

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 6/RP/2011
in
Petition No. 230/2009

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

Date of Hearing: 14.10.2014
Date of Order: 10.06.2015

In the matter of

Review of order dated 31.8.2010 in Petition No. 230/2009 pertaining to fixation of tariff in respect of NLC-TPS-I Expansion (2 x 210 MW) for the period from 1.4.2009 to 31.3.2014

And in the matter of

Judgment of the Appellate Tribunal for Electricity dated 14.7.2014 in Appeal No. 201/2013

And in the matter of

Neyveli Lignite Corporation Limited
Neyveli House, 135, EVR Periyar Road,
Kilpauk, Chennai - 600010

...Petitioner

Vs

1. Tamil Nadu Electricity Board,
800- Anna Salai
Chennai – 600002
2. Power Company of Karnataka Ltd.
Bangalore – 560001
3. Kerala State Electricity Board
Thiruvananthapuram – 695004
4. Puducherry Electricity Department
Puducherry – 605001

...Respondents

Parties present:

Shri M.G. Ramachandran, Advocate, NLC
Ms. Anushree Bardhan, Advocate, NLC
Shri J. Dhansekaran, NLC
Shri S. Vallinayagam, Advocate, TANGEDCO
Shri A. Axilium Jayamary, TANGEDCO

Order

Petition No. 230/2009 was filed by the petitioner, NLC for determination of tariff in respect of NLC TPS-I Expansion (2 x 210 MW) ("the generating station") for the period 2009-14, based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 ("the 2009 Tariff Regulations") and the Commission by order dated 31.8.2010 had determined the annual fixed charges for the generating station for the period 2009-14. Thereafter, the Commission by order dated 23.3.2011 revised the annual fixed charges for the generating station for the period 2009-14 after correction of errors in the calculation of receivable component of working capital.

2. Aggrieved by the order dated 31.8.2010, the petitioner had sought review of the said order on the following issues:

(i) Additional Capitalization for the period 2007-09 and 2009-14 for Common Assets;

(ii) Capital cost as on 1.4.2009; and

(iii) Projected Additional Capital Expenditure of direct assets for the period 2009-14.

3. The review petition was admitted by order dated 1.7.2011 on the above issues. Thereafter, the Commission after hearing the parties by order dated 7.6.2013 partly allowed the said review petition. In the said order, the claim of the petitioner with regard to the capital expenditure towards the purchase of Spare Turbine rotor amounting to ₹4000 lakh was however rejected.

4. Aggrieved by the said order dated 7.6.2013, the petitioner filed appeal (Appeal No. 201/2013) before the Appellate Tribunal for Electricity ("the Tribunal") on the issue of "*Disallowance of the capital expenditure for the purchase of turbine rotor for the year 2013-14.*"

5. The Tribunal by order dated 14.7.2014 allowed the said appeal and remanded the matter for consideration of the Commission. The relevant portion of the judgment is extracted as under:

"..But we are not able to accept the submissions made by the learned counsel for the Commission since the perusal of the entire impugned order would make it clear that the Commission has neither referred to Affidavit filed by the Appellant on 6.1.2012 nor analyzed the contents of the same in justification of their claim given in the relevant portions of the order on this issue. Therefore, we deem it appropriate to remand the matter for fresh consideration on this issue. Both the parties are at liberty to raise their respective contentions in regard to their issue".

6. In compliance with the above direction, the matter was heard and the Commission directed the completion of pleadings by the parties. The respondent, TANGEDCO has filed additional submissions vide affidavit dated 9.10.2014 and the petitioner has filed written submissions vide affidavit dated 14.10.2014. The matter was heard and the Commission reserved its order on 14.10.2014.

7. The respondent TANGEDCO has submitted as under:

(a) The procurement of spare turbine rotor as additional capitalization under Regulation 9(2)(i) of the 2009 Tariff Regulations was rightly disallowed by the Commission in order dated 31.8.2010 in Petition No. 230/2009 on the ground that procurement of spare rotor after the cut-off date does not fall under the provisions of the Regulations.

(b) The petitioner in this review petition has submitted that only after major overhaul conducted on 6.10.2009, the defects on the steeples of row have been detected and immediately informed the OEM. The details of the dates of communication with OEM and the defects noticed in the rotor after conducting the overhaul on 6.10.2009 had not been furnished by the petitioner. The additional capitalization claimed as spares in Petition No. 230/2009 has been now claimed as replacement due to crack in rotor.

(c) The OEM in its recommendations had mentioned that no preservation procedures have been put in place by the petitioner during shut down periods.

(d) The inclusion of the claim for ₹4000 lakh on this item will escalate the ceiling norms to 6.29% of the revised capital cost allowed in Petition No. 230/2009.

