

**ODISHA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN
PLOT NO.4, CHUNOKOLI, SHAILASHREE VIHAR,
BHUBANESWAR - 751021**

*** **

**Present: Shri S. C. Mahapatra, Chairperson
Shri G. Mohapatra, Member
Shri S. K. Ray Mohapatra, Member**

Case No. 69/2023

OPTCL	Petitioner
Vrs.		
TPCODL & others	Respondents

In the matter of: **Application under condition 10 of its License Conditions for approval of Investment Proposal for construction of 220/132/33kV and 220/33kV Sub-stations along with associated transmission lines and Sub-stations augmentation on availing loan assistance from suitable funding agency and Govt. grants/Equity.**

For the Petitioner: Shri B B Mehta, Director (SLDC) and Shri Srimanta Sahoo, Sr.GM (RT&C) of OPTCL,

For the Respondents: Shri Bijay Kumar Das, Sr, GM (PP), GRIDCO Ltd. Shri Puneet Munjal, Head Regulatory Affairs, TPCODL, Ms. Malancha Ghose, DGM (RA), TPNODL and Ms. Sonali Pattnaik, ALO I/c, DoE, GoO.

Date of hearing: 01.08.2023

Date of Order: 07.08.2023

ORDER

1. The petitioner, OPTCL, the State Transmission Utility in this case has submitted an application for approval of investment proposal for construction of 220/132/33 kV Sub-station at Baliana (Benupur) and 220/33 kV Sub-station at Kantabada with associated lines and Installation of third 500MVA (400/220/33kV) ICT at 400/220kV Grid Sub-Station, New Duburi on availing Government grants/budgetary support through State Capital Region Improvement of Power System (SCRIPS) & Disaster Response Centre (DRC) schemes.
2. As per OPTCL's Licence Condition 7.1 and provision under Section 40 of the Electricity Act, OPTCL, as a Transmission Licensee, is duty bound to make investment to build, maintain & operate an efficient co-ordinated & economic intra-state transmission system. As per OPTCL's Licence Condition 10 read with Condition 23.1, the Petitioner-OPTCL is required to obtain prior approval of the Commission for investment proposal of Rs.10.00 Cr. and above. Accordingly, OPTCL has submitted this investment proposal of Rs. 234.38 Cr. for execution of said transmission projects, since it exceeds the limit of Rs 10.00 Cr. as mentioned in Licence Condition. As per the

Licence Condition, the Commission is to be satisfied about need of such investment and is also to examine the economic, techno-commercial & environmental issues attached to such investment proposals. In compliance to the requirements under the License Condition 10.4, OPTCL has submitted the Detailed Project Reports (DPRs) for total investment of Rs. 234.38 Cr. along with relevant information and justification pertaining to the above projects. The details of investments proposal based on load flow study are as follows:

- a) OPTCL has proposed the construction of a new 2X160MVA & 2X63MVA 220/132/33kV Gas Insulated Sub-Station (GIS) at Baliana (Benupur) along with associated 220 kV D/C line of about 12 kms by LILO of the existing Pratapsasan-Nuapada 220 kV D/C line at Baliana Sub-Station and 8 kms. of 132kV transmission line from Baliana to Gangua Canal at an estimated cost of Rs. 139.21 Cr. with funding available from Government under SCRIPS scheme (100% Budgetary Support by GoO). OPTCL has submitted that the Sub-station at Baliana has been envisaged under SCRIPS looking at the future load requirement in State Capital Region due to rapid development of sub-urban areas in and around Bhubaneswar. Further, the proposed substation will form a 220kV outer ring and 132kV inner ring network around Bhubaneswar city for stable and reliable power supply in the capital region in case of contingencies. The proposed Baliana Sub-station will be sourced from 400kV Pandiabil Grid Sub-station (GSS) through Pratapsasan Grid Sub-station (GSS), which will be beneficial for diversion of ICT loading at Mendhasal S/S. The proposed Sub-station was approved by the Commission in the five-year Business Plan of OPTCL in Case No.63 /2020 and Balance period of 13th Intra State Transmission Plan of OPTCL for the period from FY 2019-20 to 2021-22 in Case No.18/2017. OPTCL has projected reduction of average annual technical loss to the extent of 0.73 MW, which is equivalent to gain of Rs. 06.11 lakh in monetary term (considering 24 paise/kWh). With 70% utilization of (2x63 + 2x160) MVA transformation capacity at the proposed grid S/S and with 3% transmission loss, the additional energy available would be 14325.26 LU/annum, which will bring additional annual revenue of Rs 3438.06 lakhs to OPTCL at the transmission charge of 24 paise/kWh. Thus, OPTCL expects total annual revenue to the tune of Rs. 3444.17 lakhs from this investment. This project is being funded by Government through grant under SCRIPS scheme and with positive NPV, it is financially viable.

