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PUBLIC NOTICE

Sub: Inviting Suggestions/ views/ comments on Consultation Paper on Development of Intra-State Transmission System through Tariff Based Competitive Bidding (TBCB) in the State of Odisha.

The Commission has prepared Consultation Paper on Development of Intra-State Transmission System through Tariff Based Competitive Bidding (TBCB) in the State of Odisha after receiving request from Energy Department, Government of Odisha. Further, the Ministry of Power, Government of India has requested to adopt TBCB for the intra-state Transmission projects. The said Consultation paper is also available in Commission's Website www.oriarc.org.

The Commission hereby publishes the Consultation Paper on Development of Intra-State Transmission System through Tariff Based Competitive Bidding (TBCB) in the State of Odisha.

You are requested to furnish your considered Suggestions/ views/ comments on the said Consultation paper to the undersigned on or before **02.09.2022 (by 5.00 P.M.)**. On receipt of the responses from different quarters, the Commission may, in appropriate cases, bring the modifications, if any, and pass appropriate Order as deemed fit for the interest of the State.

By Order of the Commission

Sd/-

SECRETARY

Bhubaneswar.

Date: 2nd August, 2022



Consultation Paper
On
Development of Intra-State Transmission System through
Tariff Based Competitive Bidding (TBCB)
In the State of Odisha

2nd August, 2022

Odisha Electricity Regulatory Commission (OERC)
Plot No. 4, Chunokoli, Shailashree Vihar, Bhubaneswar-751021

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1. BACKGROUND

Odisha is the first state in the country to bring reform in the power sector. Orissa State Electricity Board (OSEB) was unbundled in the year 1995 after the enactment of the Odisha Electricity Reform Act, 1995. The Generation, Transmission and Distribution business have been separated to bring efficiency, more transparency and accountability. GRIDCO was vested with transmission and distribution function and Odisha Hydro Power Corporation (OHPC) was vested with Hydro Generation in the state. Subsequently, in the year 1998, the distribution business of GRIDCO was segregated and vested with four distribution companies (WESCO, NESCO, CESCO & SOUTHCO). After enactment of Electricity Act, 2003, the transmission related activities of the Company were transferred and vested with Odisha Power Transmission Corporation Limited (OPTCL), a wholly owned undertaking of the State Government through Odisha Electricity Reforms (Transfer of Transmission and Related Activities) Scheme, 2005. GRIDCO became a deemed trading licensee from 10.06.2005 and is the State Designated Entity, responsible for procurement of power from various sources and Bulk Supply of power to four (4) DISCOMs (TPNODL, TPSODL, TPWODL & TPCODL) presently operating in the state.

OPTCL took over intra-state transmission business & functions of SLDC in the state. Presently OPTCL also maintains the intra-state transmission infrastructure which facilitates transmission or wheeling of power from the source of generation to the end user. The Company has also been designated as the State Transmission Utility (STU) under Section 39 of the Electricity Act, 2003. STU has the responsibility of planning intra-state transmission network and coordination relating to intra-State transmission system with various entities, such as CTU, State Governments, generating companies, transmission system users, Central Electricity Authority, etc. The development of intra-state transmission system is the responsibility of STU and development is supposed to match with the development of Inter-State Transmission System (ISTS), requirement of intra-state generating companies for evacuation of power and the downstream distribution network. Mismatch in development of transmission system creates non-utilization/ under-utilization of transmission assets. The co-ordinated, cost effective & efficient development is the need of hour for optimum utilization of transmission system.

2. ODISHA STATE TRANSMISSION SYSTEM

As per Electricity Act, the development of an efficient, co-ordinated, economical and robust electricity system is essential for smooth flow of electricity from generating stations to load centre. The transmission system is the back bone of power system, which establishes the link between generation source on one side and the distribution network, connected to the ultimate consumers on the other side. A reliable transmission system plays a vital role in achieving the ultimate objective of reliable, uninterruptible (24x7) quality power for all consumers.

There has been a consistent expansion in the transmission network and increase in transformation capacity (in substations) in the state of Odisha. This increase is in consonance with increase in generation and demand of electricity in the state. OPTCL, the designation STU, owns the transmission network of the state, which include power transmission voltage levels of 132 kV, 220 kV & 400 kV. The transmission lines, sub-stations and transformation capacity at different voltage levels as on March 31st, 2022 are as follows:

Description	132 kV	220kV	400kV	Total
Transmission lines (CKMs)	8011.428 (51%)	6499.154 (41%)	1196.872 (8%)	15707.454
Transformation capacity (MVA)	9448.5	11120	3835	24403.5
Number of sub-stations	131(74%)	41(23%)	5(3%)	177

The 132 kV and 220 kV is the backbone of the Odisha transmission system and out of 15707.5 ckms of EHV transmission lines, about 51% of transmission lines belongs to 132 kV level and 41% belongs to 220 kV level. Out of 177 number of EHV sub-stations, 132 nos. (74%) are at 132 kV level, 41 nos. (23%) are at 220 kV level and 5 nos. (3%) are at 400 kV level. The loss level of transmission system has come down over the years from 3.73% in 2014-15 to 3.13% in 2021-22 even with 51% of transmission line belonging to 132 kV level. The Transmission system availability is more than 99.97%.

