

**ODISHA ELECTRICITY REGULATORY COMMISSION  
PLOT NO.4, CHUNOKOLI, SAILASHREE VIHAR,  
BHUBANESWAR - 751021**

\*\*\* \*\*

**Present : Shri U. N. Behera, Chairperson  
Shri S. K. Parhi, Member**

**Case No.60 of 2016**

OPTCL	..... Petitioner
Vrs.	
CESU AND OTHERS	..... Respondent

**In the matter of: An application under condition 10 of its License Conditions as per Order dt.27.10.2006 passed in Case No.22 of 2006 seeking approval of the Investment Proposal amounting to Rs.391.39 Crores towards construction of 220/132/33 KV, 220/33 KV & 132/33 KV sub-stations along with associated 220 KV & 132 KV transmission lines at Kiakata, Kalimela, Ghens, Agarpada, G.Udaygiri, Gondia and Bahugram availing loan assistance from suitable funding agency.**

For the Petitioner: Shri N. C. Swain, CGM (Con), Zone-I, OPTCL, Shri C. R Mishra, AGM, OPTCL, Shri A. K. Nanda, AGM, OPTCL,

For the Respondent: Shri S. K. Sahu, G.M. (CESU), Shri Dipankar Behera, DGM (CESU), Shri K. C. Nanda, DGM(F), WESCO, Ms. Niharika Patnaik, ALO, Govt. of Odisha

Nobody is present on behalf of GRIDCO Ltd., NESCO Utility & SOUTHCO Utility.

**Date of hearing: 04.07.2017**

**Date of Order:18.10.2017**

**ORDER**

OPTCL, the petitioner has submitted an application for approval for setting up of substations at Kiakata, Kalimela, Ghens, Agarpada, G.Udaygiri, Gondia and Bahugram As per License Condition 10 read with Condition 23.1 of OPTCL, the petitioner is required to take approval of the Commission, if the proposed investment is Rs.10.00 Cr. or beyond that level. The present investment proposal exceeds the said limit. As per the Licence Condition, the Commission is to be satisfied about need of such investment and is also to examine the economic, technical system and environmental issues attached to such investment. The details of investments are as follows:

2. OPTCL has proposed construction of new 2X100 MVA and 1X20 MVA, 220/132/33 kV S/S at Kiakata (Angul District) along with associated 124.64 Km 220 KV D/C line from Katapali 220/132 kV Grid S/S and 20 KMs 132 kV D/C line from 132 kV grid S/S at

Boudh with an estimated cost of Rs.156.11 crores. The funding for the same shall be arranged from Japan International Co-operation Agency (JICA) under package 7 and entire package would be carried out on turnkey basis through a single party. The proposed S/S at Kiakata is basically required for system strengthening purpose since the 220 KV systems in nearby districts like Angul, Kandhamal, Sonepur are very weak. Further, OPTCL proposed to add this S/S in its transmission system for extension of quality and reliable power to the consumers of CESU. Also after construction of 132 KV Phulbani-Boud line, interconnection between SOUTHCO & WESCO will be established. This will increase the power supply reliability of that area. With this project, OPTCL has projected the reduction of average annual loss to the extent of 2.04 MW, which with consideration of Rs.2.47/ KWH, comes to Rs.173.74 lakh in monetary term. Expectation of 70% utilization of 2x100+1x20 MVA capacity and with 3.7% transmission loss shall make available additional 7284.82 LU, which shall cause OPTCL to earn additional annual revenue of Rs 1753.82 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual revenue from this investment to the tune of Rs.1927.56 lakhs. The average annual rate of return has thus been found to be 12.35%. This proposed s/s will also feed the load of upcoming 2X3.15 MVA Bareni Chowk distribution s/s coming under ODSSP scheme.

