

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 285/MP/2013**

**Coram:**

**Shri Gireesh B. Pradhan, Chairperson  
Shri A.K.Singhal, Member  
Shri A.S.Bakshi, Member**

**Date of Order : 10.7.2015**

**In the matter of**

Petition under Section 79 (f) of Electricity Act, 2003 for adjudicating the dispute on secondary fuel oil consumption rate adopted in the revised energy charge bills of NTPC station violating the provisions of the regulation 21(6) (a) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009.

**And**

**In the matter of**

Kerala State Electricity Board  
Vydyuthi Bhawan, Pattom,  
Thiruvananthapuram-695 004

....**Petitioner**

**Vs**

NTPC Ltd.  
NTPC Bhawan, SCOPE Complex,  
7, Institutional Area, Lodhi Road,  
New Delhi-110 003

.....**Respondent**

**Parties Present:**

**For the Petitioner :** Shri P.V. Sivaprasad  
Shri B. Pradeep  
Shri SR Anand  
Shri S.S. Biju

**For the Respondent:** Shri M.G. Ramachandran, Advocate  
Shri Ajay Dua  
Shri Rohit Chhabra



## ORDER

The petitioner, Kerala State Electricity Board (KSEB), a distribution licensee in the State of Kerala has filed the present petition seeking direction to NTPC Ltd. to compute the Energy Charge Rate by adopting the normative Secondary Fuel Oil Consumption (SFC) value as specified in the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (2009 Tariff Regulations).

2. The petitioner has submitted as under:

(a) The petitioner has been availing power based on the allocation from the various generating stations of NTPC Ltd., namely Talcher Stage-II, Ramagundam STPS Stage I & II, Ramagundam STPS Stage-III, Simhadri Expansion and Eastern Region (Farakka and Talcher-I).

(b) As per Regulation 21(5) of 2009 Tariff Regulations, the energy charge shall be payable by every beneficiary for total energy scheduled to be supplied to such beneficiary during the calendar month on ex-power plant basis, at the 'energy charge rate' of the month (with fuel and limestone price adjustment). However, while computing the 'energy charge rates', the respondent has been completely deviating from the procedures specified in the 2009 Tariff Regulations and has claimed huge excess amount from KSEB for years 2009-10, 2010-11, 2011-12 and 2012-13.



(c) The matter was taken up by the petitioner with the respondent vide its letter dated 7.10.2011. The respondent vide its letter dated 15.12.2011 (Annexure-I of the petition) informed the petitioner that the 'Energy Charge Rate (ECR)' had been arrived on the basis of the provisions of 2009 Tariff Regulations.

(d) According to the Regulation 21 (3) of the 2009 Tariff Regulations, the total energy charge payable by the generating company for a month is based on the energy charge rate in Rs./kWh. Further Regulation 21 (6) of the 2009 Tariff Regulations stipulates the formula for calculation of the energy charge rate for coal based and lignite fired generating stations according to which ECR depends on the Specific Fuel Oil Consumption (SFC). Regulation 26 (iii) (a) has fixed the normative values of SFC as 1 ml/kWh and as per Regulation 25(3), any saving on account of the actual SFC in relation to the normative values shall be shared in the ratio of 50:50 between the generating company and beneficiaries.

(e) Central Generating Stations like M/s Neyvelli Lignite Corporation (NLC) have been adopting the normative value of SFC as specified under Regulation 26(iii) (a) of the 2009 Tariff Regulations in computing the energy charge rate and at the year end, any savings on actual usage of SFC in relation to normative values are adjusted based on the formula specified under Regulation 25(3). However, NTPC, while computing the 'Energy

Charge Rates' has been deviating from the formulae and values of SFC specified in the 2009 Tariff Regulations as under:

(i) NTPC has been computing the energy charges in the monthly bills of the generating stations, namely Ramagundam (Stage I, II and III), Talcher (ER) and Simhadri stations with normative SFC value of 1ml/ kWh in terms of methodology specified under Regulation 21 (6) (a) of the 2009 Tariff Regulations.