3. SOME REGULATORY PROVISIONS RELATING TO ELECTRICITY TARIFF AND COMPETITIVE BIDDING

- a) The Electricity Act, 2003 is the basic framework for Electric supply industry in India, with the objective as follows:

“An Act to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalisation of electricity tariff, ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies ...”

- b) Further, the State Commission has been vested with the responsibility to determine the Tariff for Generation, Supply, Transmission under Section 86 of the Electricity Act, as follows:

“Section 86. (Functions of State Commission)

(1) The State Commission shall discharge the following functions, namely: -

(a) determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State...”

As regards to Determination of Tariff by bidding process, Section 63 of the Act provides regulatory provisions for adoption of the Tariff determined through transparent process of bidding, as follows:

“Section 63. (Determination of tariff by bidding process): Notwithstanding anything contained in section 62, the Appropriate Commission shall adopt the tariff if such tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government.”

- c) The Central Government notified the revised National Electricity Policy vide resolution no. 23/40/2004-R&R (Vol-II) dated 12/02/2005 in accordance with section 3 of the Electricity Act 2003. The Clause No. 5.3.10 and 5.8.9 of the National Electricity Policy, 2005 encourages private investment and their partnership in Transmission sector to meet the need of rapidly growing sector are as follows:

“5.3.10 Special mechanisms would be created to encourage private investment in transmission sector so that sufficient investments are made for achieving the objective of demand to be fully met by 2012.”

“5.8.9 Role of private participation in generation, transmission and distribution would become increasingly critical in view of the rapidly growing investment needs of the sector. The Central Government and the State Governments need to develop workable and successful models for public private partnership. This would also enable leveraging private investment with the public sector finances. Mechanisms for continuous dialogue with industry for streamlining procedures for encouraging private participation in power sector need to be put in place.”

- d) The Central Government notified the revised Tariff Policy vide ref no. 23/2/2005-R&R (Vol-IX) dated 28/01/2016 in accordance with Section 3 of the Electricity Act 2003. The Clause No. 5.3 of the Tariff Policy states that development of Intra-State Transmission System shall be executed through competitive bidding route provided for the projects costing above a Threshold Limit, which shall be decided by the State Commission.

“5.3 The tariff of all new generation and transmission projects of company owned or controlled by the Central Government shall continue to be determined on the basis of competitive bidding as per the Tariff Policy notified on 6 January, 2006 unless otherwise specified by the Central Government on case to case basis. Further, intra-state transmission projects shall be developed by State Government through competitive bidding process for projects costing above a threshold limit which shall be decided by the SERCs.”

- e) The Ministry of Power, Government of India in its Guidelines dated 15/03/2021 recommended adoption of TBCB for Intra State Transmission projects in the larger interest of consumers. This will reduce the burden on Government finances and scarce Government fund can be spared for other priority sectors. Also, it will encourage use of advanced technology for improving cost and efficiency. Relevant Clause of MoP, GoI guidelines are as follows:

“6. In line with provisions of the Tariff Policy 2016, generally inter-state transmission systems are developed through competitive bidding only, except for

certain categories of transmission system as specified in the Tariff Policy 2016. With adoption of Tariff Based Competitive Bidding for development of transmission system, following key benefits have been observed:

- (i) Lower Tariff compared to Cost Plus: With large number of bidders participating in development of a transmission project, discovered tariff for a transmission project can be lower than cost-plus tariff by about 30- 40%.*
- (ii) Less burden on government finances: It will attract private investments for development of projects and scarce government fund can be spared for other priority sectors.*
- (iii) Risk sharing: It encourage risk sharing with private sector. Innovative Technology: It encourages use of advanced technology for improving cost and efficiency.”*

- f) The Ministry of Power, Government of India in its Guidelines dated 10/08/2021 by which it has encouraged competition in development of Intra-State Transmission System Projects by introducing Tariff Based Competitive Bidding (TBCB) including e-reverse auction for Transmission Services. The projects shall be awarded on Build, Own, Operate and Transfer (BOOT) mode, as follows.

“17. The selection of developer for identified projects would be through tariff based competitive bidding through e-reverse bidding for transmission services according to the guidelines issued by the Ministry of Power under section 63 of the Electricity Act, 2003. The projects shall be awarded on Build, Own, Operate and Transfer mode.

21. As far as intra State projects are concerned the State Governments may adopt these guidelines and may constitute similar committees for facilitation of transmission projects within the State. The States also have the option to use Viability Gap Funding (VGF) based Model Transmission Agreement (MTA) document of erstwhile Planning Commission for development of transmission system in their States under Public Private Partnership (PPP) mode.”