- b) OPTCL has proposed the construction of a new 2X63MVA 220/33kV Gas Insulated Sub-Station (GIS) at Kantabada along with associated 220 kV D/C line of about 01 km by LILO of the existing Chandaka - Mendhasal 220 kV D/C line at Kantabada Sub-Station at an estimated cost of Rs. 49.04 Cr. with funding available from Government under SCRIPS scheme (100% Budgetary Support by GoO). The Project has been envisaged under SCRIPS looking at the future load requirement in State Capital Region due to rapid development Bhubaneswar command area. The proposed substation at Kantabada will feed the PSS like Kalinga Nagar, Bharatpur & Gothapatna thereby subsequently feeding Distribution s/s(DSS) like IIIT, BBSR, Nuagaon, Godibari, Paikarapur & ACROPOLIS. Further, it will feed power to the on-going/up-coming Govt. schemes like Mega Lift Irrigation Project, deep bore well point under Jananidhi Scheme, DDUGJY scheme etc. The proposed Sub-station was part of the 5 years Business Plan of OPTCL approved by the Commission, vide order dated 03.11.2021 in Case No. 63 /2020 and Balance period of 13th Intra State Transmission Plan of OPTCL for the period from FY 2019-20 to 2021-22 in Case No.18/2017. OPTCL has projected reduction in average annual loss to the extent of 1.12 MW, which is equivalent to the gain of Rs. 09.31 lakh in monetary term (considering 24 paise/kWh). The expectation of additional 4047.05 LU (considering 3% transmission loss) shall bring additional annual revenue of Rs. 971.29 lakhs to OPTCL at the transmission charge of 24 paise/kWh. Thus, OPTCL expects total annual revenue to the tune of Rs. 980.60 lakhs from this investment. This project is being funded by Government through grant under SCRIPS scheme and with positive NPV, it is financially viable.
- c) OPTCL has proposed for Installation of 3rd 500MVA (400/220/33kV) ICT at New Duburi, 400/220kV Grid S/S along with associated system at an estimated cost of Rs. 46.13 Cr. with funding available from the State Government under DRC scheme (100% Budgetary Support by GoO). OPTCL has submitted that, 400/220kV Grid Sub-station at New Duburi has 02 nos. 315MVA, 400/220/33kV ICTs in service with maximum possible loading up to 767 MW considering a power factor of 0.9. But 220kV load demand has gone up to 760 MW and is expected to increase further. The load on the Sub-station will increase further due to the upcoming industrial hub at Kalinga Nagar and also due to increase in area load. Therefore, looking in to the requirement & in order to maintain reliable & uninterrupted power supply, installation of one additional no. 500MVA (400/220/33kV) ICT is necessary. The proposed 3rd ICT at New Duburi has been

approved by the Commission in the five-year Business Plan of OPTCL in Case No.63 /2020. OPTCL has projected reduction in average annual loss to the extent of 0.41 MW which is equivalent to gain of Rs.3.38 lakh in monetary term (considering 24 paise/kWh). With 70% utilization of 500 MVA ICT at New Duburi and with 3% transmission loss, the additional energy available would be 16059.71 LU/annum, which will bring additional annual revenue of Rs 3854.33 lakhs to OPTCL at the transmission charge of 24 paise/kWh. Thus, OPTCL expects total annual revenue from this investment to the tune of Rs. 3857.71 lakhs. This project is being funded by Government through grant under DRC scheme and with positive NPV, it is financially viable.

