

BEFORE THE UTTAR PRADESH ELECTRICITY REGULATORY COMMISSION LUCKNOW

Petition No. 635/09

IN THE MATTER OF: Approval of uprating scheme for 1x110 MW unit no. 7 of Harduaganj Thermal Power Station.

AND

Petitioner:

UP Rajya Vidyut Utpadan Nigam Limited, 14th Floor, Shakti Bhawan Ext.,
14, Ashok Marg, Lucknow

Respondents:

1. The Managing Director, U.P. Power Corporation Ltd., 7th Floor, Shakti Bhawan, 14, Ashok Marg, Lucknow
2. The Managing Director, Purvanchal Vidyut Vitran Nigam Ltd., 132KV Substation, Bhikari Vidyut Nagar, Varanasi.
3. The Managing Director, Pachimanchal Vidyut Vitran Nigam Ltd., Victoria Park Meerut.
4. The Managing Director, Madhyanchal Vidyut Vitran Nigam Ltd., Prag Narain Road, Lucknow.
5. The Managing Director, Dakchinanchal Vidyut Vitran Nigam Ltd., Gailana Road, Agra.
6. The Managing Director, KESCO, Kesa House, Kanpur
7. The CEO, Noida Power Company Limited, H Block, Alpha II, Greater Noida.

ORDER

The Petitioner has filed this petition for approval of uprating scheme of unit no. 7 (1x110 MW) of Harduaganj Thermal Power Station which was commissioned on 28.5.1978 and has completed 31 years of service. The scheme is for uprating of the unit no. 7 from 110 MW to 120 MW via negotiated route with the OEM i.e. M/S BHEL as per the guidelines issued by Government of India (Gol) vide OM No. 12/6/99-Th-3 dated 8.01.2004 and 12/6/99-Th-3 dated 3.2.2004. It includes improvement in Availability, Plant Load Factor (PLF) and Station Heat Rate. The cost of uprating would be Rs. 290 crores without taxes, duties, IDC and cost of ESP and including these it would be Rs. 392 crores. The Detailed Project Report (DPR) has been submitted consisting the details of the scheme. It has been prepared as per guidelines issued by Govt. of U.P. vide letter no. 3201/24-1-08-3468/07 dated 25th Sept. 2008.

Life Extension (LE) of 15 years has been proposed in the scheme. The average PLF for unit no. 7, from year 2003-04 to 2007-08, was 37.77% which is proposed to be

increased to the level of 80% after uprating. The scheme also covers installation of new Electro Static Precipitators (ESP) with emission level of 100 mg/ Nm³ as per norms of Central Pollution Control Board. The unit shall generate about 841 MU of electricity per year after uprating. Other improved parameters shall include unit heat rate - 2325.58 Kcal/kwh, specific oil consumption – 2 ml/kwh and unit availability - 90% (excluding the period of statutory maintenance). The auxiliary power consumption shall come down to 10%. The detailed scope of work as proposed in DPR is as below:

- Conversion of existing tangent wall furnace boiler with welded membrane wall furnace boiler.
- The existing indirect firing with tube mills will be replaced by direct firing system with bowl mills.
- Retrofitting of H.P.Turbine, M.P. Turbine and L.P. turbine with improved design.
- Replacement of existing Governing System by electronic hydraulic Governing System.
- Replacement of existing 125MVA GT by 150 MVA GT.
- Replacement of existing old C&I system by Max DNA C&I system.
- Refurbishment of C.H.P. (TRF as well as Russian)
- Refurbishment of water treatment plant
- Refurbishment of Bottom ash handling plant and slurry disposal system etc .

The work of uprating is proposed to be completed in 25 months which includes shut down period of 7 months. The cost quoted by M/s. BHEL has been negotiated by the negotiating committee set up by UP Govt. The cost of supply & services of BTG & BOP package has been finalized to Rs. 290 crores. For works which may be required to be done after RLA study, the extra amount will be decided after mutual agreement between UPRVUNL & M/s BHEL with maximum limit of Rs 9.00 crores. The prices are BHEL ex- works/BHEL sub-vendor works/BHEL sub-contractors works/ Port of entry in India basis. The prices are exclusive of all central/state/Local taxes, duties/octroi, cess, levies, freight & insurance etc. 80% of the cost of the project will be financed by PFC and the balance 20% by U.P. Govt/internal resources.

