

**Before the Appellate Tribunal for Electricity
(Appellate Jurisdiction)**

Appeal No. 96 of 2008

Dated: March 03 , 2009.

Present: - Hon'ble Mrs. Justice Manju Goel, Judicial Member
Hon'ble Shri H.L. Bajaj, Technical Member

Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd.
Shakti Bhawan, 14, Ashok Marg
Lucknow-226001

.....Appellant

Versus

1. Uttar Pradesh Electricity Regulatory Commission
Kisan Mandi Bhawan, Gomti Nagar
Lucknow-226010
2. Uttar Pradesh Power Corporation Ltd.
7th floor, Shakti Bhawan
14, Ashok Road
Lucknow-226001
3. Madhyanchal Vidyut Vitran Nigam Ltd.
PN Road
Lucknow-226001
4. Poorvanchal Vidyut Vitaran Nigam Ltd.
132 KVS/S Bhikari Vidyut Nagar
Varanasi -221004
5. Paschimanchal Vidyut Vitaran Nigam Ltd.
Victoria Park
Meerut-250001
6. Dakshinanchal Vidyut Vitaran Nigam Ltd.

Gailana Road
Agra-282007

7. Kanpur Electricity Supply Company Ltd.
Kesa House
Kanpur-208001

8. NOIDA Power Company Ltd.
Commercial Complex, H Block
Alpha II Sector
Greater NOIDA(UP) -201308

....Respondents

Counsel for the appellant(s) : Mr. M.G.Ramachandran with
Mr. Anand K.Ganesan and
Ms. Swapna Seshadri

Counsel for the respondent(s): Mr. N.K. Sahoo for
Mr. Suresh Tripathi

Judgment

Per Hon'ble Mr. H.L. Bajaj, Technical Member.

In this appeal Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd. (UPRVUNL in short) has challenged Tariff Order dated March 26, 2007 passed by the Uttar Pradesh Electricity Regulatory Commission (Commission in short) in petition No. 435 of 2007 for the ARR of FY 2007-08 and as modified by the Commission on October 10, 2007 partly allowing the review petition of the appellant. Thus Original Tariff order dated

March 26, 2007 has merged with the Review Order dated October 10, 2007.

2. We now proceed to deal with the two issues the appellant has agitated before us:

3. Issue No. 1 Exclusion of Capacity of Units under Renovation and Modernization (R&M).

4. Mr. M.G. Ramachandran, learned counsel for the appellant submitted that in the impugned order dated October 10, 2007 the Commission accepted the submissions of the appellant to the effect that the units under Renovation and Modernization (R&M) should not be considered for calculation of the Plant Load Factor (PLF) and the effective capacity left after discounting the capacity under renovation and modernization should alone be considered for the same. He stated that the Commission was pleased to hold as under:

“8. Since R&M of units of a generating plant brings consequential impossibility of operation of such capacity, the plant capacity which remains under R&M shall not be considered for calculation of PLF and the effective capacity, left after discounting

capacity under R&M, shall be considered for the purpose of PLF and plant availability during 2007-08 and 2008-09. However, target PLF and target availability specified in the tariff order dated March 26, 2007 shall remain unchanged.

The capacity charges specified in the tariff order shall be prorated to the effective capacities.

9. The petition is disposed of”

5. Mr. Ramachandran contended that the appellant is aggrieved by the second part of para 8 of the order dated October 10, 2007(quoted above) which states that the capacity charges specified in the tariff order shall be prorated to the effective capacity which is sought to be applied with reference to the total capacity including the capacity of the units under R&M. This takes away the decision made by the Commission in the first part of para 8 of the order dated October 10, 2007 giving the relief to the appellant.

