vide Annexure – 2A)	-	Rs./Lakh	65806.94	11533.16	19436.35	36302.90	16670.25	149749.60
8	Proportionate actual use of coal in generation for supply to consumers and WBSEDCL (As per audit certification)	-	MT	2767353.59	504582.31	763691.39	1188074.11	356162.31	5579863.71
9	Actual cost of Coal used for supply to consumers and WBSEDCL	-	Rs./Lakh	53856.30	9134.25	18849.58	37053.18	18083.89	136977.21
10	Savings in cost of Coal for achieving better Station Heat Rate (7-9)	-	Rs./Lakh	11950.64	2398.91	586.77	0.00	0.00	
11	Share of Savings in cost attributable to consumers and WBSEDCL	-	%	20.00	20.00	25.00	0.00	0.00	
12	Share of Savings in cost attributable to consumers and WBSEDCL	-	Rs./Lakh	2390.13	479.78	146.69	0.00	0.00	3016.60



CHAPTER – 4 ORDER

- 4.1 The analyses in the earlier chapters show that the amount of fuel cost computed on the basis of normative parameters and in terms of the specified FPPCA formula comes to Rs. 160481.49 lakh. The amount is inclusive of the gains accrued on to CESC for its better performances in regard to fuel consumption norms. In terms of Schedule 9B to the repealed Tariff Regulations, a part of such gains is to be passed on to the consumers and WBSEDCL. Such shares attributable to them have been worked out in chapter – 3. The net amount of fuel cost allowable to CESC after carrying out adjustments of the shares of gains attributable to the consumers and WBSEDCL comes as under:

Sl. No.	Particulars	Amount (Rs. in Lakh)	Amount (Rs. in Lakh)
1	Fuel Cost on normative basis		160481.49
2	Less: Shares of gains attributable to consumers and WBSEDCL		
	i) cost saving on use of Oil	1100.15	
	ii) on improvement in the rate of Auxiliary Consumption	215.21	
	iii) for achieving better Station Heat Rate	3016.60	4331.96
3	Net amount of allowable fuel cost		156149.53

- 4.2 Station-wise break-up of the allowable fuel cost is given below:

Sl. No.	Particulars	Amount (Rs. in Lakh)					Total
		Budge Budge [(1, 2 & 3 (Stabilized Operation)]	Budge Budge Unit 3 (Stabilization Period)	Titagarh	Southern	New Cossipore	
1	Fuel cost on normative basis	71029.11	12391.00	38927.45	21108.96	17024.97	160481.49
2	Less: Share of Gains attributable to Consumers and WBSEDCL						
	i) Cost saving on use of OIL	634.48	1.80	283.04	180.83	-	1100.15
	ii) On improvement in the rate of Auxiliary Consumption	100.32	28.42	86.47	-	-	215.21
	iii) For achieving better Station Heat Rate	2390.13	479.78	-	146.69	-	3016.60
	Total (2)	3124.93	510.00	369.51	327.52	-	4331.96
3	Net amount of allowable fuel cost (1-2)	67904.18	11881.00	38557.94	20781.44	17024.97	156149.53



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- 4.3 Actual amount of power purchase cost incurred by CESC for purchasing 1523.481 MU from different sources, as enumerated in paragraph 2.3.1 is Rs. 66542.41.
- 4.4 An additional amount of Rs. 1804.20 lakh is found admissible to CESC on account of savings in the rate of distribution loss as shown in paragraph 3.5.2.
- 4.5 Summing up the findings as stated above, the net amount of fuel and power purchase cost allowed to CESC for the year 2010 – 2011 comes as under:

	Rs. in Lakh
Fuel Cost (net of shares attributable to persons other than consumers and WBSEDCL).	156149.53
Power Purchase Cost	66542.41
Additional amount on account of savings in the rate of Distribution loss	1804.20
Re-determined Fuel and Power Purchase Cost	224496.14

- 4.6 The Commission decides, in terms of regulation 2.8.7.1 of the Tariff Regulations, to consider this amount of Rs. 224496.14 lakh allowable towards fuel and power purchase cost along with the Annual Performance Review for the year 2010 – 2011 or that for any other ensuing year or through a separate order, as may be decided by the Commission.
- 4.7 CESC is to take note of this order.

Sd/-
(SUJIT DASGUPTA)
MEMBER

Sd/-
(PRASADRANJAN RAY)
CHAIRPERSON

Dated: 19.10.2012