3. In this way, the total investment has been estimated to be Rs. 234.38 Cr. The investment proposal in brief, with source of funding as submitted by OPTCL is given in the Table below:

Sl. No.	DESCRIPTION	CAPITAL EXPENDITURE (Rs. Cr.)	NAME OF THE SCHEME & SOURCE OF FUNDING
1	2X160MVA & 2X63MVA 220/132/33kV Gas Insulated Sub-Station (GIS) at Baliana (Benupur) along with associated line.	139.21	SCRIPS (Government grant)
2	2X63 MVA, 220/33kV Grid Sub-Station at Kantabada along with associated line.	49.04	SCRIPS (Government grant)
3	Installation of 3rd 500MVA (400/220/33kV) ICT & associated system at 400/220kV Grid S/S, New Duburi.	46.13	DRC (Government grant))
TOTAL		234.38	

4. OPTCL has submitted that the System Studies have been conducted in line with the planning criteria considering different load generation scenario under the normal steady state conditions. The implementation of the aforesaid additional proposed Sub-stations with associated transmission lines and augmentation would improve the system voltage profile, reduce the loading on certain important sections of the transmission network and also reduce the overall transmission system loss. Further, under single contingency scenario, the study indicates potential problems related to overloading of remaining lines and collapse of system voltages at locations close to the tripped line. Therefore, OPTCL has submitted the above investment proposal for construction of above-

mentioned Sub-stations with associated transmission lines and augmentation for reinforcement of its existing transmission network to meet the system needs in future years. OPTCL envisages the reduction of average annual loss of 2.26 MW after executing of the above projects.

5. OPTCL has submitted that the projects have been proposed after detailed discussion with the concerned DISCOMs. OPTCL has also submitted the Environmental Impact Assessment (EIA) Study for the projects. As per the EIA study, the projects are not having any adverse environmental impact or resettlement issue and the overall impact of the projects are highly positive. OPTCL has also stated that the projects are being executed on turnkey basis through a Competitive Bidding process.
6. The Concerned DISCOMs i.e., TPCODL & TPNODL have agreed with the submission of OPTCL. During hearing TPCODL has raised concern about OPTCL's claim of depreciation of the said projects as they are being implemented under Government grant. In the above context OPTCL has clarified that no depreciation will be claimed against the assets created under Government grant where as R&M expenditure will be claimed as per Regulation.
7. Heard the parties at length through hybrid mode (physical & virtual) and considered their written submissions & argument during hearing. It is observed that:
 - a) The Commission had accorded in-principal approval earlier for the proposed Sub-stations and transmission lines. OPTCL has now approached the Commission with the DPR along with the cost benefit analysis for approval of their investment proposals for the proposed projects.
 - b) OPTCL has carried out the system study with the existing network and with the proposed network expansion & strengthening to meet future need.
 - c) The petitioner-OPTCL has justified that the investments would strengthen power transmission system, reduce loading on certain section of OPTCL's transmission network, reduce the overall transmission losses, improve voltage profile, ensure better quality of power supply, minimize interruption of power supply, enhance security/reliability of power system for smooth flow of power without any constraint/congestion in the system and would enable OPTCL to receive economic return.

- d) The Board of Directors (BoD) of OPTCL has accorded administrative approval for the aforesaid projects.
- e) OPTCL has submitted that the execution of some of the projects was started on urgent basis without prior approval of the investment proposal by the Commission in order to support implementation of developmental projects of GoO for the benefit of people of that area.