6. Learned counsel contended that by Notification dated March 19, 2008, the Commission has amended its UPERC (Terms and Conditions of Tariff) Regulations, 2004 and has

provided as under with respect to the above issue raised in this appeal:

*“Amendments to regulation -16 ‘Norms of operation’
.....
(c) Note-2 shall be inserted after Note-1 to clause (i)
as below:*

In the case of non-availability of unit(s) due to Renovation and Modernization, the effective capacity left after discounting capacity of such unit(s) shall be considered for the purpose of calculation of plant availability. The depreciation and interest on working capital in the annual capacity(fixed) charges shall only be prorated to such effective capacity. The return on equity shall be utilized for repayment of loan. The above provision shall apply in case of generating stations covered under sub clause(a) and (b) above”.

7. He submitted that amendment to the Regulations clearly indicates that the Commission has recognized this issue raised by the appellant in the present appeal and corrected the same for the subsequent period to some extent by providing that the depreciation and interest on working capital in the

annual capacity (fixed) charges shall only be prorated to such effective capacity.

8. He urged that in the circumstances the last part of para 8 of the order dated October 10,2007 which states ‘that the capacity charges specified in the tariff order shall be prorated to the effective capacity’ should be deleted and the effect should be fully given to the earlier part of para 8 of the said order.

Analysis and decision

9. When a plant is taken out for renovation and modernization, obviously the machine cannot be operated and has to necessarily remain out of service during the R&M work. In view of this, the Commission has rightly considered this period as “consequential impossibility of operation of such capacity”. Having reached this right conclusion, the Commission could not have taken away the effect of this factual ground reality. Moreover, the Commission itself has amended its Regulation 16 “Norms of Operation” in which it has specified that, “the depreciation and interest on working

capital in the annual capacity (in fixed) charges shall only be prorated to such effective capacity”.

10. In view of the aforesaid discussion we decide that the last sentence of para 8 of the order of the Commission reading “the charges specified in the tariff order shall be prorated to the effected capacity” needs to be deleted.

11. Issue No. 2- Unrealistic operating norms of operation for Old stations

12. Mr. Ramachandran submitted that the five generating stations namely Obra A, Obra B; Harduaganj, Pankhi and Parichha are old generating stations of the vintage of 1968 onwards. These are smaller capacity generating stations with unit capacity of 32 MW, 50 MW, 55 MW, 60 MW, 100 MW, 110 MW and 200 MW. These plants have lived their normal life and are being continuously run in the larger public interest as the fixed charges are low and these result in a benefit much more than the loss on account of the relaxed operation norms sought for.

13. He contended that in the order dated March 26, 2007 the Commission has specified norms on Target Availability, Auxiliary Consumption, and Gross Station Heat Rate. The comparison of what the appellant claimed and what the Commission has allowed is as under:

1. Plant availability

Plants	Actual availability (%)		Target Availability approved as per T.O. (%)	
	FY 06-07	Up to Nov. 07	FY 06-07	FY 07-08
Obra A (442 MW)	18.05	19.20	69.00	74.00
Obra A (188 MW) (excluding R&M/Refurbishment Units)		45.14		
Obra B (1000 MW)	51.47	51.75	80.00	80.00
Harduaganj (275 MW)	22.97 34.70*	30.80	45.00	50.00
Harduaganj (215 MW) (Excluding R&M/Refurbishment Units)		39.40		
Parichha (220 MW)	59.61	36.07	65.00	70.00
Panki (210 MW)	51.18	48.27	65.00	70.00

*Harduaganj unit 1 & 6 deleted on February 08, 2007
(availability calculated for 52 days w.e.f. February 08, 2007)

II. Auxiliary Consumption

Plants	Actual Aux Cons (%)			Target Aux Cons Approved as per T.O (%)	
	FY 06-07	Upto Nov. 07	Nov.	FY 06-07	FY 07-08
Anpara A	10.14	10.31		8.00	8.00
Anpara B	7.64	7.79		7.00	7.00
Obra A	13.22	15.18		11.00	10.00
Obra B	11.56	12.25		9.00	8.50
Harduaganj	14.41	15.80		11.5	11.00
Panki	13.47	13.76		11.00	10.00
Parichha	16.38	18.89		11.00	11.00

