

**ORISSA ELECTRICITY REGULATORY COMMISSION**  
**BIDYUT NIYAMAK BHAWAN**  
**UNIT-VIII, BHUBANESWAR - 751 012**  
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Present : Shri B.K. Das, Chairperson  
Shri K.C. Badu, Member  
Shri B. K. Misra, Member

**Case No. 22/2010**

OPTCL ..... Petitioner

Vrs.

DoE, GoO & Ors. .... Respondents

**In the matter of: Investment proposal – for construction of 132/33KV and 220/132KV s/s alongwith transmission lines on availing loan assistance from REC/PFC.**

For Petitioner: Shri Ranjit Das, G.M., Shri L.R. Dash, AGM, Shri G.K. Padhi,  
Manager, OPTCL.

For Respondent: Srhi S. K. Mahanty, Consultant (Legal), DoE, GoO, Shri A. K.  
Bohra, CEO (Com), CSO, Shri B. K. Lenka, COO, CESU.

**Date of Hearing: 20.08.2010**

**Date of Order : 03.09.2010**

**ORDER**

During hearing the Commission has directed to all the parties to submit their written reply, if any, by 25.8.2010. Accordingly, the DISCOMs have filed their reply.

OPTCL has submitted an application dated 20.3.2010 for approval of investment for conversion of grid S/S at Jharsuguda and construction of grid S/S at Kuanrmunda, Cuttack as below:

- i) Conversion of existing 32.5 (20+12.5) MVA, 132/11 KV sub-station to 2X40 MVA, 132/33 KV sub-station at Sarasmal, Jharusuguda along with diversion of existing 132 KV S.C.line with an estimated cost of Rs.13.14 crores with funding from own resources and from suitable financial institutions.
- ii) Construction of new 2X100 MVA, 220/132 KV & 2X40 MVA, 132/33 KV sub-station at Kuanrmunda along with associated transmission line with an estimated cost of Rs.62.12 crores with funding from own resources and from financial institutions.

- iii) Construction of new 2X100 MVA, 220/132 kV sub-station at Cuttack along with associated transmission line and bay extension with an estimated cost of Rs.30.39 crores with funding from own resources and from financial institutions.

The total investment has been estimated to be Rs.105.65 crores.

- 2. As per License Condition 10 read with Condition 23.1 of OPTCL, approval of the Commission is required for cost beyond Rs.10.00 Cr. The investment sought for the individual proposals as also the total proposals stated above exceed Rs.10 cr. As per the Licence Condition, the Licensee is required to satisfy to the Commission (i) about need of such investment; (ii) that it has examined the economic, technical system and environmental aspects of all alternatives.

The Licensee is required to furnish to the Commission (i) a DPR, (ii) project cost with cost benefit analysis, (iii) whether it is a new project or an expansion/ up-gradation, (iv) sanctions/ statutory clearance (v) phasing of investment and commissioning schedule, (vi) manner of capitalizing the investment in the revenue requirement, (vii) constraints in making investment, (viii) resource mobilization and financial plans, (ix) process of finalizing the tender through Commission's approved transparent procedure, and (x) any of the item as required by the Commission.

- 3. In the application of OPTCL, it has been found that the investments have been justified for improvement of power supply system, reducing loading on certain line section of OPTCL's network, reducing the overall/ transmission losses and improvement of voltage profile. OPTCL has made the system study with the existing arrangement and the proposed arrangement for three investment proposals. The BoD of OPTCL has accorded the approval for Conversion of existing 132/11 KV sub-station to 132/33 KV sub-station at Sarasmal, Jharusuguda, Construction of 132/33 KV sub-station at Kuanrmunda and Construction of 220/132 kV sub-station at Cuttack in its 37<sup>th</sup> Meeting held on 18.12.09, 27<sup>th</sup> Meeting held on 15. 9.2008 and 36<sup>th</sup> Meeting held on dt.28.10.2009 respectively.
- 4. The present power supply to the area loads & industrial loads in and around Jharusuguda are met from 132/11 KV sub-station at Sarasmal, which is availing power at 132 KV from nearby 220/132 KV sub-station at Budhipadar,

Jharsuguda. Also a good number of new industries, particularly Steel, Aluminium and Power are coming in and around Jharsuguda. In order to cater to the present and future load demand of Jharsuguda town and upcoming industries in and around Jharsuguda, it has been proposed to convert the existing 132/11 KV, 32.5(20+12.5) MVA sub-station at Sarasmal to 132/33 KV, 2X40 MVA sub-station.

Further, after implementation of this conversion scheme, power supply to the distribution licensee will be available at 33 KV level. OPTCL, being the transmission licensee, will be relieved of the burden of maintaining the 11 kV system available at present in Sarasmal, Jharsuguda. By this, OPTCL expects that there will be improvement in quality and reliability of power supply to Jharsuguda town as well as to the upcoming industrial belt around Jharsuguda.