(ii) Subsequently at the year end, the monthly Energy Charge Rate (ECR) for the whole year has been revised by adopting SFC value "as the average of the actual value of SFC used in the year and normative value". This has been explained by the petitioner with the help of an example which is extracted as under:

Example: For FY 2009-10, the SFC actual for Ramagundam - III station is 0.05 ml/kWh. Originally, the 'Energy Charge Rate (ECR)' was computed with the normative SFC value of 1ml/ kWh. Subsequently, NTPC has revised the 'ECR' rate by adopting the SFC as:-

$(\text{SFC normative} + \text{SFCact})/2,$

i.e. average of the normative value of '1.00 ml/ kWh and actual value of '0.05ml /kWh, i.e.  $(1+0.05)/2=0.53/2=0.53\text{ml/kWh}$ . By adopting the average SFC value, the energy charge rate arrived by M/s NTPC for Ramagundam Station for April – 2009 was Rs. 1.128/kWh as against the 'ECR' rate of Rs. 1.125 /kWh by adopting the normative SFC value of 1 ml /kWh.

(iii) NTPC has claimed an excess amount of ₹ 5.08 crore for the years 2009-10, 2010-11, 2011-12 and 2012-13 by adopting average

value of SFC for 'ECR' computation and the said amount has been deducted from KSEB's account through LC. The petitioner has submitted the month-wise details of the excess amount claimed for the period 2009-10 to 2012-13 and has placed on record a copies of invoices raised by NTPC (Annexure-III and Annexure-IV of the petition).

(f) Since there is no provision in the 2009 Tariff Regulations to revise the 'Energy Charge Rate' (ECR) by adopting the average value of SFC, the methodology adopted by NTPC is not based on the provisions of 2009 Tariff Regulations and is not admissible. Accordingly, KSEB has sought intervention of the Commission for issue of necessary direction to NTPC to compute the ECR by adopting the normative SFC value and to refund the excess amount claim by NTPC.

3. The matter was admitted on 21.11.2013 and the parties were directed to complete the pleadings.

4. The respondent in its reply dated 25.2.2014 has submitted as under:

(a) Regulation 26(iii) (a) of the 2009 Tariff Regulations provides for quantum of secondary fuel oil consumption as 1 ml/kWh for coal based generating stations and NTPC has not claimed any adjustment for the Secondary Fuel Oil Consumption in excess of the specified normative limit. Moreover, for the benefit of the petitioner and other beneficiaries purchasing power on the quantum of higher cost of Secondary Fuel Oil, NTPC has been organizing and

operating its generating stations generally in a manner that the Secondary Fuel Oil Consumption is less than 1 ml per kWh.

(b) The petitioner is misinterpreting the provisions of the 2009 Tariff Regulations. Since in the regulations, the Normative Station Heat Rate has been specified (as applicable to the coal based generating stations) to be 2500 K.Cal/kWh (say for 200 MW units), NTPC is entitled to the energy charge rate for the same. The coal cost forming part of the energy charge rate is determined with reference to the Heat Rate specified at the above 2490 K.Cal/kWh, after giving adjustments of 10 K.Cal/kWh for the Secondary Fuel Oil Consumption (considering Calorific Value of Secondary fuel as 10000 kCal/Litre). In other words, if the Secondary Fuel Oil Consumption is at 1ml per kWh, namely, the normative without any savings on the same, the heat from coal to be considered for determining the coal cost would be 2500 K.Cal/kWh (say for 200 MW units) minus 10 K.Cal/kWh relating to the SFC and it will be 2490 K.Cal/Kwh. However, if the SFC is less than 1 ml per kWh, the coal cost to be determined for the heat from coal will be higher, namely, as the heat to be generated through use of Secondary Fuel Oil (which is a costlier fuel) is substituted by heat to be generated through the use of coal (cheaper fuel).

(c) If the SFC is only 0.6 ml per kWh, the calculation of the heat to be generated through the coal for the energy charge rate would be 2500 K.Cal/kWh (say for 200 MW units) minus 6 K.Cal/Kwh to be achieved through the Secondary Fuel Oil Consumption = 2494 K.Cal/KWh.

(d) The petitioner's contention that if there is a saving in the consumption of Secondary Fuel Oil, the heat rate contribution from coal to be considered for the coal cost should remain fixed at 2490 k.Cal/Kwh, is patently erroneous and totally misplaced. Savings on the SFC is on account of the higher consumption of coal which is a cheaper fuel in place of secondary fuel oil which is expensive fuel.

