

**ODISHA ELECTRICITY REGULATORY COMMISSION  
BIDYUT NIYAMAK BHAVAN  
UNIT-VIII, BHUBANESWAR – 751 012**

Present :        Shri S.P.Nanda, Chairperson  
                      Shri B.K.Misra, Member  
                      Shri, S.P.Swain, Member

**CASE NO.43 OF 2012**

OPTCL	.....	Petitioner
Vrs.		
WESCO, NESCO, SOUTHCO, CESU & DoE	.....	Respondents

**In the matter of :**    **An application for investment proposal of Rs.126.62 Cr. to be taken up from the current FY 2012-13 for construction of 220/132 & 132/33 kV Grid S/S along with associated transmission lines and 220 kV & 132 kV transmission lines on availing loan assistance from suitable funding agency.**

For Petitioner:        Shri A.K.Sarkar, Sr.GM (TP & Con.)  
                              Shri L.R.Dash, AGM (OPTCL)

For Respondents:    Shri Lingaraj Padhi, DGM, CESU  
                              Shri Manas Kumar das, GM (PT), CSO, WESCO, NESCO & SOUTHCO.  
                              No body is present on behalf of the DoE, GoO.

**Date of Hearing: 19.06.2012**

**Date of order: 23.06.2012**

**ORDER**

OPTCL has submitted an application on dated 30.05.2012 for approval of investment of Rs. 126.62 Cr. for construction of the following five nos. of new transmission projects.

- (i) Construction of 2<sup>nd</sup> 220 KV double circuit link between 220/132/33 KV Jayanagar grid sub-station of OPTCL & 400/220 KV Jeypore grid sub-station of PGCIL along with associated feeder bays at both ends with an estimated cost of Rs.21.55 crores with funding from own resources and from financial institutions.
- (ii) 132 KV system at 400/220 KV grid sub-station, Mendhasal with installation of 220/132 kV, 2X160 MVA transformers with an estimated cost of Rs.33.69 crores.

- (iii) 132 KV S/C transmission line on D/C tower from 132/33 KV grid sub-station, Salipur to 132/33 KV grid sub-station, Kendrapara with an estimated cost of Rs.13.71 crores.
- (iv) 2X40 MVA, 132/33 KV grid sub-station at Khajurikata, Dhenkanal alongwith associated transmission line with an estimated cost of Rs.26.12 crores.
- (v) 2X20 MVA, 132/33 KV grid sub-station at Konark along with associated transmission line with a estimated cost of Rs.31.55 crores.

The total investment has been estimated to be Rs. 126.62 cr.

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. On examination of the application of OPTCL, it is 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 five investment proposals. OPTCL has submitted the proposal taking into account the fundamental requirement to ensure the quality of supply to consumers and to enable OPTCL to receive an economic return. The BoD of OPTCL has accorded the approval for construction of 2<sup>nd</sup> 220 KV double

circuit link between 220/132/33 KV Jayanagar grid sub-station of OPTCL & 400/220 KV Jeypore grid sub-station of PGCIL in its 47<sup>th</sup> meeting held on 23.06.2011, 132 KV system at 400/220 KV grid sub-station, Mendhasal in its 44<sup>th</sup> meeting held on 08.11.2010, 132 KV S/C transmission line on D/C tower from 132/33 KV grid sub-station, Salipur to 132/33 KV grid sub-station, Kendrapara in its 40<sup>th</sup> meeting held on 17.04.2010 & 2X40 MVA, 132/33 KV grid sub-station at Khajurikata in its 44<sup>th</sup> meeting held on 08.11.2010 and 2X20 MVA, 132/33 KV grid sub-station at Konark in its 46<sup>th</sup> meeting held on 29.03.2011.

4. (i) The present power supply to Jeypore and its adjoining areas are met through bulk power received through Jayanagar 220/132/33 kV sub-station which is connected to Balimela, Upper Kolab & Machhkund Hydro Power Stations. This apart, Jayanagar 220/132 kV sub-station is connected to 400/220 kV sub-station of PGCIL through one 220 kV D/C line and delivers bulk power through 220 kV lines mainly to Southern & Western regions of the State. During shortages, the shortfall power needs to be made up from the national grid network through the 400/220 kV sub-station of PGCIL at Jeypore.