III. Gross Station Heat Rate.

Plants	Actual GSHR			Approved by Commission 07-08	
	FY 06-07	Upto Nov. 07	Nov.	FY 06-07	FY 07-08
Obra A	2985	3083		2850	2850
Obra B	3314	3081		2650	2550
Harduaganj	3650	4069		3350	3300
Panki	3574	3597		3000	2950
Parichha (2X110 MW)	3886	3378		3250	3100

14. Mr. Ramachandran further contended that despite the fact that the specific generating stations of the appellant mentioned above are old with smaller and varying capacity of 32 MW, 50 MW, 55 MW, 60 MW, 100 MW, 110 MW and 200 MW requiring extensive R&M, the Commission has proceeded to fix norms in regard to the Target Availability Auxiliary Consumption and Gross Heat Rate at a level higher than the achievable level. The Commission has not applied the relevant principles in deciding such norms applicable to old stations.

15. He stated that in the order dated March 26, 2007 the Commission has itself recognized its power of granting relaxation of norms (Regulation 13 of the UPERC Tariff Regulations). The Commission by notification dated March 19, 2008 has amended its earlier Tariff Regulations and has granted substantial relief on the issues of target availability, auxiliary consumption, gross station heat rate with effect from April 01, 2008. However, the Commission has denied to the

appellant such relief for the previous periods namely 2006-07 and 2007-08.

16. He submitted that the norms for operation of old generating stations such as Obra A, Obra B; Harduaganj, Pankhi and Parichha pending R&M be directed to be considered and determined in a pragmatic manner keeping in view the following aspects:

- (a) The normal life of the Thermal Power Station recognized by the Government of India in the notification dated March 26, 1994 issued in exercise of the powers under Section 43A of the Electricity (Supply) Act, 1948 (since repealed) is 25 years;
- (b) The old stations should normally be abandoned after the above life period and new plant established in its place;
- (c) The old plants cannot have the same operating parameters as compared to new plants;
- (d) The plants of smaller size such as 32 MW, 50 MW, 55 MW, 60 MW, 100 MW, 110 MW etc. cannot be

equated with plants of size of 210 MW and above in regard to operating parameters;

- (e) The Central Electricity Authority (CEA) had recognized the above position and had proposed progressive improvement based on R&M work to be carried;
- (f) The old plants have low fixed charges and per unit charges is competitive compared with new plants and this is great advantage;

17. Mr. Ramachandran contended that in the circumstances the operating parameters such as PLF, auxiliary consumption and Gross Heat rate should be fixed based on actual instead of going on assumption and surmises of inefficiency in the operation of the appellant unless there is a specific fact shown in support of such conclusion of inefficient operation.

18. Learned counsel has drawn our attention to the following documents in support of his contentions:

- (a) Extracts of the Central Electricity Authority Report on Technical Standards on Operational norms of coal/lignite fired thermal power station

- (b) Extracts of the CERC (Terms and Conditions of Tariff) Regulations, 2004 making exceptions for Talcher TPS and Tanda TPS
- (c) Order dated January 10, 2008 passed by this Tribunal in appeal No. 81 of 2007, IPGCL v/s DERC & Ors
- (d) GSECL v. GERC & Ors, 2007 APTEL 1066
- (e) Extracts of the orders dated June 19, 2002, March 23, 2002 and August 20, 2007 passed by the CERC fixing relaxed norms of operation for tariff determination of Talcher TPS.

19. Learned counsel submitted that in view of his contentions the appeal be allowed and the impugned order dated October 10, 2007 be set aside on the issues mentioned above. The appellant may be granted relief in regard to the exclusion of units under R&M for deciding on the capacity on which the fixed charges are recoverable and also direct the Commission to reconsider the norms for the appellant's generating stations mentioned above taking into account the relevant factors such as actuals, CEA report, the decisions of

the Tribunal and Central Commission and absence of any fact establishing inefficient operation on the part of the appellant.