(e) The claim of the petitioner for the said expenditure in Petition No.230/2009 was under Regulation 9(2)(i) which was earlier rejected by the Commission in order dated 31.8.2010. However, the petitioner has argued for the consideration of the said expenditure under Regulation 9(2)(iv) of the 2009 Tariff Regulations or in exercise of the 'Power to relax' under Regulation 44 of the 2009 Tariff Regulations though no formal prayer had been made in the original petition or in the affidavit dated 6.1.2011. The prayer of the petitioner is not permissible since there are definitive limits to the scope of review. Even otherwise, the claim of the petitioner under Regulation 9(2)(iv) cannot be considered since capitalization under the said provision is applicable only for hydro generating stations.

(f) The additional capital expenditure claim could be met from the Compensation Allowance permissible to the generating station after completion of 10 years of useful life in terms of Regulation 19(e) of the 2009 Tariff Regulations.

8. The petitioner in its written submissions has submitted as under:

(a) The tariff for NLC expansion Station for the period 2003-04 was approved by order dated 7.4.2005 was inclusive of initial spares capitalized in which turbine rotor was not a part. For the period 2009-14, the cost of spare turbine rotor was included considering that any damage caused to the rotor will lead to heavy loss in generation of power and it was necessary for the operation of the generating station.

(b) The Commission had considered the merits of the claim and disallowed the procurement of the spare turbine rotor on the ground that its replacement is attributable to the petitioner. In the affidavit dated 6.1.2012, the reasons for the development of crack in the rotors of Unit – I and Unit – II and the findings of the M/s Ansaldo, Original Equipment

Manufacturer, (OEM) had been submitted. The OEM had strongly recommended for replacement of the rotor with a new one.

(c) The claim of NTPC for Excitor rotor in Rihand TPS had been allowed by the Commission on the ground of efficiency in the operation of the power plant. Also some of the claims for additional capitalization after the cut-off date was allowed for smooth and efficient operation of the generating station in respect of Badarpur TPS and Kahalgaon STPS of NTPC, in exercise of the power of relaxation of the provisions under Regulation 44 of the 2009 Tariff Regulations.

(d) Even if the claim is not covered under any of the provisions of the 2009 Tariff Regulations, necessary relief can be granted by the Commission in exercise of its power to relax under Regulation 44 of the 2009 Tariff Regulations. Various judgments of the Hon'ble SC regarding the exercise of Power to relax was referred to in support of the contention.

(e) The petitioner has acted in a prudent manner in acquiring the Turbine Rotor, removing the turbine rotor which had developed crack and is sustaining the operation of the generating station in the largest interest of the procurers.

9. Accordingly, the learned counsel for the petitioner prayed that the submissions made in affidavit dated 6.1.2012 may be considered and the capitalization towards procurement of Spare Turbine Rotor may be allowed.

10. Heard the parties and examined the documents on record including affidavit dated 6.1.2012 filed by the petitioner.

11. During the hearing of the review petition on 3.11.2011, the Commission has directed the petitioner to furnish in detail, the reasons for the cause of development of cracks in the rotors of Unit-I & II and the findings of OEM. In response, the petitioner vide affidavit dated 6.1.2012 had submitted the following with regard turbine rotor.

(i) When Unit I was released for Major overhaul for the first time on 06.10.2009 after commercial operation date (COD), several defects on the steeples of row L1 of LP turbine have been detected which was immediately informed to OEM M/s. Ansaldo Energia. After conducting Magnetic fluorescent test and a detailed mapping of some of the worst defects one for each type. OEM has given the following consideration for future operation.

"Considering that a material characterization is not available today, it is not possible to state the actual strength of the rotor on a scientific basis. This, even if it is known that the most likely reasons of the cracks are stress corrosion cracking (mainly) and corrosion fatigue".

With this condition in background M/s. Ansaldo Energia has given two options for running the unit.

(a) To operate the unit at full load without any sudden load variation and frequent tripping and again inspect the rotor after 12 months.

(b) To remove the 4th Stage blades of LP turbine and operate the unit with a reduced load of 205 MW.

In both the cases it is strongly recommended for the replacement of Rotor by a new one as soon as possible". Hence as per the recommendation of the OEM it was decided to keep the unit in service with a reduced load of 205 MW since then.

(ii) The following issues were enumerated by OEM as leading to development of crack in Rotor and the observations are as under:-

(a) Chemical Regime:-

The regime as per the guidelines and values issued by OEM, are being maintained in the system. The guidelines issued by OEM and set of regime values maintained are enclosed as Annexure-II in the petition.

(b) Implementation of Preservation Measures for steam turbine during shut down periods:-

With regard to the remark on preservation, the same was not followed by OEM themselves during their stoppages in both units before completion of warranty period which includes long shut down periods also. The reason indicated by OEM was hence observed to be not appropriate.

Further, OEM had been asked to clarify for aspects concerning with design and material specifications for the cause of crack in Rotor and the reply is awaited.

Therefore, as of now, reason for the development of the crack in Unit I & II Rotor could not be concluded either by NLC or by the OEM.