(e) NTPC has been computing the energy charge including on account of the savings in the quantum of SFC in accordance with the 2009 Tariff Regulations and more importantly based on the scheme and purpose of determining the normative parameters and providing for the savings achieved in the use of Secondary Fuel Oil without there being any provision to reduce the normative Heat Rate. The petitioner is availing the benefit of Regulation 25(3) which provides that the saving on account of SFC in relation to the norms shall be shared with beneficiaries in the ratio of 50:50 at the end of the year.

(f) The petitioner has totally misconstrued the provisions relating to the sharing of the benefit achieved on account of lower consumption of Secondary Fuel Oil specified in Regulations 25 (3) of the 2009 Tariff Regulations. The sharing is of the savings on account of the SFC in relation to the norms provided in Regulation 26 (iii)(a). The savings is on account of the net amount saved by reason of the use of high quantum of coal as against the normative allowed in the 2009 Tariff Regulations of normative heat rate to be achieved minus input from SFC of 6 K.Cal/Kwh. The savings is not on account of any reduction in the normative Heat Rate specified in Regulation 26 (ii).

5. In response, the petitioner in vide its affidavit dated 15.3.2014 has submitted as under:

(a) NTPC is not adopting the normative secondary fuel consumption in terms of Regulation 26(iii) of the 2009 Tariff Regulations. As per Regulation 25(3), NTPC may retain 50% of the savings in 'Secondary Fuel Oil Consumption' from the normative level specified in the regulations. However, there is no provision under Regulation 21(6)(a) to modify the ECR based on the savings in SFC.

(b) NTPC's statement that KSEB has misconstrued the provisions of Regulation 25(3) is not correct which provides that savings on account of SFC in relation to norms in the ratio of 50:50 shall be shared with the beneficiaries in accordance with the Regulations 25(3) at the end of the year. However, Regulation 21(6)(a) of the 2009 Tariff Regulations do not permit adjustment of the SFC while computing the 'Energy Charge Rate'.

6. During the proceedings of the petition, the petitioner and the respondent were directed to convene a meeting to resolve the issues and file affidavit in this regard.

7. The petitioner vide its affidavit 21.05.2014 has submitted that KSEB and NTPC had two rounds of meeting. However, no settlement could be reached with the respondent.

8. NTPC in its written submission dated 9.6.2014 has submitted that in terms of Regulation 26 (iii) (a) of the 2009 Tariff Regulations, NTPC has the right to claim SFC



upto 1.0 ml/Kwh and in case NTPC uses SFC to the extent of 1.0 ml/Kwh, the procurers cannot object to the inclusion of necessary charges for the same in tariff. Further, in terms of Regulation 25 (3), the saving on account of the SFC is to be shared with the beneficiaries in the ratio of 50:50 and the formula given under the said regulation is illustrative only. NTPC has submitted that Regulation 25 (3) is to be read with the normative operational parameters relating to the Station Heat Rate (SHR), particularly in the context of coal and secondary fuel oil being used in relation to the SHR. NTPC has submitted that by harmoniously construing the provisions of Regulations 25 and 26 of the 2009 Tariff Regulations, NTPC is entitled to energy charges with reference to normative SHR to be achieved with the combination of coal and secondary fuel oil and with the condition that the consumption of secondary fuel oil will be limited to 1.0 ml/Kwh. According to NTPC, the proper and contextual interpretation of Regulation 25 (3) is that the cost of savings on avoidance of the secondary fuel oil (considering the cost of secondary fuel oil being very high) is to be shared between the procurer and the generation company.

### **Analysis and Decision:**

9. We have considered the submissions of the petitioner and the respondent. The issue involved in the petition relates to the interpretation and application of the Regulation 21 (6) (a) of 2009 Tariff Regulations dealing with the norms of secondary fuel oil consumption and sharing of savings, if any on the secondary fuel oil consumption.



10. NTPC has been computing the energy charges in the monthly bills of the generating stations with normative SFC value of 1 ml/kWh as per the 2009 Tariff Regulations and at the year end, NTPC has been revising the monthly energy charge for the whole year by adopting the SFC value as the average of actual value of SFC used in a year and normative value. On the other hand, the petitioner is of the view that only normative value of the SFC i.e. 1ml/kWh should be adopted for arriving at the ECR and any savings on account of actual SFC in relation to the normative values should be shared in the ratio of 50:50 between the generating company and beneficiaries.