The break up of cost on the uprating scheme given in the DPR is as follows:

1.	BTG, BOP (Excluding Taxes & Duties)	:	Rs. 290 Crores
2.	Capping Amount (for CA/RLA based cope)	:	Rs. 9 Crores
3.	Taxes & Duties, Freight Charge & Insurance etc.	:	Rs. 47 Crores
4.	Consultancy Fee (approx.)	:	Rs. 4 Crores

5.	IDC	:	Rs. 42 Crores
6.	TOTAL COST OF PACKAGE	:	Rs. 392 Crores

The Techno Economic viability of the schemes is as below:

1	Net additional revenue generated annually	:	Rs. 51.82 Crores
2	Saving due to improvement in specific oil consumption	:	Rs. 25.98 Crores
3	Saving due to improvement in specific coal consumption	:	Rs. 70.38 Crores
4	Saving due to improvement in aux. power consumption	:	Rs. 17.86 Crores
5	Total revenue Generated per year	:	Rs. 166 Crores
6	Pay back period	:	2.36 years say 2 and ½ years

Sri P. Choudhary, UPRVUNL submitted that the cost of the package include major works like converting the existing tangent wall furnace with welded membrane wall furnace, replacement of present C&I system with the modern DCS system, replacement of 3 numbers of drum mills with 4 numbers XRP 803 Bowl Mills, retrofit of HP/MP Turbine, complete replacement of LP turbine and replacement of generator transformer. The complete replacement of the major equipments will give higher efficiency and may increase useful life for more than 15 years as claimed in the petitions. The unit could be considered as good as a new one. Apart from this the proposed works on Balance of Plants (BOP) are useful for other units of the project also, like coal handling plant, C&I system and DM plant. Sri P.Choudhary, further stated that the norms proposed by the CEA under draft of revised guidelines for R&M/LE works, October,2008, has provided the ceiling of fifty percent of the equipment cost per MW of a new generating unit, in case of LE & up rating. Albeit the cost estimates are a bit higher but it includes major works on common facilities and BOP.

The Commission enquired that in view of huge investments whether the generating company has approached to CEA for techno-economic evaluation.

The petitioner submitted that on 27-01-09, for negotiation on techno-commercial offer of M/s BHEL, a meeting was held which had Shri J. S. Dua, Director CEA as a

member. The meeting was chaired by Shri. Navneet Sehgal, Secretary (Energy) & CMD, UPPCL. In the meeting, the offer made by M/s BHEL was approved.

Vide letter dt. 11.11.09, UPPCL had raised certain technical and other issues related to proposed R & M work. The reply has been submitted by the Petitioner on 23.11.09. During the hearing, Sri. A.N.Ghosh, Consultant, UPPCL raised the issues like the amount of contingency, rate of interest on loan, indemnity and clearance of proposal by Board of Directors and Energy Task Force. He also submitted that for carrying out R & M works, additional shutdowns should be avoided.

Sri P.Choudhary replied that the proposal had already been cleared by Board of Directors and Energy Task Force. The Commission directed him to submit a copy of the clearances on the next day. UPRVUNL has submitted the documents on 26.11.09. Regarding contingency, Sri P.Choudhary stated that the DPR has been prepared with the help of M/s BHEL, a government agency and the OEM, as per the guidelines. The clauses for liquidated damages have been provided for indemnity and the rate of interest has been taken as per the prevailing rates provided by PFC who will be providing 80% of the cost of the package as loan. He also stated that the rate of interest on PFC loan is floating in nature.

The Commission apprehended about the status of financial arrangements and whether the proposal has been approved by PFC. Sri P. Choudhary informed that due to exhausted financial limit at present, PFC has not accorded written clearance till date, although, in principle they have agreed to provide the loan.

The Commission recommended that the Residual Life Assessment (RLA) study should be carried out during the shutdown to ensure proper utilization of running equipments. Scheduled maintenance planning and check up should be ensured for efficient operation and up keep of the plant. The Commission also brought it to the knowledge of the Petitioner that leading Thermal Generating Company in public sector i.e. NTPC has got a very good modus operandi for scheduled maintenance and regular condition assessment/check up that could be followed by UPRVUNL for achieving better performance. The Commission further showed concern over non-sequential supply of material. Many a times it has been observed that this has delayed the completion of work. Therefore, it should be ensured that the materials are procured sequentially. The Commission also advised the Petitioner to deploy a team of dedicated persons to ensure quality work and timely completion.