5. The present power supply to Kuanmunda Kalunga, Biramitrapur area are met from 132/33 KV grid sub-stations at Chhend, Rourkela and Rajgangpur. Due to growth of industries around Kuanmunda Kalunga, Biramitrapur, Kansbahal, Rajgangpur and Rourkela area, ultimate load demand of 132/33 KV grid sub-stations at Chhend, Rourkela and Rajgangpur is increasing rapidly. Availability of additional power to meet the demand of upcoming industries around the aforesaid area is not feasible from the existing grid sub-stations. In order to cater to the load demand of upcoming industries around Kuanmunda, Kalunga, Biramitrapur and Railway Traction, OPTCL has proposed to construct one 220/132/33 KV grid sub-station at Kuanmunda on Ckt-I of 220 KV Budhipadar-Tarkera line with provision to connect the existing Ckt-II of 220 KV Budhipadar-Tarkera and 132 LV Burla-Budhipadar D.C.feeder in future. By this, OPTCL expects the improvement in quality and reliability of power supply in and around Rourkela industrial belt. Also, after commissioning of Kuanmunda 220/132/33 KV grid sub-station, burden on Tarkera 220/132 KV auto transformers and load on Chhend, Rourkela and Rajgangpur 132/33 KV grid sub-stations would be relieved to a greater extent.
6. At present Cuttack (Nuapada) 132 KV grid sub-station is drawing power from Bidanasi 220/132 KV sub-station through 132 KV SC line routed through Chandaka & Mancheswar sub-station reserve bus having a line length of 58 Km. Further, the 132/33 KV sub-station at Jagatsingpur is availing power from Cuttack (Nuapada) sub-station through 132 KV S.C. line having a length of 35.11 KM.

The peak load flow in this S.C. line from Bidanasi sub-station to Cuttack (Nuapada) sub-station is 77 MW. The size of conductor used in the existing system is ACSR Panther. Phulnakhara 2 X20 MVA, 132/33 KV sub-station, which is already commissioned, is connected to this line through LILO arrangement resulting further loading of this S.C. line.

OPTCL has thus intended to connect Bidanasi 220 kV sub-station with Cuttack 132/33 kV sub-station by constructing 220 kV D.C. line and installation of 2X100 MVA, 220/132 KV auto transformers at Cuttack (Nuapada). Steps have already been taken separately by OPTCL for construction of the said 220 kV line. Upon completion of the proposed 220 kV D.C. line from Bidanasi sub-station to Cuttack (Nuapada) and installation of 2 nos. 100 MVA auto transformers, OPTCL expects that there will be improvement in quality and reliability of power supply to Cuttack & Jagatsingpur areas which are presently fed from both the existing 132/33 KV sub-station. The increase in load growth of urban and rural areas around Cuttack and Jagatsinghpur could also be met by this proposed 220/132 KV sub-station at Cuttack. This will further release the 132 kV reserve bus of Chandaka as well as Mancheswar sub-stations now utilized to feed Cuttack 132/33 kV sub-station and also facilitate better operation & maintenance of these sub-stations. Phulnakhara 132/33 KV sub-station now operating with LILO arrangement from 132 KV S.C. line from Mancheswar to Cuttack (Nuapada) can avail power directly from Cuttack sub-station through an independent feeder and thus there will be flexibility to avail power at 132 kV.

Hence, OPTCL has justified the need of the project.

7. OPTCL has made the techno-economic analysis which is summarized as below:
  - i). For conversion of existing 32.5 (20+12.5) MVA, 132/11 KV sub-station to 2X40 MVA, 132/33 KV sub-station at Sarasmal, Jharusuguda, OPTCL has projected the reduction of average annual loss to the extent of 0.118 MW, which with consideration of Rs.2.17/ KWH, comes to Rs.8.784 lakh in monetary term. Expectation of 60% utilization of 2x40 MVA capacity at the proposed grid S/S and with 4% transmission loss shall make available additional 862.825 LU, which shall cause OPTCL to earn additional annual revenue of Rs.176.879 lakh at the wheeling cost of 20.5 paise. Thus, OPTCL expects total annual revenue from investment No. 1

to the tune of Rs.185.663 lakh. The average rate of annual return has thus been found to be 14.131%.

