Consultation Paper

on

Development of

Intra-State Transmission System

through

Tariff Based Competitive Bidding

CONTENTS

1. INTRODUCTION

The Transmission System in Delhi comprises of a network of 400kV Transmission lines and 220kV Transmission Lines. Electricity demand in the State of Delhi is increasing due to growth & urbanization. The Transmission System needs to be reliable, cater present and futuristic load requirements. Accordingly, a robust network of Transmission lines and Substations is to be established to cater to the load requirements. There is also need to maintain the Power Quality, Network Reliability and integrate Power system at the Regional level.

For development of Transmission system in a cost efficient manner, there is need to adopt best practices and ensure competition amongst the participants. The competition will bring new technology/ innovation, achieve reduction in Tariff and aims to complete projects in timely manner. Accordingly, an Approach Paper for Development of Intra-State Transmission System (STS) through Tariff Based Competitive Bidding (TBCB) process is introduced for seeking stakeholders' suggestions/ comments.

2. BACKGROUND OF DELHI STATE TRANSMISSION SYSTEM

The Transmission System of Delhi (220 kV and 400kV) is managed and operated by State Transmission Utility i.e. Delhi Transco Ltd. (DTL), which is having 249.12 circuit km (CKM) of 400 kV and 859.65 CKM of 220 kV transmission lines with transformation capacity of 5095 MVA at 400kV and 14380 MVA at 220kV level as on March, 2021 (source: Data submitted by DTL).

4 nos. 400kV substations and 41 nos. 220 kV sub-stations in Delhi, supplying power to the Distribution Utilities (viz. NDMC, BRPL, BYPL and TPDDL), which caters to the load demand of the various areas of the Delhi.

Delhi is having a 400 kV D/C ring i.e. 400 kV Mandula – Dadri- Maharani Bagh – Samaypur –Tuglakhabad- Bamnauli –Jhatikara More- Mundka – Bawana –Mandula line, 400kV Dadri-Harsh Vihar D/C Line and underlying 220 kV network for supplying Power to Delhi.

3. REGULATORY PROVISIONS

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 Guideline 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. *Guideline 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) MoP, GoI in its Guidelines dated 15/03/2021 recommended adoption of TBCB for Intra State Transmission projects in the larger interest of consumers. This reduces the burden on Government finances and scarce Government fund can be spared for other priority sectors. Also, it encourages 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) MoP, GoI in its Guidelines dated 10/08/2021 by which it has encouraged competition in Development of Intra STS Projects by introducing Tariff based through e-reverse bidding 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, there are adequate regulatory provisions that enables the State Commission to initiate process of introducing Tariff based Competitive Bidding in Intra State Transmission Projects with a threshold limit to be decided.

4. CURRENT PRACTICE

The Transmission System projects are approved on cost plus basis under Regulated Tariff Mechanism (RTM) as per provisions of DERC Tariff Regulations, 2017. Accordingly, the capital asset capitalization plan (tentative) till FY 2023 and vision for of future years are as follows:

Table-1: Summary of Capital investment plan for Delhi **(Rs. Cr.)**

Sr. No.	Details of Scheme	2021-22	2022-23	2023-27	2027-30
1	New Works	533	2028	14th Business Plan for next	Long term study under
2	Automation Works	0	41		

Sr. No.	Details of Scheme	2021-22	2022-23	2023-27	2027-30
3	Augmentation Works	132	85	Five year is under preparation.	discussion at CEA level
4	Land cost incldg. Civil	25	27		
5	**Total**	**691**	**2181**		

Source- Capital Investment Plan of DTL

5. NEED FOR TBCB IN INTRA-STATE TRANSMISSION SYSTEM OF DELHI

a) MoP, GoI in its Guidelines dated 15/03/2021 observed that the discovered Tariff for Transmission project can be lower than cost-plus Tariff by about 30-40% with the participation of larger number of bidders.

b) State Transmission Utility (STU) i.e. DTL is managing entire Transmission system in NCT of Delhi including execution of new projects on cost plus basis. As per their 13th Plan report, the Transmission system availability is more than 99% and transmission loss is 0.92%. The Transmission system availability factor and Transmission losses for various states is mentioned as follows:

Table-2: Transmission system availability factor and Transmission losses for various State Utilities for FY 2019-20

DISCOM	Availability (%)	Transmission Losses (%)
DTL	98.95	0.90
HVPNL	99.85	2.06
PSTCL	99.97	2.69
UPTCL	99.47	3.43
BSPTCL	99.51	3.66

Further, the Transmission Tariff for Utility in other states are as follows:

Table-3: Transmission Tariff for various State Utilities

FY 2020-21

Transmission Company	ARR	Energy Despatched	Transmission Tariff
	Rs. Crore	MU	Rs./ kWh
DTL	956	29,130	0.33
MSETCL	6,790	1,65,557	0.41
GETCO	4,115	98,474	0.42
BSPTCL	1,015	30,386	0.33
HVPNL	1,434	53,973	0.27