3. OPTCL has proposed construction of new 2X20 MVA, 220/33 kV S/S at Kalimela (Malkangiri District) along with associated 220 kV single circuit line of 39.76 KMs by LILO arrangement of one circuit of 220 KV Balimela to Malkangiri DC line with an estimated cost of Rs.56.67 crores with funding from OPTCL own resources or availing loan from outside funding agency. Giving justification of the proposal, OPTCL submitted that at present, the entire Malkangiri District is facing acute low voltage problem as well as frequent power interruption due to single S/S at Balimela. The voltage is even around 60 to 80 Volts in peak hours in the areas like Podia Block, MV-79 and Motu etc., as these areas are more than 140 km away from Balimela S/S and are fed through a single 33 kV feeder. The concerned DISCOM SOUTHCO has also agreed with proposal for construction of a S/S at Kalimela. OPTCL has projected the reduction of average annual loss to the extent of 1.18 MW with addition of this project, which with consideration of Rs.2.47/ KWH, comes to Rs.100.64 lakh in monetary term. Expectation of 70% utilization of 2x20 MVA capacity at the proposed grid S/S and with 3.7% transmission loss shall make available additional 1275.51 LU, which shall cause OPTCL to earn additional annual revenue of Rs.318.88 lakhs at the wheeling cost of 25 paise. Thus,

OPTCL expects total annual revenue from this investment to the tune of Rs.419.51 lakhs. The average rate of annual return has thus been found to be 7.4%. The proposed s/s in this LWE affected area is necessary to implement some developmental projects like establishment of hospitals with modern equipments and deep bore well etc.

4. OPTCL has proposed construction of new 2X20 MVA, 132/33 kV S/S at Ghens ( Baragarh District) along with associated 28.87 Km 132 KV DC line from 220/132/33 kV grid sub-station at Baragarh Grid S/S with an estimated cost of Rs.32.82 crores with funding from OPTCL own resources or availing loan from outside funding agency. OPTCL submitted that Ghens area is availing power supply from existing Sohela primary sub-station (PSS) which is 80 km away and Sohela PSS is fed from 132/33 kV Baragarh Grid S/S. As reported, since the receiving 11 kV voltage at peak load hours at Ghens is around 4-5 kV, construction of a S/S in this area is highly essential. The concerned DISCOM, WESCO has agreed with the proposal for construction of a S/S in Ghens area. The proposed 132/33 kV S/S at Ghens will ensure steady and reliable power supply and eradicate low voltage problem not only at Ghens but also at Sarandpali and Dasmile area. With this project, OPTCL has projected the reduction of average annual loss to the extent of 2.59 MW, which with consideration of Rs.2.47/ KWH, comes to Rs.220.39 lakh in monetary term. Expectation of 70% utilization of 2x20 MVA capacity and with 3.7% transmission loss shall make available additional 1275.51 LU, which shall cause OPTCL to earn additional annual revenue of Rs 318.88 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual revenue from this investment to the tune of Rs.539.27 lakhs. The average annual rate of return has thus been found to be 16.43%.
5. OPTCL has proposed construction of new 2X20 MVA, 132/33 kV S/S at Agarpada (Bhadrak District) along with associated 12.7 Km 132 KV DC line from proposed 132 kV DC line from 132 KV Bhadrak to Anandapur DC line with an estimated cost of Rs.27.85 crores with funding from Govt. grant/own resources or from other funding agency depending upon the feasibility of loaning. OPTCL submitted that the proposed sub-station at Agarpada is required to minimize losses and improve the quality of power supply at Agarpada and its adjacent areas including Bonth, Bidyadharpur, Baula, Barapada and Kupari etc. As reported, the total length of Orali 33kV feeder from 220/132/33kV Bhadrak S/S is 73 km, the 33kV feeder from Bhadrak S/S to Barapada is 12 km long and the length of 33 kV line drawing power from Barapada to Bisalpata (Agarpada), Orali and Bidyadharpur is 65 km. There is an expected load growth of about 20 MVA after completion of RGGVY, DDUJY, IPDS and BGJY schemes. The

concerned DISCOM, NESCO has requested OPTCL to take up the project vide its letter dt.29.09.16 and during hearing also agreed for the proposal. Further, 33/11 KV s/s at Dhenka, Chenapadi, Salaria, Nilak under ODSSP will also be benefited by this 132/33 KV s/s. With this project, OPTCL has projected the reduction of average annual loss to the extent of 1.14 MW, which with consideration of Rs.2.47/ KWH, comes to Rs.97.10 lakh in monetary term. Expectation of 70% utilization of 2x20 MVA capacity and with 3.7% transmission loss shall make available additional 1275.51 LU, which shall cause OPTCL to earn additional annual revenue of Rs 318.88 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual revenue from this investment to the tune of Rs.415.98 lakhs. The average annual rate of return has thus been found to be 14.93%.