- ii). For construction of new 2X100 MVA, 220/132 KV & 2X40 MVA, 132/33 KV sub-station at Kuanrmunda along with associated transmission line, OPTCL has projected the reduction of average annual loss to the extent of 2.264 MW, which with consideration of Rs.2.17/ KWH, comes to Rs.168.566 lakh in monetary term. Expectation of 60% utilization of 2x100 MVA capacity at the proposed grid S/S and with 4% transmission loss shall make available additional 3632.947 LU, which shall cause OPTCL to earn additional annual revenue of Rs.744.754 lakh at the wheeling cost of 20.5 paise. Thus, OPTCL expects total annual revenue from investment No. 2 to the tune of Rs.913.320 lakh. The average rate of annual return has thus been found to be 14.702%.
  - iii) For construction of new 2X100 MVA, 220/132 kV sub-station at Cuttack, OPTCL has projected the reduction of average annual loss to the extent of 6MW, which with consideration of Rs.2.17/ KWH, comes to Rs.446.731 lakh in monetary term. Expectation of 60% utilization of 2x100 MVA capacity at the proposed grid S/S and with 4% transmission loss shall make available additional 3632.947 LU, which shall cause OPTCL to earn additional annual revenue of Rs.744.754 lakh at the wheeling cost of 20.5 paise. Thus, OPTCL expects total annual revenue from investment No. 3 to the tune of Rs.1191.485 lakh. The average rate of annual return has thus been found to be 39.212%.
8. From the project implementation schedules submitted in the Transmission Project Reports, the S/S at Sarasma, Jharsuguda is expected to start from April, 2010 and to be completed by March, 2012., the S/S at Kuanrmunda is expected to start from April, 2010 and to be completed by March, 2013 & the S/S at Cuttack is expected to start from April, 2010 and to be completed by March, 2013.
9. As stated by OPTCL, these projects are not having any adverse environmental impacts. OPTCL has submitted the Environmental Impact Assessment (EIA) Study for three projects.
- OPTCL has stated that the procurement of materials and services shall be taken up through National Competitive Bidding. The entire work for these proposed

projects shall be treated as single packages separately and the award would be made on Turn-key basis for the three individual proposals.

10. During the hearing on dt.04.5.2010, the Commission had directed to implede concerned DISCOM's as a party to the petition, to ascertain the requirement of such investment and their prepadness regarding construction of associated connectivity for diversion of loads from the proposed projects of OPTCL. The Commission has also desired to know the final view of DoE, GoO on the investment proposal submitted by OPTCL.

In regard to this, GoO has submitted through affidavit dt.16.07.10 that the investment proposals of OPTCL are necessary not only for strengthening of transmission network but also required to cater to the upcoming load growth in rural and urban areas of the concerned districts of the state. He further urged to have a appropriate implementation mechanism to monitor the progress of work so as to avoid time and cost overrun of the projects.

11. During the hearing on 20.8.10, CESU has submitted that the construction of 220/132 KV, 2X100 MVA S/S along with 220 KV d/C line shall help to improve the quality and reliability of power in Cuttack and Jagatsinghpur area. The proposal is highly justified from the point of present voltage improvement along with to meet the future requirement of Cuttack and Jagatsinghpur area. Further existing 132/33 KV Phulnakhara S/S can avail power supply either from Cuttack or from Mancheswar S/S at the time of requirement. CESU shall intimate the information on connectivity for diversion of load after proper assessment of load growth around the concerned areas at a later date.

The other two projects i.e. conversion of 132/11 KV S/S (20+12.5 MVA) to 132/33 (2X40 MVA) at Jharsuguda and 220/132 (2X100 MVA) & 132/33(2X40) MVA S/S at Kuanrmunda are belong to WESCO licensee area. With regard to this, WESCO being the primary beneficiary has submitted that the above projects are required for improvement of existing 33 KV voltage profile and also reduce both transmission and distribution loss. The up-gradation as well as additional proposed S/S is required to accommodate the future industries coming up in the Jharsuguda-Kuanrminda belt. WESCO further proposed for provision of at least 7

nos. of 33 KV bays in the proposed 220/132/33 KV S/S at Kuanrmunda and at least 5 nos. of bays at Jharsuguda S/S for their use.

12. After hearing all concerned, the Commission directs as hereunder:

- (a) The Commission has directed that the investment proposal should be in accordance with the requirement of DISCOMs and the Business Plan for the control period as laid down in Clause 6.9 of the General Conditions of Transmission Licence. OPTCL should provide 7 nos. and 5 nos. 33 KV bays at the proposed Kuanrmunda and Jharsuguda S/S, respectively. OPTCL should chalk out the plan of execution so that the proposed projects shall be completed within the specified time.
- (b) For any future projects, OPTCL should have prior discussion conditions with DISCOMs and all investments required are to be in accordance with Clause 7 of the General Conditions of Transmission Licence.
- (c) In view of exigencies of the proposed projects, the Commission hereby grants approval to the prayer made by OPTCL in continuation to the earlier in principle approval given vide order dt.04.05.10. However, OPTCL is required to follow all the statutory requirements and clearances for carrying out the projects. OPTCL should see that there is absolutely no time or cost over-run and the requirement of DISCOMs should be accommodated while executing the projects, if not already incorporated in the original DPR by making suitable modification to avoid duplication of work at a later date.

13. Accordingly, the case is disposed of.

**Sd/  
(B. K. Misra)  
Member**

**Sd/  
(K. C. Badu)  
Member**

**Sd/  
(B.K. Das)  
Chairperson**