The proposed second 220 kV D/C link line can also meet the additional power requirement of the neighboring State Andhra Pradesh from the available additional central sector power through Upper Sileru 220 kV S/C line at the time of need and generate more revenue for OPTCL through wheeling/sale of additional power. This will bring in more stability to the transmission system of OPTCL at 220 kV and cater uninterrupted/reliable power to the most backward KBK area and help to combat the Naxalite violence in the region as well as meet the growing demand of consumers electrified under Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) as well as Biju Gram Jyoti Yojana (BGJY) schemes.

- (ii) To improve the quality and reliability of power supply to master plan area of capital city, Bhubaneswar and its adjoining areas as well as to minimize losses, 2 nos. of 220/132 kV, 160 MVA transformers at existing Mendhasal 400/220 kV sub-station are required. OPTCL submitted that due to locational advantage and proximity to load

center, Mendhasal is the ideal place for construction of this 220/132 kV sub-station. There will be improvement in power supply position in the areas fed from 132/33 kV sub-stations at Khurda, Ranasinghpur, Kesura, Nimapada, Puri, Chandaka, Mancheswar after erection of 132 kV system at Mendhasal sub-station. It can also meet the future load demand of different sectors like Tourism, Industries, Education, Health, Railways, Aviation, IT and other core sectors of master plan area of Capital city, Bhubaneswar.

- (iii) At present, Salipur 132/33 kV sub-station is availing power supply at 132 kV from 132/33 kV ICCL switching station through ICCL - Salipur 132 kV S/C line and Kendrapara 132/33 kV sub-station is availing power supply at 132 kV from either 132/33 kV Jajpur Road sub-station or Paradip 200/132 kV sub-station. During shutdown / breakdown of the ICCL - Salipur 132 kV S/C line, the area fed from 132/33 kV Salipur sub-station virtually remains without power. To overcome such eventuality, OPTCL has proposed to link both Salipur sub-station and Kendrapara sub-station through 132 kV S/C line on D/C tower. The proposed Salipur - Kendrapara 132 kV S/C line having a length of 33.61 km will be an alternative power supply source for both the sub-stations at the time of need. This will help in minimizing power interruption, improvement in voltage profile and to meet the future load demand of the area.
- (iv) At present Khajuriakata area is getting power supply at 33 kV in a single feeder from 132/33 kV sub-station at Dhenkanal with a line length of 45 km. Further, Gundichapada (1x7.5 MVA + 1x5 MVA + 1x3.5 MVA) & Joranda (2x1.6 MVA) 33/11 kV sub-stations are loaded to the same feeder. Being overloaded, the voltage level at the 33/11 kV tail end sub-stations remain below the permissible level. Installation of 2x40 MVA, 132/33 kV sub-station at Khajuriakata is required to eradicate low voltage problem of Kajuriakata, Hindol & Hindol Road areas and to reduce the burden on the 132/33 kV transformers at Dhenkanal as well as to reduce loss.
- (v) The present power supply to Konark is met at 33 kV through a single circuit feeder of 18 KM long line, from 132/33 kV, 2x12.5 MVA + 1x40 MVA sub-station at Nimapara

(Dighalo) which is about 20 km away. The total installed capacity of 33/11 kV sub-stations at Nimapara, Pipili, Kakatpur, Astarang, Konark, Chhaitana fed from Nimapara (Dighalo) 132/33 kV sub-station is 52.45 MVA. In case of breakdown of the existing S/C 33 kV feeder, there is no alternative power supply available at Konark which is an important international tourist destination. To avoid, resentment among the local people as well as tourists during line breakdown and to eradicate low voltage problem and to provide stable power supply to Konark, Gop, Kakatpur, Astarang, Chhaitana areas installation of 2x20 MVA, 132/33 kV sub-station at Konark is required. This will minimize power interruption, improve voltage profile and also can meet the future load demand of the said area and reduce the losses in the existing system.

Hence OPTCL has justified the need of the project.

5. OPTCL has made the techno-economic analysis which is summarized as below:

- (i) Construction of new 2<sup>nd</sup> D/C link between 220 KV Jayanagar S/S of OPTCL to 400 KV Jeypore grid S/S of PGCIL along with associated feeder bays at both ends, OPTCL has projected the reduction of average annual loss to the extent of 1.043 MW, which with consideration 60% utilization at Rs.2.17/ KWH, comes to Rs.77.903 lakh in monetary term. Expectation of 60% utilization from additional power of 50 MW, with 3.8% transmission loss shall make available additional 2528.136 LU, which shall cause OPTCL to earn additional annual revenue of Rs 632.034 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual revenue from investment No. 1 to the tune of Rs. 709.937 lakhs. The average rate of annual return has thus been found to be 32.9%.
- (ii) Construction of new 2X160 MVA, 220/132 kV sub-station at 400/220 kV S/S Mendhasal. OPTCL has projected the reduction of average annual loss to the extent of 1.286 MW, which with consideration of Rs.2.17/ KWH, comes to Rs.96.005 lakh in monetary term. Expectation of 60% utilization of 2x160 MVA capacity at the proposed grid S/S and with 3.8% transmission loss shall make available additional 5824.825 LU, which shall cause OPTCL to earn additional annual revenue of Rs.1456.206 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual

revenue from investment No.2 to the tune of Rs.1552.211 lakhs. The average rate of annual return has thus been found to be 46.1%.

- (iii) Construction of 132 KV transmission line on D/C tower from 132/33 kV grid s/s, Salipur to 132/33 KV s/s, Kendrapara. OPTCL has projected the reduction of average annual loss to the extent of 0.897 MW, which with consideration of Rs.2.17/ KWH, comes to Rs.66.931 lakh in monetary term. Expectation of 60% utilization addition 10 MW power available at Salipur grid S/S and with 3.8% transmission loss shall make available additional 505.627 LU, which shall cause OPTCL to earn additional annual revenue of Rs.126.407 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual revenue from investment No.3 to the tune of Rs.193.338 lakhs. The average rate of annual return has thus been found to be 14.1%.
- (iv) Construction of new 2X40 MVA, 132/33 kV sub-station at Khajurikata in Dhenkanal District, along with associated transmission line, OPTCL has projected the reduction of average annual loss to the extent of 1.111 MW, which with consideration of Rs.2.17/ KWH, comes to Rs.82.840 lakh in monetary term. Expectation of 60% utilization of 2x40 MVA capacity at the proposed grid S/S and with 3.8% transmission loss shall make available additional 2548.361 LU, which shall cause OPTCL to earn additional annual revenue of Rs.637.090 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual revenue from investment No.4 to the tune of Rs.719.930 lakhs. The average rate of annual return has thus been found to be 27.6%.
- (v) Construction of new 2X20 MVA, 132/33 kV sub-station at Konark in Puri District along with associated transmission line, OPTCL has projected the reduction of average annual loss to the extent of 0.845 MW, which with consideration of Rs.2.17/ KWH, comes to Rs.63.091 lakh in monetary term. Expectation of 60% utilization of 2x20 MVA capacity at the proposed grid S/S and with 3.8% transmission loss shall make available additional 1274.181 LU, which shall cause OPTCL to earn additional annual revenue of Rs.318.545 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual revenue from investment No. 1 to the tune of Rs.381.636 lakhs. The average rate of annual return has thus been found to be 12.1%.

6. From the project implementation schedules submitted in the Transmission Project Reports, the projects proposed at Serial (i) to (iv) above are expected to be completed by December, 2014, where as the project proposed at Serial No.(v) above shall be completed by June, 2014.
7. As stated by OPTCL, there is no adverse impact on environment due to execution of the aforesaid projects. OPTCL has submitted the Environmental Impact Assessment (EIA) Study for the aforesaid five projects.
8. OPTCL 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 two individual proposals.
9. (i) CESU being the primary beneficiary of the proposed projects has submitted that due to the proposed system reinforcement activities, overloading of the existing feeders will be reduced and reliability of quality power supply shall be ensured. Power supply position shall improve in and around Bhubaneswar after execution of the proposed 132 kV system at Mendhasal. Further, proposed 132 kV transmission line from Kendrapara will be helpful for minimization of power interruption & improvement of voltage profile in Salipur area. Also by this connectivity, alternative power supply can be available at Salipur and Kendrapara 132 kV grid S/S. Similarly the proposed 132/33 kV S/S at Khajurikata (Dhenkanal) and Konark (Puri) will be helpful for improvement in voltage profile, minimization of loss/power interruption and also to meet the upcoming load growth. With the above submission, CESU expressed its consent to the investment proposals proposed by OPTCL.  
  
(ii) SOUTHCO has submitted that although the proposed 220 KV link in between Jeypore 400/220 kV S/S of PGCIL and Jayanagar 220 KV S/S of OPTCL is not directly strengthening the SOUTHCO's drawl system, but reliability of power supply shall be improved when there is less generation by State Hydro Generating Stations.

SOUTHCO thus expressed its consent for the above proposed 200 kV transmission link.