In view of above, it is observed that there are adequate regulatory provisions that enable the State Commission to initiate process of introducing Tariff based Competitive Bidding for Intra-State Transmission Projects with a threshold limit to be decided.

4. NEED FOR TARIFF BASED COMPETITIVE BIDDING (TBCB) IN ODISHA

Electricity demand in the State of Odisha is increasing due to industrial growth and urbanization. The current installed capacity of 7752 MW (excluding CGPs) includes about 8% of generation from renewable sources. The present energy requirement is (33642MU), and peak demand is about 5000 MW which is likely to increase to about 8000 MW by 2030 (as per assessment of GRIDCO).

As per the 19th EPS Report of the CEA, the demand projection for Odisha from 2022 to 2027 is as under:

Particular	2022	2023	2024	2025	2026	2027
Peak Electricity Demand – MW	8406	8944	9511	10103	10716	11353
Energy Requirement –MU	37778	40245	42891	45679	48589	51627

The rising trend of electricity demand and development of power evacuation system for the generation addition including RE generation within the state and integration of power system at the regional level require a robust Transmission system for smooth flow of electricity from generating stations to load centers to ensure reliable power supply to ultimate consumer.

Huge potential for industrialization is available in the state of Odisha for which State Govt. is committed to provide reliable and quality power for operation of industries. Several power intensive Industries such as Arcelor Mittal Nippon Steel (AMINS), Triveni Earth Movers, JSW, IOCL, Essar Minment etc. are likely to come up in Paradeep and its nearby areas. In order to meet the power demand of such upcoming industries, 765kV transmission system may be required to be developed. 765kV substation near Paradeep and interconnection with 765kV substation at Angul of PGCIL & OPTCL's network would be required. Such transmission projects involve high investments with stiff timeline for completion to facilitate timely commissioning of the industries. Considering the significance and cost of the proposed project, Govt. of Odisha is proposing to execute such high value transmission project under

TBCB mode and has requested OERC for framing TBCB Regulations. Govt. of Odisha has also informed that OPTCL is also contemplating to execute all 400 kV and above transmission project under TBCB mode.

At present the transmission tariff of OPTCL is lower compared to other states like Maharashtra, Gujarat, Bihar, Himachal Pradesh and Delhi, although intra- state transmission losses is on higher side compared to states like Delhi, Haryana & Punjab, which is due to high concentration of transmission network at 132kV level.

With the rising demand of electricity in the state, it is imperative to make the transmission system more efficient, cost effective and technology driven. For development of efficient & cost effective Transmission system, there is need to adopt best practices and encourage competition. The competition in transmission business will bring technology innovation, reduction in Tariff and timely completion of projects. The investment from private players in transmission business will also help Government to divert their fund for other priority sector. As Intra-state Transmission system has major share in the transmission sector in the country, adoption of Tariff Based Competitive Bidding (TBCB) in development of intra-state transmission system can effectively reduce burden on State Government finances as well as reduce tariff of intra State transmission system leading to consumer benefit. The MoP, vide its letter dated March 15, 2021, has also strongly recommended TBCB route for development of intra-State Transmission Projects. It has been observed by Govt. of India that the tariff discovered through TBCB is lower by about 30-40% compared to cost-plus projects/ projects executed through Regulated Tariff Mechanism (RTM) where tariff is fixed upfront.

Some Important aspects of TBCB in respect of transmission projects (as per MoP Guidelines) are as follows:

- a) *The Transmission Projects would be established with investment solely by the Successful Bidder / TSP providing relief to Govt. for investment, which can be diverted for some other priority sector. The private investor is encouraged to use advanced technology for improving cost and efficiency.*

- b) Projects will be executed in definite time frame and the beneficiary to pay transmission charges only after commissioning of the project and tariff is decided for next 35 years.*
- c) No compensation on the grounds such as interest cost, incident expenditure, opportunity cost will be made to the Transmission Service Provider (TSP) due to Force Majeure event.*
- d) With participation of large number of bidders, the tariff of a transmission project discovered through bidding process is found to be normally lower than cost plus tariff.*
- e) All the major risks / constraints such as acquiring right of way, land acquisition for substation, forest clearances, cost escalation due to delays for development of project, lies with the successful bidder / Transmission Service Provider (TSP).*
- f) The preliminary expenses incurred during the bid process including fees of Bid Process Co-ordinator (BPC) is recovered from the Successful Bidder at the time of transfer of Special Purpose Vehicle (SPV).*
- g) A committee of engineers & experts may be appointed to monitor the progress and quality of material, equipment and workmanship etc. during construction phase.*

In view of above, a Consultation Paper for Development of Intra-State Transmission System through TBCB process is prepared for seeking stakeholders' suggestions/ comments.