11. Regulation 26 (iii) (a) provides that the normative SFC for coal based generating stations shall be 1.0 ml/kWh. There is no dispute between the petitioner and the respondent in this regard. Regulation 21 (5) deals with the computation of energy charge which is extracted as under:

*“21(5) The energy charge shall cover the primary fuel cost and limestone consumption cost (where applicable), and shall be payable by every beneficiary for the total energy scheduled to be supplied to such beneficiary during the calendar month on ex-power plant basis, at the energy charge rate of the month (with fuel and limestone price adjustment). Total Energy charge payable to the generating company for a month shall be:*

*(Energy charge rate in Rs./kWh) x {Scheduled energy (ex-bus) for the month in kWh.}*

The above regulation provides that the energy charge shall cover the primary fuel cost only i.e. coal in this case and is payable by the beneficiary on the basis of the total energy supplied during a calendar month at the energy charge rate of the month.

'Energy Charge Rate' has been dealt with in Regulation 21 (6) (a) of the 2009 Tariff Regulations which is extracted as under:

*“21.(6) Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the following formulae :*

**(a) For coal based and lignite fired stations**

$$\text{ECR} = \{ (\text{GHR} - \text{SFC} \times \text{CVSF}) \times \text{LPPF} / \text{CVPF} + \text{LC} \times \text{LPL} \} \times 100 / (100 - \text{AUX})$$

**Where,**

AUX = Normative auxiliary energy consumption in percentage.

CVPF = Gross calorific value of primary fuel as fired, in kCal per kg, per litre or per standard cubic metre, as applicable.

CVSF = Calorific value of secondary fuel, in kCal per ml.

ECR = Energy charge rate, in Rupees per kWh sent out.

GHR = Gross station heat rate, in kCal per kWh.

LC = Normative limestone consumption in kg per kWh.

LPL = Weighted average landed price of limestone in Rupees per kg.

LPPF = Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, during the month.

**SFC = Specific fuel oil consumption, in ml per kWh.”**

12. Perusal of ECR formula in Regulation 21(6) (a) reveals that the effect of secondary fuel oil is to determine as to how much heat the fuel oil is contributing which will be deducted from the Gross Normative Station Heat Rate. Now the question for our consideration is whether energy charge would be adjusted after the end of the year based on actual consumption of secondary fuel oil or it would remain as computed based on normative SFC for the month. The petitioner has submitted that the respondent be directed to calculate ECR with normative value of SFC (1ml/kWh). However, in formula for computation of ECR, SFC has been specified as specific fuel oil consumption in ml per kWh, and not the normative specific fuel consumption, implying that it has to be on actual basis. The petitioner has contended



that as per Regulation 25 (3) of 2009 Tariff Regulations, savings in SFC in relation to norms shall be shared by the generating company with the beneficiaries in the ratio of 50:50. Regulation 25 (3) of the 2009 Tariff Regulations is extracted as under:

*"25 (3) The savings on account of secondary fuel oil consumption in relation to norms shall be shared with beneficiaries in the ratio of 50:50, in accordance with the following formula at the end of the year:*

$$(SFC \times NAPA F \times 24 \times NDY \times IC \times 10 - ACsfoy) \times LPSFy \times 0.5$$

*Where,*

*ACsfoy = Actual consumption of secondary fuel oil during the year in ml*

13. The petitioner has submitted that normative value of SFC has to be adopted for arriving at the Energy Charge Rate. The petitioner has relied upon para 24.6 of the Statement of Objects and Reasons on 2009 Tariff Regulations which is extracted as under:

*" 24.6 Secondary oil is required to be fired in coal/lignite-fired boilers during start up and shut down of a generating unit, as also for flame stabilization during operation at part load and/or wet-fuel conditions. When a generating unit is operating at a load above about 70%, secondary oil is normally not required to be fired. The coal/lignite fired thermal units are normally scheduled to operate at full capability, and may be scheduled to back down by 20-30% during off-peak hours, depending on their position in "merit-order" and the system load profile. They are generally not given a schedule which would call for secondary oil firing. As such, as long as a generating unit operates in 70-100% range, its variable cost comprises of only the coal/lignite cost. **However, in the present tariff regulations, energy charge rate includes the normative cost of secondary oil as well.** As a consequence, the energy charge rate exceeds the actual variable cost by a few paise per kWh. This again has the potential of leading to the problem described earlier."*

The petitioner, in support of its argument, has submitted that this procedure has been adopted by NLC for its generating stations.