- (iii) No comments/views/suggestions have been received from other two distribution licensees, namely, NESCO and WESCO perhaps due to the fact that the proposed transmission projects of OPTCL are not coming under their area of operation.
10. During the course of hearing on 19.06.2012, in regard to the plan of execution and technical justification of the project, Sr.G.M(T.P. & C) on behalf of OPTCL replied that all the five projects are beneficial to the state and shall be helpful for improvement of voltage profile & reduction of system loss. OPTCL stated that the working capital, should be from own resources of OPTCL and funding of balance amount is to be availed from suitable funding agency.
11. The Commission desired to know the plan of execution so that the proposed projects could be completed within the specified time. OPTCL submitted that some preliminary works for the projects has already been completed. The Commission directed to develop a strategy to expedite the execution of the projects and Sr.G.M(TP&C) should review the status of the projects in each quarter & submit a report on the details of exact progress to the CMD, OPTCL.
12. OPTCL may go ahead with its proposals keeping adequate provision for future extension.
13. After hearing all concerned and going through the records, the Commission directs as hereunder:
- (i) In view of the exigencies of the proposed projects, the Commission hereby grants approval to the prayer made by OPTCL. However, OPTCL is required to follow all the statutory requirements and clearances for carrying out the projects. OPTCL should ensure 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 modifications to avoid duplication of work at a later date. The concerned DISCOMs should also be intimated before hand to be ready with their downward evacuation arrangement to derive the ultimate benefit. No investment should remain idle either on account of downstream evacuation or upstream connectivity.

- (ii) In respect of the aforesaid projects proposed by OPTCL, the Commission has noted some inconsistencies in its various submissions before OERC over time, like Business Plan approval (approved in Case No.51 of 2007 vide order dt 19.07.2010), performance review of OPTCL for FY 2011-12 held on 22.05.12 and Intra State Transmission Plan (submitted recently vide letter no. 2250 dt.26.03.2012) in terms of inclusion/exclusion of projects, detailing of the projects & costs etc. The Commission opines that addition/deletion/allocation of any transmission project may have some bearing on the load flow, short circuit and transient stability of the system, which in turn have some effect on the security of transmission system. OPTCL is required to submit its transmission plan in accordance with the provisions laid down in Regulation 3.8(1) of the Orissa Grid Code read with Conditions 16.1 of the Transmission License and Practice direction on formulation of perspective plan issued by the Commission on 09.04.2001. Hence, submission of proposals of transmission schemes in a piecemeal manner instead of having an integrated approach, considering the power system studies etc. for the state over a time is not desirable.
- (iii) OPTCL had submitted a Transmission Plan up to the end of 12<sup>th</sup> Plan period for approval, while IPP evacuation plan has already been registered in Case No.71 of 2011. The Commission, on the appeal of OPTCL vide its affidavit dated 10.05.2012 & 01.06.2012 in the matter of aforesaid approval for Intra State Transmission Plan, has directed OPTCL vide letter 3496 dt.13.06.2012 to submit the said plan after finalization of IPP evacuation plan. In this regard, OPTCL is required to convey meetings with Independent Power Producers during June, 2012 for a meaningful discussion on the proposed evacuation plan

and submit their amended/revised evacuation plan by July, 12, after which the Transmission Plan have to be submitted by OPTCL.

However, in view of the complexities involved in finalizing the IPP evacuation plan, in case the same is delayed due to any reason, the Commission does not wish to delay any more the intra State Transmission Plan, in order to address the transmission line strengthening issues and to meet the future demand growth of DISCOMs at the load end. This is normally an important requirement before examining the aforesaid project proposals and according approvals thereof by the Commission. Hence, the Commission hereby directs OPTCL to submit the revised Intra State Transmission Plan (upto the end of 12<sup>th</sup> plan period i.e. 2016-17), in the proper format along with all relevant documents/ annexure including year-wise implementation plan & investment priority etc. on or before 18<sup>th</sup> Aug, 2012 for approval of the Commission.

- (iv) OPTCL should chalk out the plan of execution so that the proposed projects shall be completed within the specified time. OPTCL should submit the actual cost estimate after finalization of the tendering mentioning the expected date of completion.
14. With the above directions and observations the five investment proposals of OPTCL estimated as 126.62 Cr. is hereby approved and accordingly the case is disposed of.

Sd/-  
**(S.P. Swain)**  
Member

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

Sd/-  
**(S.P. Nanda)**  
Chairperson