5. BRIEF ON TBCB POLICY FRAMEWORK AND STEPS TO BE FOLLOWED FOR IMPLEMENTATION OF TBCB FOR EXECUTION OF INTRA-STATE TRANSMISSION SYSTEM OF ODISHA

In accordance with the provisions under Section 63 of the Electricity Act, 2003 and the National Electricity Policy, the Ministry of Power (MoP), Government of India (GoI) has notified the bidding Guidelines for procurement of transmission services for transmission of electricity through Tariff Based Competitive Bidding (TBCB). MoP, GoI has notified "Tariff Based Competitive Bidding Guidelines for Transmission Service" and "Guidelines for Encouraging Competition in Development of Transmission Projects" ("the Guidelines") on April 13, 2006. The SBDs comprising of Request for Qualification (RfQ), Request for Proposal (RfP) and Transmission Service Agreement (TSA) was notified by MoP in 2008 which is being amended from time to time. MoP has notified revised SBDs and TBCB

Guidelines on August 2021 to incorporate CTU as Nodal Agency for signing of TSA, development of projects from BOOM to BOOT model, etc.

The Guidelines stipulate, inter alia, the mechanisms to select successful bidder / Transmission Service Provider (TSP) for new transmission elements. TSP is responsible to execute the specified transmission elements under Build, Own, Operate and Transfer (BOOT) mode. Subsequent to selection as TSP through TBCB, the selected bidder enters into a Transmission Service Agreement (TSA) with the beneficiary (ies) (OPTCL/ GRIDCO/ DISCOMs) for the transmission project for payment of the transmission charges finalized on the basis of competitive bidding. After executing the TSA and acquiring the SPV (created by BPC), the selected bidder / TSP will be granted transmission license by OERC and the tariff discovered through a competitive bidding process is adopted, if it is not a deemed licensee.

The TSA shall be effective from the date of grant of license to the developer by OERC. The TSP would take-up execution of the Transmission Project so as to complete commission and operationalize the transmission system as per the specified schedule in the TSA. Disputes, if any, arising out of the TSA including the transmission charges, are subject to the jurisdiction of OERC under the provisions of the Electricity Act, 2003.

TSP develop the project, operate the project for 35 years and comply all the provisions of National and State level regulations and guidelines like IEGC/ OGC and CEA (Technical Standard for Construction of Electric Plants & Electric Lines) Regulations, 2010, Central Electricity Authority (Grid Standards) Regulations, 2010 and other relevant Regulations and Conditions specified by OERC as amended from time to time.

For effective quality verification and inspection of transmission projects executed under TBCB, a Committee comprising members from OPTCL, GRIDCO, CEI and an expert in transmission sector may be formed for carrying out quality inspection as per IS/ CEA Standards and best practices. The committee may inspect the project every three months to ensure that project is not only being executed as per the schedule, but also the quality of equipment and workmanship of the project conforms to the Technical standards and Grid Standards notified by CEA and IS and other best practices.

The Standard Bidding Document (SBD) for TBCB projects notified by MoP, GoI can be adopted with minor modification for the intra-state transmission projects.

Several transmission projects have been awarded through TBCB route. As per Tariff Policy, all Inter-State Transmission projects are being developed through TBCB route since 2011. However, Central Government has given exemption from competitive bidding for

- specific category of projects of strategic importance, technical upgradation etc. or
- works required to be done to cater to an urgent situation on a case to case basis.

Intra-state transmission projects can also be developed by State Government through competitive bidding process for projects costing above a threshold limit which shall be decided by the SERCs.

Several States like Punjab, Haryana, Himachal Pradesh, Assam have already started implementing EHV transmission projects in TBCB mode as per the regulations / guide lines made by the respective SERCs.

Steps that may be followed for Implementation of TBCB in Intra-state transmission system:

- a) At present, the Intra-State transmission scheme is being planned by OPTCL (STU) based on the system study (load flow, short circuit & stability Study etc.) considering generation capacity addition, load growth and feedback from state system operator about operation constraints. The 400kV & above intra-state transmission system and intra-state transmission system linked to ISTS is discussed and approved in Regional Power Committee.
- b) OPTCL submits planned transmission scheme (s) of the state for approval of OERC. OERC after consultation with the stakeholders approves the same.
- c) Energy Department, Govt. of Odisha may constitute Empowered Committee / any other committee to decide mode of implementation of transmission projects and may also notify any Organisation/ State Public Sector Undertaking especially engaged for this purpose as BPC for the state.