6. OPTCL has proposed construction of new 2X20 MVA, 132/33 kV S/S at G.Udaygiri (Kandhamal District) along with associated 12 Km of 132 KV line by way of drawing through LILO arrangement from proposed 132 KV DC line from Bhanjanagar to Phulbani with an estimated cost of Rs.40.57 crores with funding from Govt. grant/own resources or from other funding agency depending upon the feasibility of loaning. OPTCL submitted that the proposed S/S is required to minimize loss and improve the power supply at G Udayagiri and its nearby areas such as Kalinga, Chakapada, Shankarkhol, G.Udaygiri, Tikabali, Raikia etc. The Kalinga feeder of 61 km long emanating from 220/132/33kV Phulbani S/S supplies power to 7 nos. 33/11kV distribution S/S at Shankarkhol, Tikabali, Chakapada, Kalinga, G.Udaygiri, Raikia and Karada. Further, the demand will increase after completion of RGGVY, DDUGJY, BGJY schemes. Upcoming 33/11 KV s/s at Gutingia, Karada under ODSSP will also be benefitted from this proposed substation. With this project, OPTCL has projected the reduction of average annual loss to the extent of 1.17 MW, which with consideration of Rs.2.47/ KWH, comes to Rs.99.71 lakh in monetary term. Expectation of 70% utilization of 2x20 MVA capacity and with 3.7% transmission loss shall make available additional 1275.51 LU, which shall cause OPTCL to earn additional annual revenue of Rs 318.88 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual revenue from this investment to the tune of Rs.418.58 lakhs. The annual average rate of return has thus been found to be 10.32%.
7. OPTCL has proposed construction of new 2X20 MVA, 132/33 kV S/S at Gondia (Dhenkanal District) along with associated 25.30 Kms of 132 KV LILO line from existing 132 KV TTPS Duburi line with an estimated cost of Rs.41.42 crores with funding from Japan International Co-operation Agency (JICA) and the entire package

would be made in turnkey basis through a single party. OPTCL submitted that at present Gondia area is supplied power at 33 kV from 132/33kV Gundichapada S/S at Dhenkanal through 53 km long 33kV Gondia feeder with a load of around 18 MW during peak hours. The Gondia Distribution S/S (3x5MVA+1x3MVA) is supplying power to Kapilas, Gondia, Sorisapada, Ankurda, Mandar and Pingua through 11kV feeder. Further, Joranda (5MVA+3.15MVA) and Nihalprasad (2x3.15MVA) distribution S/S are also supplied from Gondia Structure on 33kV. Also the proposed 2x5 MVA, 33/11kV Muktapasi Distribution S/S under ODSSP PH-II (R) scheme will be fed from the said Gondia S/S and Tarava, Khaman & Similia areas will be fed from Muktapasi on 11kV feeders. So keeping in view of future load growth of Gondia and nearby areas and to reduce the overloading of Gundichapada incoming feeder, one 132/33kV S/S is required at Gondia to provide stable and quality power supply. In this regard, the concerned DISCOM, CESU has requested vide its letter dt.17.10.16 to OPTCL for construction of a S/S at Gondia and also agreed to the proposal during the hearing. As submitted, this project is required for smooth implementation of govt. schemes like Jananidhi, deep borewell, DDUGJY, RGGBY, BGJY etc. in this area. With this project, OPTCL has projected the reduction of average annual loss to the extent of 2.41 MW, which with consideration of Rs.2.47/ KWH, comes to Rs.204.48 lakh in monetary term. Expectation of 70% utilization of 2x20 MVA capacity and with 3.7% transmission loss shall make available additional 1275.51 LU, which shall cause OPTCL to earn additional annual revenue of Rs 318.88 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual revenue from this investment to the tune of Rs.523.36 lakhs. The annual average rate of return has thus been found to be 12.63%.