14. We are of the view that the petitioner has misconstrued the sentence “However, in the present tariff regulations, energy charge rate includes the normative cost of secondary oil as well” in para 24.6 of the SOR as having justified the computation of energy charge rate on the basis of normative SFC. Reference to ‘present tariff regulations’ means the tariff regulations in force at that time i.e 2004 Tariff Regulations were in force on 29.3.2014 when the 2009 Tariff Regulations was notified. In 2004 Tariff Regulations, Energy Charge Rate included the normative cost of secondary oil. The intent of the Commission in this para was clear that unlike 2004 Tariff Regulations, the energy charge rate in 2009 Tariff Regulations would not include the normative cost of secondary oil. In other words, energy charge rate would comprise only of coal/lignite cost.

15. Since the energy charge in 2009 Tariff Regulations comprises only the coal cost, the amount of specific oil consumption has bearing on the energy charge. For example, if the actual specific oil consumption is 0.12 ml/kWh against the normative specific oil consumption of 1.00 ml/ kWh, then the quantity of coal consumed per kWh i.e. specific coal consumption (kg/kwh) would be higher in case of secondary oil consumption of 0.12 ml/kWh. The cost of specific coal consumption is energy charge rate. If ECR is not revised based on the actual SFC, the additional specific coal consumption cost due to less consumption of SFC would remain un-recovered. This can be explained by the following example:

**Assuming**

Cost of coal = ₹ 2000/ton

GCV of oil = 10000 kcal/liter

SFC Actual =0.12 ml/kwh

GCV of Coal=3800 kcal/kg.



Price of SFC= ` 35,000/kilo liter

SFC Normative =1 ml/kwh Normative Station Heat Rate= 2425 kcal/kwh

	<b>Normative</b>	<b>Actual</b>
<b>Cost of oil consumption</b>	Sp. Oil consumption x cost of oil/liter	
	$\frac{1 \text{ ml/kwh} \times ₹ 35000}{1000000}$	$\frac{0.12 \text{ ml} \times ₹ 35000}{1000000}$
	₹ 0.035/kwh	₹ 0.0042/kwh
<b>Heat contribution of oil</b>	Gross calorific value of oil x Sp. Oil consumption	
	$\frac{10000 \text{ kcal/liter} \times 1 \text{ ml/kwh}}{1000}$	$\frac{10000 \times 0.12}{1000}$
	10 kcal/kwh	1.2 kcal/kwh
<b>Heat contribution of coal</b>	2425-10	2425-1.2
	<b>2415 kcal/kwh</b>	<b>2423.8 kcal/kwh</b>
<b>Specific Coal consumption</b>	$\frac{\text{Heat contribution of coal}}{\text{Gross calorific value of coal}}$	
	$\frac{2415}{3800} = 0.6355 \text{ kg/kwh}$	$\frac{2423.8}{3800}$
		<b>0.6378 kg/kwh</b>
<b>Cost of specific coal</b>	$\frac{0.6355 \times 2000}{1000}$	$\frac{0.6378 \times 2000}{1000}$
	₹ 1.271	₹ 1.2756
Difference in cost	1.2756-1.2710 = 0.0046 =0.46 paise/kWh	

16. Perusal of billing data given in the petition reveals that the respondent is adjusting Energy Charge at the end of a year by taking average of (normative SFC+ actual SFC)/2 of a year. This methodology has been adopted by NTPC to share the savings in the consumption of actual SFC in comparison to normative SFC. However, the said methodology is in deviation to Regulation 21 (6) of the Tariff Regulations. However, NTPC is charging less by applying this methodology as compared to the energy charge considering normative specific fuel oil consumption 1ml/kWh.

17. In view of the above discussions, there is no merit in the contention of the petitioner. It is clarified that the decision in this case shall not be used to reopen the settled cases.

18. The petition is disposed of in terms of the above.

Sd/-  
**(A.S.Bakshi)**  
Member

sd/-  
**(A.K. Singhal)**  
Member

sd/-  
**(Gireesh B Pradhan)**  
Chairperson