- d) Energy Department, Govt. of Odisha may notify the transmission scheme(s) / project(s) to be implemented through TBCB based on the recommendation of the Empowered Committee/ any other committee. The investment proposal of projects to be implemented on cost plus basis is to be proposed for approval of OERC.
- e) The empowered committee/ any other committee may form the Bid Evaluation Committee (BEC) and engage a Bid Process Coordinator (BPC) to carry out bid process.
- f) A Bid Evaluation Committee (BEC), comprising of at least one representative each from OPTCL, GRIDCO and Energy Department of Govt. of Odisha, CEI and one independent expert as Member, may be constituted by Govt. of Odisha. BEC may be involved in evaluation of Bids and selection of successful bidder.
- g) BPC would be responsible for coordinating the bid process. BPC could be REC/ PFC/ OPTCL. [For ISTS projects PFC and REC are being engaged as the BPC].
- h) BPC may incorporate a SPV as a wholly owned subsidiary of BPC. The SPV may take up various preparatory activities for the development of transmission project. The SPV is to be acquired by the Successful Bidder selected through TBCB route.
- i) BPC is to carry out the bid process for the selection of developer/ TSP for each identified transmission projects to be executed through TBCB route and selection of developer is to be based on Initial Price Offer (IPO) followed by e-Reverse Auction in accordance with the Guidelines issued by MoP under Section 63 of Electricity Act.
- j) The Bid Process may be conducted through International Competitive Bidding (ICB) and may be a Single stage (Two Envelope) process combining both Request for Qualification (RfQ) & Request for Proposal (RfP) to save time.
- k) The entire bidding process may be carried out online through e-platform (e.g. MSTC portal) and lowest transmission charges is to be discovered through e-Reverse Auction in line with Guidelines of MoP, GoI.
- l) The bid process starting from issue of RfP till transfer of Special Purpose Vehicle (SPV) to selected bidder / TSP may take about 90-120 days.
- m) The preliminary work associated with transmission projects covering survey, selection of site for sub-station, tentative route alignment of transmission line etc. is to be carried out by BPC before going ahead with bidding process and would form part of RfP document.
- n) The transmission project is to be awarded to the Successful Bidder / TSP on Build, Own, Operate and Transfer (BOOT) mode for a period of 35 years.

- o) The TSP enters into a Transmission Service Agreement (TSA) with the beneficiary (ies) (OPTCL/ GRIDCO/ DISCOMs) for the transmission project for payment of the transmission charges.
- p) After issue of LoI, successful bidder/ TSP is to provide Contract Performance Guarantee (CGP); acquire the 100% equity shareholding of the SPV and apply to OERC for grant of transmission licence. Final TSA along with recommendation of BEC is to be forwarded to OERC for adoption of tariff.
- q) The tariff is adopted for 35 years. On expiry of the contract period of 35 years, the project assets along with the Substation land with Rights, Right of Way and Clearances is to be compulsorily transferred to STU or an agency as decided by Govt. of Odisha at Zero cost and free from any encumbrance or liability.
- r) Three (3) years prior to the expiry of the project, STU may examine any need of Renovation and Modernization of the existing system at that time. The project may again be awarded to successor bidder through the Competitive Bidding process.

The above brief is for general understanding of stakeholders. The State Government is required to follow the latest guidelines and SBD, which is modified by MoP (GoI) from time to time and take appropriate decisions accordingly.

6. CRITERIA CONSIDERED FOR DETERMINATION OF THRESHOLD LIMIT FOR EXECUTION OF INTRA-STATE TRANSMISSION PROJECTS UNDER TBCB ROUTE

At present the Transmission projects are being executed by OPTCL on cost plus basis as per provisions of OERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2014. Presently, there is need to open up investment in the transmission sector to private sector to ease out the financial burden on the utility, optimize risk and execute the projects in a cost effective manner ensuring timely completion. The data from other States suggests that TBCB route has been able to achieve fairly the above objectives. However, owing to the transaction costs involved, this mode of development of the project appears to be more appropriate for medium and large projects and therefore, a Threshold Limit is required to be determined.

The Tariff Policy duly consider the fact that there are various works which are minor in nature for which TBCB route may not be desirable and hence a Threshold Limit of project to be specified by the State Commission has been rightly included. However, the Tariff Policy does not suggest the methodology or criteria that need to be considered while specifying the Threshold Limit. The onus of determination of this limit has been left with the State Commission to decide. This could be based on the requirement & various issues of the state. It is observed that very few State Commissions like Assam, Bihar, Punjab, Haryana and Rajasthan have specified this Threshold Limit for project cost. However, not much has been discussed about the approach followed while determining the Threshold Limit.

In order to determine a reasonable threshold limit, the cost of major schemes /projects already executed/under execution by the State Transmission Licensee and estimated cost of upcoming projects have been considered which will take into account the State specific issues. However, minor projects like augmentation of transmission works or LILO works etc. has not been considered for determination of Threshold Limit. However, new substation with LILO arrangement can be considered for TBCB route.