8. OPTCL has proposed construction of new 2X20 MVA, 132/33 kV S/S at Bahugram (Cuttack District) along with associated 4 Kms LILO line from existing 132 KV OCL- Mania-Salipur line with an estimated cost of Rs.35.95 crores. Majority of project cost will be funded by Japan International Co-operation Agency (JICA) under ODA loan scheme. The balance will be funded by Govt. of Odisha. OPTCL submitted that the proposed S/S is required due to rapid load growth in Jagatpur-Bahugram area due to urbanization and industrial development. At present, Jagatpur, Kazi Bazar, Padampur, Paga, Choudwar local area Narangabasta, Singapur and Sishua are fed through 33kV Choudwar- Bahugram feeder. The future load growth (more than 30 MW) cannot be catered by a single 33kV feeder. Hence, 132/33kV S/S at Bahugram is a requirement to meet the enhanced load as well as for stable and reliable power supply. In this regard the

concerned DISCOM CESU vide its letter dt.17.10.16 has submitted proposal to OPTCL for construction of a S/S at Bahugram. During the hearing, CESU has also agreed and submitted its views in favour of construction of this project. With this project, OPTCL has projected the reduction of average annual loss to the extent of 0.42 MW, which with consideration of Rs.2.47/ KWH, comes to Rs.35.64 lakh in monetary term. Expectation of 70% utilization of 2x20 MVA capacity and with 3.7% transmission loss shall make available additional 1275.51 LU, which shall cause OPTCL to earn additional annual revenue of Rs 318.88 lakhs at the wheeling cost of 25 paise. Thus, OPTCL expects total annual revenue from this investment to the tune of Rs.391.76 lakhs. The average rate of return has thus been found to be 13.87%.

9. Therefore, the total investment from the above investment has been estimated to be Rs. 391.41 cr. As submitted, OPTCL has made prior discussion with DISCOMs as regards to the proposal on their respective area. As stated by OPTCL, no major environmental or resettlement issues are envisaged for these additional projects. OPTCL has also submitted the Environmental Impact Assessment (EIA) Study for the seven projects. 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 individual proposals. The present status of the projects as given by OPTCL is as follows:

<b>Name of the Project</b>	<b>Present status</b>	<b>Expected Year completion</b>
2X100 MVA and 1X20 MVA, 220/132/33 kV S/S at Kiakata (Angul District) along with associated transmission line.	Tendering activity completed. Techno-commercial evaluation report submitted to JICA for approval.	September, 2019
2X20 MVA, 220/33 kV S/S at Kalimela (Malkangiri District) along with associated transmission line.	On going	February, 2018
2X20 MVA, 132/33 kV S/S at Ghens (Baragarh District) along with associated transmission line.	On going	November, 2017
2X20 MVA, 132/33 kV S/S at Agarpada (Bhadrak District) along with associated transmission line.	On going	December, 2017
2X20 MVA, 132/33 kV S/S at G.Udaygiri (Kandhamal District) along with associated transmission line.	Work order issued for execution of the work on turnkey basis	July, 2018
2X20 MVA, 132/33 kV S/S at Gondia (Dhenkanal District) along with associated transmission line.	Re-tendering activity is under progress	October, 2018
2X20 MVA, 132/33 kV S/S at Bahugram (Cuttack District) along with associated transmission line.	Re-tendering activity is under progress	October, 2018