As the exact cause for crack development is not known, on opening of turbine for inspection it may warrant total replacement of Rotor. In such an exigency availability of full set of Rotors on hand is essential since this type of Rotor is not available elsewhere in the country. Moreover the balancing of the rotor after replacement will be easier when changed as a set.

The cost of rotor and 4th stage fixed blade of LP Turbine separately

IP-LP Rotor (Welded Rotor)	5315200 Euros (Rs 35.09 Crore)
HP Rotor	2306600 Euros (Rs 15.23 Crore)
Generator Rotor	3932500 Euros (Rs 25.96 Crores)
4th stage fixed blades	139500 Euros (Rs 0.92 Crore)

The total site cost at the exchange rate as on 22.12.2010 (Purchase Order date) is ₹ 92.16 Crores.

The cost of LP and IP turbine (WELDED ONE) along with 4th Stage blade can be safely approximated to ₹40 Crores.

12. It is observed from the investigation results in the report of OEM M/s. Ansaldo dated 12.7.2010 (analysis of turbine rotor of Unit-I&II) that the specimen taken from the cracked rotor stepples of Unit-I showed no abnormal properties of material and was not consistent with the design specifications. According to the OEM, corrosion/stress corrosion was the primary cause of cracking. As per experience of the OEM on the other LI 41 rows in operation, stress corrosion

cracking occurs when three factors namely, (a) operating stresses, (b) material susceptibility and (c) environment are present. Considering the fact that in Neyveli, stresses and materials are the same as used in other projects without problems, the OEM has concluded that the environment i.e. chemistry was a critical factor. It is further noticed from the report of the OEM that the petitioner had not furnished detail information as requested by the OEM, in order to have an understanding of the chemistry in the turbine phase transition zone and of the origin of the crack. It is also evident from the said report that the recommendation for preservation of Steam turbine during shut down periods, which is based on instruction manual, has not been adhered to by the petitioner. It is observed that the OEM vide letter dated 20.11.2002 had recommended steam purity value. The petitioner has submitted the steam and water parameters maintained during 2006-07, November, 2008 and May, 2009 as per the log book. The COD of the generating station is 5.9.2003 and thus it appears from letter dated 7.8.2010 of the petitioner addressed to M/s Ansaldo that the steam and water parameters maintained after the COD of the generating station had not been furnished to the OEM.

13. It is observed from the submission of the petitioner that the reason for the development of the crack in Unit I & II Rotor could not be concluded either by NLC or by the OEM. In the above background and since the actual reasons for the development of crack is yet to be reported by the OEM, we are of the considered view that the petitioner has not made out a case that the damage to existing rotors was beyond its control. In the circumstances, we do not find any merit in the claim of the petitioner for capitalisation of expenditure towards spare turbine rotor. Accordingly, the claim of the petitioner is rejected.

14. One more submission of the petitioner is that even if the claim is not covered under any of the provisions of the 2009 Tariff Regulations, necessary relief can be granted by the Commission in exercise of the 'Power to relax' under Regulation 44 of the 2009 Tariff Regulations. The petitioner has also referred to the judgments of the Hon'ble Supreme Court in P.K. Palanisamy Vs N. Aruimpugnedmugham & anr (2009 9 SCC 173), Ram Sunder Ram Vs Union of India (2007 13 SCC 255). The respondent TANGEDCO while objecting to the above has submitted that the prayer of the petitioner is not permissible since there are definitive limits to the scope of review and

no formal prayer had been made by the petitioner in the original petition or in the affidavit dated 6.1.2012. We have considered the submissions. As already stated, the petitioner in support of its claim for capitalisation of spare turbine rotor has not made out a case on merits for consideration of the same by the Commission. Since there is no basis for considering the claim of the petitioner, there is no reason for us to grant the prayer in exercise of the 'Power to relax' under Regulation 44 of the 2009 Tariff Regulations. In other words, the petitioner having not justified the need for Spare turbine rotor cannot seek the capitalisation of the said claim in exercise of the Power to relax.

15. Even otherwise, as per the availability data submitted by the petitioner in Petition No. 68/MP/2013, it is noticed that the generating station has been operating successfully during the period from 2009-13, as the average availability of the generating station was 84.56% during 2009-13. The details of the year-wise availability of the generating station are as under:

<i>(in % age)</i>	
Year	TPS – I (Expansion)
2009-10	81.78
2010-11	82.04
2011-12	83.70
2012-13	90.73
Normative Availability	80%
Average Availability	84.56%

16. It is evident from the above table that the petitioner had no difficulty in achieving Availability more than Normative Target Availability despite the disallowance of spare turbine rotor for future requirement. Keeping this in view, we find no reason to allow the said claim in anticipation of any exigency which may occur to the petitioner in future and burden the beneficiaries on this count.

17. The prayer of the petitioner in Petition No.6/RP/2011 is disposed of in terms of the above.

Sd/-
(A.S. Bakshi)
Member

Sd/-
(A.K.Singhal)
Member

Sd/-
(Gireesh B. Pradhan)
Chairperson