The National Committee on Transmission (NCT) in association with CEA has formulated and recommended to the Ministry of Power that the Schemes are to be executed either under TBCB mode or through RTM where tariff is fixed upfront. The Committee has rightly suggested that the project should neither be too small as it will not attract competitive tariff, nor too large as it will leave only few selected big developers to qualify, thus curtailing competition. Therefore, while deciding the Threshold Limit, it has to be kept in mind that the project cost is neither too small nor too large. The risk assessment of RTM and TBCB is presented below:

Risk Assessment for projects under RTM and TBCB

Parameters	RTM	TBCB
Innovation in design	Medium: Both Utility &	High: 100% Developer

	Developer	
Construction cost risk with Govt.	High: 100% Utility	Low: 100% Developer
Construction schedule risk with Govt.	High: 100% Utility	Low: 100% Developer
Lifecycle cost risk with Govt.	High: 100% Utility	Low: 100% Developer
Operating performance risk	High: 100% Utility	Low: 100% Developer
Financing risk with Govt.	High: 100% Utility	Low: 100% Developer
Summary Assessment	Weak Model for large and mid- sized projects	Strong model for large and mid-sized projects

Source: UERC Consultation Paper on TBCB

The summary of major completed, ongoing and upcoming transmission projects in the state of Odisha are as follows:

Major Transmission projects in Odisha (Completed/ Ongoing above Rs 50 Cr.)			
FY 2018-19 to FY 2023-24			
Sl. No.	Name of the Project/ Scheme	Estimated/ Actual Cost (Rs. Cr.)	Voltage Level (kV)
Completed projects			
1	220/132/33 kV Pratapsasan S/s	121.93	220/132/33 kV
2	400/220/33 kV GIS S/s at Meramundali-B	170.17	400/220/33 kV
3	220/132/33 kV at Kesinga with associated 220 kV line	110.00	220/132 kV
4	220/132/33 kV at Gunupur with associated line	79.31	220/132/33 kV
5	220/132/33 kV S/s at Godachhak with line	55.70	220/132/33 kV
6	220/132/33 kV S/s at Aska with line	71.18	220/132/33 kV

7	220/132/33 kV S/s at Jaipatana with line	77.69	220/132/33 kV
8	132 kV Mancheswar –B to Chandaka – B, UG cabling with Bay Extension at both ends	54.17	132 kV
9	220/33 kV GIS at Keonjhar with line	52.54	220/33 kV
Ongoing Projects			
1	220/132/33 kV Kuanramunda GSS with line	109.39	220/132/33 kV
2	220/132/33 kV Kiakata GSS with line (JICA)	160.19	220/132/33 kV
3	220/33 kV Turumunga GSS with line (JICA)	103.12	220/33 kV
4	220/33 kV Baliguda GSS with line	102.93	220/33 kV
5	220/132/33 kV Balianta GSS with line	139.19	220/132/33 kV
6	400/220 kV Paradeep(ersama) GIS & associated lines	637.45	400/220 kV
7	220/33 kV S/s at Godisahi & 220/33 kV GIS S/s at Kantabada(Gothapatna)	95.34	220/33 kV
8	220/33 kV S/s at Kalimela with line	52.89	220/33 kV
9	220/132/33 kV S/s at Bamra with line	90.14	220/132/33 kV
10	220/33 kV S/s at Dasapalla with line	59.26	220/33 kV
11	220/132/33 kV S/s at Dhamra with line	89.50	220/132/33 kV

12	132/33 kV S/s at Bhatli with line	52.30	132/33 kV
13	132/33 kV GIS at Nayapalli with cabling	87.88	132/33 kV

From the above Table it is observed that the average cost of the projects (major projects completed/ ongoing from FY 2018-19 to FY 2023-24) is around Rs 116 Cr.

The major upcoming projects till FY 2025-26 above Rs 100 Cr. are as follows:

Major Upcoming Projects till FY 2025-26 above Rs 100 Cr.			
Sl. No.	Name of the Project/ Scheme	Estimated (Rs. Cr.)	Voltage Level (kV)
1	400/220 kV GIS at Ramakishanapur (Bhadrak) and 400 kV, 220 kV and 132 kV LILO lines to proposed 400/220 kV GIS at Ramkishnapur (Bhadrak), 200/132 kV Dhenakanal-B & Kuakhia (LICA)	418.38	400 kV
2	200/132 kV Dhenakanal-B GIS(JICA) with line	150	220 kV
3	220/132/33 kV GIS S/s at Kuakhia (JICA)	115	220 kV
4	400/220 kV GIS S/s at Digapahandi (Narendrapur) & Associated 400 kV and 220 kV lines	500	400 kV
5	400/220 kV, Khuntuni(Dalabhag) Grid S/s & associated line	500	400 kV

Source: As per data submitted by OPTCL

OERC also carried out an exercise to estimate the probable cost of lines with normal ACSR conductor and sub-station (AIS & GIS) based on certain reasonable assumptions for both 132 kV & 220 kV system and details are as follows:

Scenario 1	Cost (Cr.)	Scenario 5	Cost (Cr.)
220/132 kV AIS Substation	90.80	132/33 kV AIS Substation	58.60
150 Km 220 kV D/C line	123.00	100 Km 132 kV D/C line	55.00
100 Km 132kV D/C line	55.00	Total (M Factor 1.21)	137.46
Total (M Factor 1.21)	325.25	Scenario 6	Cost (Cr.)
Scenario 2	Cost (Cr.)	132/33 kV AIS Substation	58.60
220/132 kV AIS Substation	90.80	70 Km 132 kV D/C line	33.00
100 Km 220 kV D/C line	82.00	Total (M Factor 1.21)	110.84
70 Km 132kV D/C line	38.50	Scenario 7	Cost (Cr.)
Total (M Factor 1.21)	255.67	132/33 kV GIS Substation	84.50
Scenario 3	Cost (Cr.)	100 Km 132 kV D/C line	55.00
220/132 kV GIS Substation	109.70	Total (M Factor 1.21)	168.80
150 Km 220 kV D/C line	123.00	Scenario 8	Cost (Cr.)
100 Km 132kV D/C line	55.00	132/33 kV GIS Substation	84.50
Total (M Factor 1.21)	348.12	70 Km 132 kV D/C line	38.50
Scenario 4	Cost (Cr.)	Total (M Factor 1.21)	148.83
220/132 kV GIS Substation	109.70	Scenario 9	Cost (Cr.)
100 Km 220 kV D/C line	82.00	132/33 kV AIS Substation	58.60
70 Km 132kV D/C line	38.50	50 Km 132 kV D/C line	27.50
Total (M Factor 1.21)	278.54	Total (M Factor 1.21)	104.18

* M Factor is Multiplying Factor which includes IEDC, Contingency, etc.

From the above Table, it is observed that if we consider a project consisting of a 132/33 kV AIS Substation with total transmission line length of 50 Km or 70 Km of 132 kV D/C line, the tentative cost comes out to be about Rs.104 Cr. / Rs.111 Cr. (including IEDC, contingencies and other factors). Otherwise, cost of 132 kV transmission project with GIS sub-station & associated transmission line (or) transmission projects at 220 kV level (with sub-station and associated 220 kV & 132 kV lines) is estimated to be in the range of Rs.150

Cr. to Rs.350 Cr. Therefore, the threshold limit of **Rs 100 Cr.** seems to be reasonable and the tariff for the projects to be discovered through competitive bidding route could be a win-win situation for both the developer as well as the consumers of the state.

7. PRACTICES IN OTHER STATES FOR EXECUTION OF INTRA STATE TRANSMISSION PROJECT UNDER TBCB ROUTE

States such as Assam, Bihar, Haryana, Punjab, Rajasthan and Uttar Pradesh have introduced TBCB mechanism for execution of their Intra State Transmission System.

TBCB mechanism adopted by Other States

State Commission	Date of Order/ Notification	Threshold limit	Remarks
Assam Electricity Regulatory Commission (AERC)	Notification dated 14/01/2019	225 Cr. and above for transmission line and 160 Cr. for Sub-stations	Notified implementation of TBCB for Intra STS for projects costing 225 Cr. And above for transmission line and 160 Cr. for Sub-stations vide Notification dated 14/01/2019
Bihar Electricity Regulatory Commission (BERC)	Notification dated 24.12.2019	100 Cr. and above	Bihar Government Gazette Notification dated 24.12.2019 on threshold limit for TBCB
Haryana Electricity Regulatory Commission (HERC)	Order dated 26/04/2021	100 Cr. and above	Issued TBCB Order dated 26/04/2021 for Intra STS for projects costing above 100 Cr. and above
Punjab State Electricity Regulatory Commission	Notification dated 05/11/2018	50 Cr. and above	Notified implementation of TBCB for Intra STS for projects costing 50 Cr. and above vide Notification dated 05/11/2018

(PSERC)			
Rajasthan Electricity Regulatory Commission (RERC)	Notification dated 28/08/2018	100 Cr. and above	TBCB for Intra STS projects costing 100 Cr. and above vide Notification dated 28/08/2018
Uttar Pradesh Electricity Regulatory Commission (UPERC)	Order dated 18/01/2021	-	Adoption of Transmission Charges for Transmission System being implemented by Rampur Sambhal Transco Ltd. vide Order dated 18/01/2021

Further, MERC implemented TBCB for single Intra State Transmission project located at Vikroli vide its Order dated 21/03/2021. States/UTs such as Delhi, Himachal Pradesh and Uttarakhand have come up with discussion papers on TBCB.