The Commission showed reservations over such proposal which has uprating of generating capacity of only about 10% and life extension of only 15 years at a huge cost

of more than 3 Crore/MW. Taking in to account the investment on continuing work on Electro Static Precipitators (ESP), as stated by the Petitioner in the petition, the total cost per MW would be further higher. The question arises that whether such an investment was justified or going for a new plant with useful life of 25 years at a cost of 4.5 to 5 Crores/MW would have been a better option?

In view of above, it was directed by the Commission to the Petitioner to submit details of costs on continuing work on ESPs and details of cost estimates on BOP, required to further examine the DPR.

The Petitioner has submitted details of costs on work on ESPs on dt.10.2.10 as below:

S.N.	Costs	Rs. (in Crores)
1	Supply cost	21.50
2	Services Cost	5.20
3	Total Cost	26.70

The Petitioner has also submitted cost estimates on Balance of Plant (BOP) as follows:

S.N.	Costs	Rs. (in Crores)
1	Supply cost	65.00
2	Services Cost	31.00
3	Taxes and Duties	15.00
4	IDC	13.47
5	Total Cost	124.47

The Petitioner has informed that new ESPs are being installed separately under CREP (Corporate Responsibility for Environment Protection) Scheme.

The Commission has observed that the cost estimates per MW on uprating of the 1x110 MW unit is relatively higher than what has been provided under guidelines for undertaking R & M and life extension works in respect of Thermal Power Plants. Albeit in this case, the BOP works include major portion of common facilities. If the proportionate cost on BOP is taken for the unit under consideration then it brings the cost estimate per MW below Rs. 3 Crores/MW. As per CEA the cost of new ESP would not be included in total cost estimates for uprating of the unit and taxes and duties would be in addition to cost indicated in the norms. This will further bring the cost

estimates per MW down to about Rs. 2.5 Crores/MW. The plant is running on derated capacity of 105 MW. The uprating and life extension works would enhance the capacity to 120 MW and increase the life of the plant by 15 years. Considering above with the size of the plant, approximate cost on R&M works comes about 50% of a new plant. The work would be completed within 25 months which includes shut down period of 7 months. The approval of R&M proposal would mean life extension of 15 years with capacity addition of 15 MW at the cost of about 50% of a new plant. In view of the power shortages, time limits and other restrictions, it seems reasonable to go ahead with the proposal.

With above observations, as all the submissions have been made by the Petitioner as per the directions, the Commission opines that there is no need of any further hearing and approves the proposed scheme for R&M of 1x110 MW unit no. 7 of Harduaganj Thermal Power Station with the specific note that concentrated efforts should be made to complete the work as per the schedule. On completion of the proposed R&M works, UPRVUNL shall submit a completion report and file a petition for revision of operating parameters for the plant.

It is further directed to take following into consideration, during execution of R & M activities and afterwards:

1. UPERC's model document for R & M of thermal power stations should be followed for examining the prudence of investment.
2. All the core activities of one particular unit should be planned together and implemented during plant shut down.
3. As far as possible, the activities should be planned in such a way that the R & M works, particularly requiring shut down of unit, be executed during annual or planned maintenance shut downs.
4. Major R & M works should be planned in such a way that shut down is minimized.
5. As far as possible the work should be carried out on turn key basis.
6. The contractual obligation of the supplier/equipment manufacturer/ qualified bidder should be ensured for timely completion of the R & M work.
7. As per GOI guidelines, RLA study should be done simultaneously.
8. A dedicated team shall be constituted to ensure that the R & M work is completed within due time.

9. An expert supervisory team would be constituted to ensure the quality of work. The team may comprise experts from NTPC and CEA with due discussions with them.

A quarterly report on progress of R & M work would be submitted to the Commission by UPRVUNL.

The petition is disposed of.

(Rajesh Awasthi)

Chairman

Lucknow; Dated: 18th February, 2010