8. The Commission has studied the technical and commercial viability of the projects as submitted by OPTCL which 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 (%)	Payback period (in Yrs)	Viability
1	2X160MVA & 2X63MVA 220/132/33kV Gas Insulated Sub-Station (GIS) at Baliana (Benupur) along with associated line.	139.21	1073.21	35	24.74	4.6	100% Government grant (under SCRIPS scheme)
2	2X63 MVA, 220/33kV Grid Sub-Station at Kantabada along with associated line.	49.04	296.62	35	20.00	5.9	100% Government grant (under SCRIPS scheme)
3	Installation of one no. 3 rd 500MVA (400/220/33kV) ICT & associated system at 400/220kV Grid S/S, New Duburi .	46.13	1306.37	35	83.62	1.24	100% Government grant (under DRC scheme)

- a) The above table shows that all aforementioned three (3) projects are being funded under Government scheme and economically viable.
- b) The petitioner, OPTCL has submitted that the Sub-station at Baliana & Kantabada have been envisaged under SCRIPS and keeping in mind the future load growth in State Capital Region due to rapid development of sub-urban areas in and around Bhubaneswar.
- c) The proposed Baliana Sub-station will be beneficial for diversion of ICT loading at Mendhasal S/S and will help in formation of 220kV outer ring and

132kV inner ring network around Bhubaneswar city for stable and reliable power supply in the capital region

- d) The proposed substation at Kantabada will feed the PSS like Kalinga Nagar, Bharatpur & Gothapatna thereby subsequently feeding DSS like IIIT, BBSR, Nuagaon, Godibari, Paikarapur & ACROPOLIS. Further, it will feed power to the on-going/up-coming Govt. schemes like Mega Lift Irrigation Project, deep bore well point under Jalanidhi Scheme, DDUGJY scheme etc.
 - e) One additional no. 500MVA (400/220/33kV) ICT (covered under DRC Scheme) is necessary to meet the load demand of upcoming industrial hub at Kalinga Nagar and also to meet increase in area load.
 - f) The stake holders including DISCOMs have also agreed for implementation of these projects, in order to maintain reliable power supply in the areas of operation of the concerned Distribution licensee.
9. In view of above considerations, the Commission is inclined to approve the investment proposal of OPTCL for Rs.234.38 cr. for construction of above Sub-stations with associated transmission lines and installation of ICT for development of adequate transmission system to facilitate smooth flow of power which will improve voltage profile & reduce transmission system loss and ultimately would provide reliable and uninterrupted (24x7) power supply to sub urban areas in and around Bhubaneswar and upcoming industrial hub in Kalinga Nagar area.
10. OPTCL shall ensure that the projects are completed in time to avoid cost and time overrun and 33 kV outlets are utilised by the respective DISCOMs to avoid creation of stranded assets and optimum utilization of assets created by OPTCL. Accordingly, respective DISCOMs shall be communicated to develop downstream distribution system within matching time frame.
11. OPTCL, being STU and responsible for development of State Transmission System should take a holistic view of the entire power system of the State. For this purpose, OPTCL should consult with IDCO, Housing & Urban Development Department, General Administration & Public Grievance and Energy Department, Govt. of Odisha including DISCOMs for the development of its Transmission system. which will facilitate the Industrial growth and development of urban areas throughout the State of

Odisha. OPTCL is directed to consider all the aspects as stated above and submit a comprehensive proposal to the Commission.

12. Considering the present and future load growth, OPTCL should go for standardisation of Transformers capacity and keep adequate space for future expansion. For Gas Insulated Sub-station (GIS), adequate provision has to be made for spare parts to mitigate any breakdown or contingency situation and avoid long period of outages/shutdown. The technical specification of GIS should include provision for extension of additional bays in future and arrangement shall be provided by supplier of GIS to accommodate future bays of any other manufacture while going for extension of bays.
13. Depreciation will not be allowed against the assets created under Government grant where as OPTCL may claim R&M expenditure as per Regulation.
14. OPTCL may initiate necessary action to acquire land well in advance for its Grid Sub-stations (GSS) before urbanisation to avoid RoW issues and land acquisition problems.
15. OPTCL is directed to avoid execution of transmission project in future without prior approval of investment proposal by the Commission.
16. With the above directions and observations, the case is disposed of.

Sd/-
(S. K. Ray Mohapatra)
Member

Sd/-
(G. Mohapatra)
Member

Sd/-
(S. C. Mahapatra)
Chairperson