8. CONCLUSION

The delay in execution of transmission projects leading to cost & time overrun has become a matter of concern. It has been observed that execution of some of the transmission projects including critical projects are delayed due to various reasons like RoW issue, financial problems of executors, change in law and/or force majeure on grounds such as requirement of statutory clearances like forest clearance and various litigations etc. leading to cost & time overrun and ultimate tariff burden to consumers. Various State Electricity Regulatory Commissions have also followed Tariff Based Competitive Bidding route for implementation of Intra-State Transmission System in line with the Tariff Policy 2016 and Guidelines issued by Ministry of Power, GoI from time to time. The experience gained by execution of ISTS projects through TBCB and feedback from various states suggests that TBCB route has been able to achieve fairly its objective.

Major activities for implementation of transmission project in Odisha through TBCB route will be as follows:

- a) listing of transmission projects, required for development of transmission system of Odisha based on load flow study carried out by OPTCL on long term basis & execution of such projects in phased manner;
- b) constitution of Empowered Committee/ any other committee by Government of Odisha for identification of projects to be executed through TBCB route considering the threshold limit (as decided by the Commission);
- c) Empowered Committee / any other Committee to form Bid Evaluation Committee (BEC) and to select a BPC.
- d) Bid Process Coordinator (BPC) who will further form a Special Purpose Vehicle (SPV) and will be responsible for Bid process in line with the Standard Bidding Document (SBD) issued by Government of Odisha with minor modification as per requirement of the state;
- e) LoI will be issued to the successful bidder / TSP for execution of the transmission project on BOOT mode; and
- f) TSP to approach OERC for grant of transmission licence and adoption of tariff discovered through competitive bidding process.

Based on the cost of executed / on-going projects of OPTCL, the cost estimated by OERC for some typical project(s), the present practice in some states and for participation of good number of bidders to achieve competitive price, it is proposed that the minimum Threshold Limit be kept as Rs.100 Cr for new transmission projects [transmission line (overhead/ underground cable/ combination of both) / sub-station (AIS/ GIS/ hybrid/combination) / combination of both] to be developed through TBCB process. Transmission projects that are of strategic / State/ National importance may be allowed to be executed under cost plus route as decided by GoO based on an application filed by Transmission Licensee (OPTCL). Further, it is also proposed for bunching of small Projects to encourage participation of good number of bidders and achieve benefits of economies of scale.

Comments/ suggestions are invited from Stakeholders primarily on:

- (a) Whether TBCB should be introduced for execution of Intra State Transmission System of Odisha as suggested by GoO;*
- (b) Segregation of projects to be executed by OPTCL through cost plus route and through TBCB route;*
- (c) Threshold limit of projects to be executed through TBCB route:*
 - Whether it is to be decided based on transmission voltage level (132 kV/220 kV/400 kV/765 kV or combination of voltage levels)*
 - Whether it is to be in terms of cost of transmission project(s) to be executed. If so, whether the benchmark cost of Rs 100 Cr as proposed in this document should be considered.*
- (d) Impact on technical capability of OPTCL to execute transmission projects, if all the projects are carried out through TBCB route in future;*
- (e) Any other comments/ suggestions.*

Enclosure available in the OERC website:

Latest TBCB Guidelines and Standard Bidding Documents (SBDs) of Ministry of Power, Government of India.

AIS				
220/132 kV S/s			132/33 kV S/s	
220 kV side Bays	Cost (Cr.)		132 kV side Bays	Cost (Cr.)
2 X Transformer Bay	9.20		2 X Transformer Bay	6.00
4 X Line Bay	18.40		7 X Line Bay	21.00
1 X Bus Coupler	4.60		1 X Bus Coupler	3.00
1 X Bus Transfer	4.60			
132 kV side Bays			33 kV side Bays	
2 X Transformer Bay	6.00		2 X Transformer Bay	3.72
7 X Line Bay	21.00		7 X Line Bay	13.02
1 X Bus Coupler	3.00		1 X Bus Coupler	1.86
Transformer			Transformer	
2 X 200 MVA	24.00		2 X 80 MVA	10.00
Total	90.80		Total	58.60

GIS				
220/132 kV S/s			132/33 kV S/s	
220 kV side Bays	Cost (Cr.)		132 kV side Bays	Cost (Cr.)
2 X Transformer Bay	10.30		2 X Transformer Bay	8.90
4 X Line Bay	20.60		7 X Line Bay	31.15
1 X Bus Coupler	5.15		1 X Bus Coupler	4.45
1 X Bus Transfer	5.15			
132 kV side Bays			33 kV side Bays	
2 X Transformer Bay	8.90		2 X Transformer Bay	6.00
7 X Line Bay	31.15		7 X Line Bay	21.00
1 X Bus Coupler	4.45		1 X Bus Coupler	3.00
Transformer			Transformer	
2 X 200 MVA	24.00		2 X 80 MVA	10.00
Total	109.70		Total	84.50

Transmission Lines	Cost (Cr.)
150 Km 220 kV D/C	123.00
100 Km 220 kV D/C	82.00
100 Km 132kV D/C	55.00
70 Km 132 kV D/C	38.50
50 Km 132 kV D/C	27.50