Analysis and decision

20. The appellant has cited the Technical Standard on “Operation Norms for Coal and Lignite Fire Stations” prepared by Central Electricity Authority (CEA) in December, 2004. It is relevant for this appeal to reproduce below para 11 of the Technical Standard which gives operation norms for smaller capacity units:

“ 11. Finalized Operation Norms

Based on the analysis, the following norms are recommended for coal/lignite fired thermal power stations for thermal power stations.

11.2 Smaller Capacity Units- Less than 200 MW (Coal Based).

I. HEAT Rate

In view of the foregoing discussions at para 9.4, it is proposed that average existing heat rate may be adopted as normative heat rate for these units for some time. However, the fact is that the performance of most of the smaller units is extremely poor for various reasons

attributable to basic design deficiencies, lack of appropriate R&M ageing, coal quality determination etc. The average variation in GHR at present is up to 60% from design heat rates. A certain time frame may thus have to be allowed to these units to attain the performance level of 110% of guaranteed heat rate. It is therefore proposed to allow a time frame of 5 years to these stations with targets for specific improvement each year so as to attain normative heat rate of 110% of design heat rate within 5 years, the following norms of heat rate are recommended for old smaller size units of various sizes from 30 MW to 200 MW:

(a) Old units (existing)

Normative Heat Rate = 10% above the design heat rate of the units

(b) New Units

The normative heat rate shall be 5% above the design heat rates.

Notes:

1) The normative heat rate shall be applicable for a station PLF of 80%.

** The station PLF for the month shall be computed based on operating units only. Units under planned*

maintenance or long shut down (exceeding 1 day) shall not be considered for station PLF

2) Additional heat rate of 2.5 kcal/kWh shall be allowed for each 1% reduction in station PLF

(3) Existing Unit- means a generating unit declared under commercial operation from a date prior to April 01, 2004.

4) New Unit- means a generating unit declared under commercial operation from a date after April 01, 2004.

5) The design heat rate to be considered shall be the guaranteed heat rate at 100% name plate rating of the unit, 0% make up, design ambient conditions.

6) Lower of the guaranteed value of heat rate or actual obtained during PG test shall be considered.

7) Stations which are presently operating at much higher heat rates than the proposed normative heat rate may be allowed a time frame of 5 years for implementing renovation and modernization schemes to achieve the normative heat rates. A target for progressive reduction of heat rates may be set for these stations, which may be monitored by the respective regulatory commission or CEA.

8) *The recommendations made above for smaller unit however would need to be considered with due consideration to the expenditure involved in R&M of these units and even the feasibility of implementing R&M of these units.*

9) *Most of these units being very old, have very low fixed cost component and thus the average cost of generation from these units is very low, despite their higher variable charges on account of low operation efficiencies. Thus, the State Regulatory Commissions may consider dispatch of these units based on the total cost of generation or work out some other special provisions to keep these units in operation. Considering the variable charges alone for merit order dispatch of the units as being proposed would prevent large number of such units from being dispatched despite their lower overall generation costs.*

II) AUXILIARY POWER CONSUMPTION

The average auxiliary power consumption for units in 100-200 MW range and for less than 100 MW units are 12.01% and 11.29% respectively. Large variations up to 15% are reported from various power stations and most of the units are very old. The

norms recommended for auxiliary power for these units are:

- 1 11.5% with open cycle CW system*
- 2 12.0% with cooling towers.*

However, it is proposed that more exhaustive data with detailed breakup would need to be obtained for working out the Auxiliary Power consumption norms in future.