10. 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 the seven investment proposals. As submitted, the BoD of OPTCL has accorded administrative approval for the aforesaid projects. OPTCL has submitted the investments taking into account the fundamental requirement to (i) ensure quality of supply, minimize interruption of power supply, enhance security / reliability of power system, strengthening of transmission system, availability alternative power supply and (ii) enable OPTCL to receive an economic return.
11. The Commission has not approved the above proposed 7nos. transmission projects while approving the 5-year Business Plan of OPTCL (FY2014-15 to FY2018-19) vide order dated 30.07.2016 in Case No. 05/2016 since the loading of the above sub-stations are less than average (within 15% to 34% as per study up to 2018-19). The Commission at that point of time found that the investments were not appropriate and on the other hand addition of more lines without appropriate loading may add more loss to the system. However, the Commission has further observed that in case of appropriate load growth or generation capacity addition, the above projects can be revisited with techno-commercial feasibility and financial support, if any, from Government.
12. OPTCL has now submitted that though the loading of the above S/S are low, those are mainly required for eradication of low voltage in the command areas due to very long 33kV feeding lines. After implementation of the projects, the 33kV lines will be shorter resulting improvement of the voltage. This will also serve the commitment of the Govt. to supply quality power to these areas. Again the 33/11 kV S/S under ODSSP which are scheduled to be commissioned during 2017-18 to 2018-19, will be connected to these S/S to serve the quality power to the consumers. CESU, SOUTHCO, WESCO & NESCO have also proposed for construction of these S/S. OPTCL has furnished the detailed justification for taking up of these projects in the respective DPR.
13. In obedience to the Interim Order dt.21.06.2017 of the Commission, OPTCL has submitted its point-wise reply, which were taken on record. Govt. of Odisha has not given any comments on these proposed investment thereby agreeing to the same.

14. The respondents in this case i.e. all the four DISCOMs of the state have supported the views and submission of OPTCL and prayed for speedy execution of the projects. The Commission studied the technical and commercial viability of the projects as submitted by OPTCL. These are summarized below:

Sl. No	Name of the Project	Project Cost (Rs. Cr)	Net Cash flow (Rs. Cr)	Period of Benefits (in Yrs)	Avg. Return estimated by OPTCL (%)	NPV estimated by OPTCL @ 12% Dis. Factor (Rs. Cr)	IRR estimated by the OERC (%)	Viability
1	220/132/33 KV GRID S/S, Kiakata	156.11	88.15	25	12.35	(69.89)	3.37	May not be viable
2	220/33 KV GRID S/S, Kalimela	56.67	38.59	25	7.40	(47.88)	(-)ve	May not be viable
3	132/33 KV GRID S/S, Ghens	32.82	52.18	25	16.43	(4.04)	9.36	Viable
4	132/33 KV GRID S/S, Agarpada	27.85	34.03	25	14.93	(6.53)	7.23	May be viable
5	132/33 KV GRID S/S, G.Udayagiri	40.57	2.70	25	10.32	(24.24)	0.45	May not be viable
6	132/33 KV GRID S/S, Gondia	41.42	26.82	25	12.63	(17.15)	3.87	May not be viable
7	132/33 KV GRID S/S, Bahugram	35.95	45.68	25	13.87	(8.07)	7.46	May be viable

15. The above table shows that 132/33 KV s/s at Ghens, Agarpada & Bahugram are viable whereas the other projects may not be economically viable. However, since these projects are required in the larger interest of the society for improvement in socio-economic conditions of the people of that area and the stake holders have given their consent to implement these projects in line with the prayer made by OPTCL, the Commission accords in principle approval to these the projects with following terms and conditions.
16. OPTCL should take up the matter with Govt. of Odisha to fund the economically unviable projects since those are required for the larger interest of the State. The Commission has also been apprised that Government Departments are unable to take up new developmental projects in these areas because of poor quality of supply including low voltage profile. In the above backdrop, the Commission directs OPTCL to approach Govt. of Odisha for allocation of adequate funds for execution of these projects since



these projects are essential for provide stable electricity supply for developmental works like establishment of hospitals, energisation of deep bore well for agriculture, running of pipe water supply schemes etc.

17. OPTCL should ensure that the projects are completed in time. OPTCL is also directed to delegate adequate technical, administrative and financial power to those officers entrusted with timely completion of the proposed projects. OPTCL is required to submit a report on financial closure and progress in execution of the above projects to the DISCOMs with a copy to the Commission so that adequate downstream infrastructure can be built up for evacuation of power by DISCOMs.
18. With the above directions, the case is disposed of.

**Sd/-**  
**(S. K. Parhi)**  
**Member**

**Sd/-**  
**(U. N. Behera)**  
**Chairperson**