Delhi geography is not comparable to various States as analyzed like Haryana, Punjab, Uttar Pradesh and Bihar, however, the availability of Transmission system, Transmission tariff can be much more improved. The past ten years trend of Transmission Losses and availability of Delhi Transco Limited is as follows:

Table-4: Transmission Losses for DTL in last 10 years

Year	Transmission Availability (%)	Transmission Losses (%)
2010-11	98.58	1.28
2011-12	98.38	1.21
2012-13	97.17	1.17
2013-14	97.43	0.95
2014-15	98.57	0.70
2015-16	99.03	0.85
2016-17	98.01	0.98
2017-18	99.35	0.84
2018-19	99.10	0.92
2019-20	98.95	0.90
2020-21	99.30	0.88

Source: SLDC website

c) Risk Analysis for TBCB in Intra-State Transmission System

In the RTM route, the State Transmission Utility has the provision of passing cost escalation owning to construction delay, any other operational factor as way of increased Tariff in ARR. In TBCB route based projects, risk such as scheduled delay, over run of cost etc. is to the account of developer except Force Majeure events.

Hence, the major risks on a Transmission Project are borne by Utility under RTM route where as such risks are borne by the developer under TBCB route.

Table-5: Risk Matrix for projects under RTM & TBCB route

Project Parameters	RTM	TBCB
Willingness to introduce new technology	Low Risk Sharing: 100% - Utility	High Risk Sharing: 100% Developer
Innovation in design	Medium Risk Sharing: Both Utility & Developer	High Risk Sharing: 100% Developer
Construction cost risk with Govt.	High Risk Sharing: 100% Utility	Low Risk Sharing: 100% Developer

Project Parameters	RTM	TBCB
Construction schedule risk with Govt.	High Risk Sharing: 100% Utility	Low Risk Sharing: 100% Developer
Lifecycle cost risk with Govt.	High Risk Sharing: 100% Utility	Low Risk Sharing: 100% Developer
Operating performance risk	High Risk Sharing: 100% Utility	Low Risk Sharing: 100% Developer
Financing risk with Govt.	High Risk Sharing: 100% Utility	Low Risk Sharing: 100% Developer
Summary Assessment	Weak Model for large and mid-sized capital intensive projects	Strong model for large and mid-sized projects

Source: UERC Consultation Paper on TBCB

d) Major Transmission projects executed in last 3 years

The summary of Major Transmission projects executed in last 3 years in Delhi, are as follows:

Table-6: Major Transmission projects executed in last 3 years in Delhi

Sr. No.	Name of Scheme	Commissioning date of scheme	Approved cost (Rs. Crore)
1	Establishment of 220/66/11kV GIS S/stn at Tughlakhabad	11/10/2018	139
2	Establishment of 220/66/33/11kV GIS S/stn at R.K Puram	18/05/2018	132
3	220 kV D/C, 1x1200 Sq.mm. U/G XLPE Cable laying from Dwarka to GIS Budella Substation	31/03/2020	110
4	SETC of 220/66 kV GIS S/Stn at SGTN	31/03/2020	75
5	SETC 220kV GIS substation at Dwarka, Sec.-5	31/03/2020	82
6	220 kV D/C, 1x1000 Sq.mm. U/G XLPE Cable for LILO 0f 220kV D/C cable from ridge Valley to AIIM s/stn at 220kV RK Puram	31/03/2021	58
7	HTLS Re-conductoring of 220KV D/C Wazirabad-Mandola, Ckt-I,II,II & IV ACSR Zebra Conductor Transmission line	21/11/2020	45

Source- As per data Submitted by DTL

Considering the nature of work and its approved cost in the last three years, the average and maximum project cost for the above schemes are 92 crore and 132 crore respectively.

e) Demand Forecast of Delhi as per 19th EPS Report

The demand projected for Delhi as per 19th EPS Report for the year 2021-22 is as below:

Table-7: Peak Electricity Demand of Delhi (MW)

Particular	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
Peak Electricity Demand –MW	7471	7712	7954	8217	8482	8751

Source-19th Electric Power Survey of India

f) Asset capitalization projects for Delhi till FY 2023

The project execution pace severely suffered in the last 2 years due to the ongoing pandemic. There is V-shaped recovery in the electricity demand and Peak Demand touched ~7323 MW on 2nd July 2021 at 3:16 PM. In order to meet the future electricity load requirements, the spending on Transmission Projects to the tune of ~Rs. 2154 Cr. as approved in Business Plan Regulations, 2019 are as follows:

Table-8: Breakup of Major Projects envisaged in Delhi for FY 2021-22, FY 2022-23

Sr. No.	Name of proposed scheme	Project Cost (Rs. Cr.)
1	220 kV S/C LILO of Electric Lane to Park Street at Dev Nagar	76
2	220 kV D/C underground cable laying from Dwarka to PPK-II	83
3	220 kV D/C U/G Cable laying from Kashmere Gate-Timarpur	67
4	220 kV D/C U/G Cable laying from Tughlkabad-Masjid moth	101
5	Single circuit underground cable (Lodhi Road-Park street-Electric Lane-Lodhi Road)	120
6	400/220/33 kV GIS at Gopalpur	369
7	400/220/66 kV GIS at Jhatikalan	250
8	LILO of Bawana to Maharanibagh 400 kV D/C on M/C Tower at Gopalpur	80

Sr. No.	Name of proposed scheme	Project Cost (Rs. Cr.)
9	220/66 kV GIS at Tikri Khurd	100
10	220/66kV & 220/33 kV GIS at Maharanibagh	155
11	220/33kV GIS at Nehru Place	100
12	220kV GIS at Subzi Mandi (Converision of existing AIS to GIS).	70
13	220/33kV GIS at Sarojini Nagar	115
14	220/66/33 kV AIS to GIS conversion GIS at Patparganj	150
15	220kV D/C underground cable from Zakhira to Dev Nagar	90
16	220kV D/C underground cable from PPK-III to Bhartal	80
17	220kV D/C underground cable from Dev Nagar to Subzi Mandi	75
18	220kV D/C underground cable from Tuglakabad to R.K Puram	210
19	220kV D/C underground cable from Ridge Valley to Sarojini Nagar	90

Source- As per data submitted by DTL

The average and maximum project cost as per asset capitalization plan during FY 2022 & FY 2021 is 125 Crore and 369 Crore.

g) Determination of Threshold Limit

The development of Intra State Transmission system in Delhi involves development of GIS stations, Automation in Sub-stations, laying of underground 220 kV and 400 kV cables. It is proposed that bulk ordering and bunching of Projects similar in nature should be exercised to encourage participation from maximum bidders and achieve benefits of economies of scale.

The Guideline 5.3 of Tariff Policy, 2016 empowers the State Commission to determine the threshold limit for Intra-State projects to be implemented under TBCB route. It is also pertinent to mention that Project costing below a certain threshold may not encourage participation from maximum participants and may not yield benefits of cost saving through TBCB route.

6. BEST PRACTICES FOLLOWED IN OTHER STATES

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

Table-9: TBCB mechanism adopted by Other States

State Commission	Date of Order/ Notification	Threshold limit	Remarks
AERC	Notification dated 14/01/2019	225 Cr. and above for transmission line and 160 Cr. for Sub-stations	Notified TBCB implementation for Intra STS for projects costing 225 Cr. and above for transmission line and 160 Cr. for Sub-stations vide AERC Notification dated 14/01/2019
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
PSERC	Notification dated 05/11/2018	50 Cr. and above	Notified TBCB implementation for Intra STS for projects costing 50 Cr. and above vide PSERC Notification dated 05/11/2018
RERC	Notification dated 28/08/2018	100 Cr. and above	TBCB for Intra STS projects costing 100 Cr. and above Vide RERC Notification dated 28/08/2018
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.

7. CONCLUSION

In the recent times, it has been observed that various projects are being delayed by Delhi STU which includes certain critical projects. Various State Electricity Regulatory Commissions have implemented Tariff Based Competitive Bidding for their Intra-State Transmission System in line with the Tariff Policy 2016 and various Guidelines issued by Ministry of Power, GoI.

Comments and suggestions are invited from Stakeholders for introduction of TBCB in Intra State Transmission System of Delhi.

Major flow of activities for said implementation will be identification of projects under TBCB by a Committee and considering the threshold limit (as decided by the Commission), selection of Bid Process Coordinator which will further form a Special Purpose Vehicle (SPV) and will be responsible for floating tender based on the Standing Bidding Document (SBD) issued under Section 63 of the Act.

The selection of bidder for identified projects would be through Tariff Based Competitive Bidding through e-reverse bidding for Transmission Services based on Guidelines issued by Ministry of Power, GoI under Section 63 of the Act, 2003. The projects shall be awarded on Build, Own, Operate and Transfer (BOOT) mode. The projects assets along with sub-station land with rights, Right of Way and clearances shall be transferred to an agency as decided by GoNCTD after expiry of the contract period of the project (35 years) at zero cost. The STU, 3 years prior to the expiry of the project will examine the need of upgradation of system for Renovation and Modernization of the existing system at that time. The project may then be awarded to successor bidder selected through the Competitive Bidding process for Renovation and Modernization. The SPV after being acquired by selected developer shall approach the Commission from the date of acquisition of entire equity of said SPV for grant of Transmission License and adoption of Transmission Charges.

Enclosures:

1. Ministry of Power, GoI Guideline dated 10/08/2021
2. AERC Notification dated 14/01/2019
3. HERC Order dated 26/04/2021
4. PSERC Notification dated 5/11/2018
5. RERC Notification dated 28/08/2018
6. UPERC Order dated 18/01/2021