III) SECONDARY FUEL CONSUMPTION

The average Secondary Fuel Consumption (SFC) for category B units (100 to 200 MW) is 7.47 ml/kWh. However, this includes certain units with exceedingly high SFC of 8 to 19 ml/kWh which is rather abnormal. Thus excluding such abnormally high SFC the average SFC for this category works out to 3.9 ml/kWh. For category A (100 MW);the average SFC considering all units is 6.96 ml/kWh. However, after excluding abnormally high SFC data the average works out to 3.2 ml/kWh. Also the above values of SFC are at a comparatively lower PLF of about 55 to 65% and accordingly the SFC at higher PLF expected to be lower. Further, with improved performance after R&M activities, the SFC shall get reduced substantially. The recommended norms for SFC for units of less than 200 MW are:

<i>PLF</i>	<i>SFC</i>
<i>PLF up to 80% and above</i>	<i>2 (two) ml/kWh for each unit KWh generated.</i>
<i>PLF below 60%</i>	<i>2.5 (two and half) kWh for each unit KWh generated</i>
<i>PLF between 80% and 60%</i>	<i>On prorata basis with PLF</i>

It is also seen that number of stations are operating at specific fuel consumption significantly higher than the proposed normative heat rates. These stations may be asked to submit the reasons for such abnormally SFC to the respective Regulatory Commissions & CEA. Based on the above, a target for reduction of SFC over a period of 3-5 years could be assigned to the stations.

21. The aforesaid recommendation of CEA recognize that the smaller old units which are still under operation are operating at much higher heat rates, Auxiliary Power and Secondary Fuel Consumption levels and that these units require Renovation and Modernization. In the interregnum relaxed operating norms can be set for these before carrying out R&M for such low performing units. A period of 3-5 years had been indicated by CEA and it was expected that the utilities would

have meticulously planned R&M and by this time would have progressed well on execution front.

22. It is also noticed that CERC in their order dated June 19, 2002 in the petition No. 62 of 2000 had allowed relaxed operational norms in case of Talchar Thermal Power Station comprising of four units of 60 MW and two units of 110 MW.

23. This Tribunal in its judgment in appeal No. 129 of 2006 dated November 23, 2006 has also recognized that relaxation in norms needs to be allowed in case of smaller old units. A similar dispensation was also allowed by this Tribunal in appeal No. 81 of 2007 vide its judgment dated January 10, 2008 in the case of Indraprastha Power Generation Co. which also has smaller units of 4X62.5 MW in IP Station, 2X67.5 MW in Rajghat Power House and six Gas Turbines of 30 MW rating and with Waste Heat Recovery Boiler and Steam Turbine.

24. The appellant has indeed been saddled with the operation of many power plants which have been in operation

for more than 30 years. It is also a fact that normally operational life of thermal power plants is of the order of 25 years. However, by carrying out proper Residual Life Assessment (RLA) studies and Renovation and Modernization (R&M) as and when required, the life of these plants can be extended by 10-15 years. It is of no use running plants with lower availability and operational efficiencies. Such plants need immediate Renovation and Modernization if these have to remain in operation. Need for proper R&M has been rightly recognized by CEA and CERC who have, fixed lower operational norms for old plants of lower ratings. This Tribunal has also passed order dated January 10, 2008 in appeal No. 81 of 2007, IPGCL v/s DERC & Ors and GSECL v/s GERC & Ors, 2007 APTEL 1066 to allow lower operational parameters for older plants.

25. In view of the foregoing discussion and analysis we direct that the Commission redetermines various parameters for the year 2006-07 and 2007-08 as prayed for by the appellant.

26. In conclusion we allow the appeal but with no order as to costs. The Commission is directed to: i) delete the last sentence of para 8 of its order and ii) redetermine various operational parameters for the year 2006-07 and 2007-08 as prayed for by the appellant.

27. Before parting we direct that the appellant immediately undertakes studies such as RLA (Residual Life Assessment) and plans for Renovation and Modernization of older plants without further delay. A report to this effect and plan for Renovation and Modernization for all old power plants be submitted to the Commission as well as to this Tribunal in the next six months i.e. by September 01, 2009. Higher operational parameters may be determined by the Commission after R&M works are completed.

(H.L. Bajaj)
Technical Member

(Mrs. Justice Manju Goel)
Judicial Member